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Negative Body Image Evaluations in Young Adolescent Boys and Girls: Assessing an Integrative Aetiological Model

A thesis submitted to the University of Dublin

for the Degree of Doctor of Philosophy

Trinity College Dublin, January 2014

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Summary

The present study provides a unique and timely contribution to Irish and international research focusing on one of the key concerns recently highlighted by young people in this country, that of body image. Recent prevalence rates in Ireland and other Western nations have highlighted the abundance of young people experiencing body image concerns, and research is continually indicating the negative implications of these concerns for adolescent mental health and associated behavioural outcomes. Consequently, the present research was conducted to provide a greater understanding of the range and patterns of social and individual level factors that influence negative body image evaluations in early adolescence.

The pervasive sociocultural messages regarding highly unattainable appearance ideals, in combination with normative physiological, social, and cognitive changes experienced in early adolescence, places this population under increased pressure in relation to bodily issues. Negative evaluative body image is consistently higher in girls than boys. However, its occurrence in boys is increasing and many prevalence figures may have underestimated boys' body dissatisfaction due to the use of measurements exclusively focusing on weight. Moreover, although aetiological models of negative body image from the sociocultural perspective have been useful, they are limited in that they have predominantly been applied to female samples, utilise measures that independently assess a triad of sociocultural influences (i.e., parents, peers, the media), and fail to consider important individual-level factors. The aim of the present research was to further examine the aetiology of negative evaluative body image in young male and female adolescents through testing two expanded versions of an integrative sociocultural model, incorporating an ecological reflection of sociocultural influences and additional individual-level factors based on their relevance in the theoretical and empirical research base.

The study was divided into two phases. Phase One was concerned with the development of a measure reflecting the current individual-environment interactions that shape body image evaluations in early adolescence. A mixed methods design was employed, where the first qualitative stage employed focus group methodology to explore young adolescents' perceptions of the influential processes occurring within the appearance culture, and the second stage developed a quantitative measure reflecting these perceptions and processes informed by the focus group findings. A 16-item scale was developed to capture the contemporary adolescent experience, measuring the level of agreement with items reflecting perceptions and processes that stem, either directly or indirectly, from the appearance culture. Good preliminary psychometric properties were found. The measure was then used to represent sociocultural influences in the aetiological models.

Phase Two tested the integrative aetiological models using data from a large-scale cross-sectional study, in order to select the model that most adequately explained the patterns of influencing factors for the sample data. The chosen model was subjected to empirically- and statistically-justified respecification, and the direct and indirect associative pathways leading to negative body image evaluations and problematic psychological functioning were examined. The key findings from exploring the pathways in the final model across gender subsamples can be summarised as follows:

- Body mass index impacted on negative body image evaluations, with greater body mass associated with greater dissatisfaction for both boys and girls.
- Later pubertal development correlated with negative body image evaluations for boys.
- The endorsement of influences from the appearance culture was positively associated with cognitive processing in the form of appearance comparisons, internalisation and appearance schemas across gender.
- Gender differences emerged in the associations between appearance-related cognitive processing and negative body image evaluations, with significant pathways found from appearance comparisons with girls and from appearance schemas with boys.
- The gender differences in cognitive processing were also evident when indirect effects of sociocultural influences on the outcome variables were explored.
- A direct pathway emerged between sociocultural influences and problematic psychological functioning across gender but the effect was stronger for the girls.
- The pathway from negative body image evaluations and problematic psychological functioning was significant across gender.
- The variance explained was moderate for the girls and lower for the boys, emphasising the complex nature of body image issues across gender. However, measurement issues that arose with the boys may have been responsible.

In summary, incorporating additional individual-level variables and an ecological reflection of sociocultural influences into a promising integrative sociocultural model provided further insight into the aetiology of negative evaluative body image in young adolescent boys and girls. An understanding of the interaction of sociocultural influences and personal characteristics was gained from an innovative composite theoretical perspective, and individual differences in vulnerability were highlighted at a critical developmental period. Thus, outcomes can set the stage for future longitudinal work and contribute to the development of effective prevention and intervention initiatives aimed at promoting adolescent health and wellbeing to improve the provision of services to young people. This can facilitate bridging the gap between research and practice in these areas for adolescents.

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Chapter 1.
Introduction and Overview of Thesis

1.1 Introduction

The focus of this study is the development of negative evaluative body image in early adolescence. Negative evaluative body image, or body dissatisfaction, is a growing health problem with the large number of young people affected and the range of potential negative outcomes, including unhealthy eating behaviour and impaired psychological functioning. Despite the heightened awareness of body image concerns in early adolescence, there is little information available regarding the risk processes leading to a negative body image in Ireland, with the majority of research on body image issues conducted in the United States, Australia and the United Kingdom. Recently, more information on prevalence rates in Irish adolescents has been gained, however rates can vary depending on how body image concerns are conceptualised. Additionally, aetiological models for the development of negative body image have largely demonstrated low to moderate explanatory power, particularly with male samples, likely attributable to the majority of applications with females focusing on the thin ideal body and the use of short or one-dimensional measures. The present research aims to address these shortcomings by testing two expanded integrative aetiological models of negative body image evaluations in young Irish adolescents, and from the chosen model, to determine the contribution of an inclusive set of influencing factors across gender subsamples. The research is cross-sectional in nature consisting of two phases – Phase One of the study employs a mixed methods design to develop a quantitative measure providing an ecological reflection of the sociocultural influences associated with negative body image; Phase Two of the study incorporates this measure into testing two empirically- and theoretically-grounded aetiological models, in order to determine which most adequately explains patterns of influencing factors, with comparisons across gender.

1.1.1 Background to the Study

Body image is a complex and multifaceted conceptualisation, delineated as an expression of embodiment that is largely associated with self-perceptions, attitudes, and behaviours related to the physical self (Cash, 2004). It is subjective in nature in that it is an individual's interpretation of the outer appearance of their body and is inherently related to physical and psychological wellbeing (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). A negative body image reflects disparaging and unfavourable interpretations of this expression of embodiment. Research on negative body image has largely focused on the evaluative component of the construct, pertaining to negative self-appraisals and dissatisfaction with bodily characteristics

(Jakatdar, Cash, & Engle, 2006).

Negative evaluative body image is an important health issue and its occurrence is spreading internationally. A large-scale cross-cultural survey across 26 countries representing 10 major world regions and various levels of socioeconomic development indicated that the thin ideal body and body dissatisfaction have become widely international in nature, with the greatest differences noted between socio-economic status (SES) levels regardless of varying cultural spheres (Swami et al., 2010). The high levels of body dissatisfaction and weight concerns in Western societies are particularly prevalent during adolescence (Neumark-Sztainer, Paxton, Hanna, Haines, & Story, 2006). These concerns can materialise in childhood but predominantly develop in early adolescence,[1] increasing with age (Calzo, Sonneville, Haines, Blood, Field, & Austin, 2012). Prevalence rates suggest the existence of body image concerns across gender, body mass index (BMI), SES, and ethnicity in youth (Bucchianeri, Arikian, Hannan, Eisenberg, & Neumark-Sztainer, 2013). This heightened awareness has resulted in an increased focus on research addressing body image issues in adolescence (Smolak & Thompson, 2009).

Body dissatisfaction in adolescent girls can be considered normative (Grabe, Ward, & Hyde, 2008) and it has been postulated that a substantial percentage (approximately 20%) experience negative body image and disordered eating at a level that significantly impairs their quality of life (Levine & Smolak, 2006; Levine & Murnen, 2009). In response to the recognition of the importance of body image for the wellbeing of adolescents, a recent national study indicated that more than twice as many girls than boys expressed dissatisfaction with their body image (O'Connell & Martin, 2012). Moreover, based on the Health Behaviour in School-Aged Children (HBSC) study, a large-scale international research project conducted by a network of research teams in collaboration with the World Health Organization (WHO), the prevalence of perceiving oneself as *too fat* in early adolescence was 22% for males and 33% for females in Ireland. This figure remained the same for boys and increased to 46% for girls at age 15 years

[1]Within the context of this thesis, the author refers to the developmental stage of *early adolescence*. Adolescence is a period generally conceptualised as a transitional phase from childhood to adulthood that is characterised by developmental changes in physiological, social, and psychological realms (Coleman & Hendry, 1999; World Health Organization, 1986). In health behaviour research, the diverse experiences that occur throughout adolescence have led to the distinction between early adolescence and late adolescence. The onset of early adolescence is generally marked by physical changes associated with puberty (Tanner, 1989), social changes reflected by greater autonomy from parents and intimate relationships with peers (Spruijt-Metz, 1999), and cognitive and emotional adaptations to accommodate this multifaceted developmental phase (Moksnes, Espnes, & Lillefjell, 2012).

(Currie et al., 2012). In all countries and regions, prevalence rates were significantly higher for girls at age 15 and this difference increased with age. Gender and age patterns were similar across regions in Europe and the US, further supporting the international nature of body image concerns.

The increasing prevalence of negative body image evaluations for girls over the adolescent period have been noted elsewhere (Jones, 2004; Westerberg-Jacobson, Edlund, & Ghaderi, 2010), and it is certainly imperative to address these issues with young females. However, much research, including the HBSC study, has addressed weight concerns and desires to be smaller, which do not capture the full extent of body dissatisfaction, particularly among boys (Papp, Urbán, Czeglédi, Babusa, & Túry, 2013). In fact, many of the widely used measures reflective of a negative body image centre on weight concerns and do not address desires for muscularity (Ricciardelli & McCabe, 2002). If the boys with muscularity concerns and the desire to gain bulk are combined with the boys who have weight concerns, the prevalence and level of body dissatisfaction is often considered comparable to girls (Ricciardelli & McCabe, 2007), and similar levels of body esteem have been evident across gender (Smolak & Thompson, 2009).

Multiple social and individual factors have been identified to play an influencing role in the development and maintenance of negative body image in adolescence. Sociocultural perspectives have provided the dominant theoretical framework, where influences from the sociocultural environment are proposed to form internalised expectations from which body image evaluations are based. Cultural norms regarding the body are omnipresent within many Western cultures and widely dispersed in the distal environment through the media. Indeed, the increased commonality of body dissatisfaction has been partly attributed to Western media's depiction of appearance ideals (Swami et al., 2010). Proximally, these values and expectancies can be reinforced through immediate socialisation agents such as family members and peers, creating an *appearance culture* where individual-context interactions reciprocally influence each other (Jones, 2011). Although similar processes are expected for males and females, the experience of the appearance culture is likely to be highly gendered.

To account for the varying levels of vulnerability to influences from the sociocultural environment, integrative models have been increasingly postulated, where individual-level variables have been incorporated to provide greater explanatory power for the development of negative body image evaluations. Thompson, Heinberg, and colleagues (1999) proposed two hypothetical tripartite influence models for the development of *body image disturbance*, where internalisation of societal ideals, appearance-related comparisons, and psychological functioning variables were incorporated, and the competing models represent variations of the

patterns of influence. Body image disturbance is also used to describe a maladaptive response to body image, encompassing perceptual, cognitive, affective, and behavioural components (Smolak & Thompson, 2009). Using the notion of a continuum, body image disturbance can be conceptualised as ranging from mild concerns to severe disturbance, significantly impairing social and occupational functioning. Interesting findings have emerged when these models or adaptations of them have been tested with young adolescents (e.g., Keery, van den Berg, & Thompson, 2004; Papp et al., 2013), and they appear applicable across gender. Nonetheless, the models have been predominantly tested with female samples using weight-related representations of bodily concerns, partial applications are common, and the variance explained has been low to moderate at best.

An empirically and theoretically grounded adaptation of a promising sociocultural model appropriate for the target population, such as the tripartite influence model, can provide much-needed information on the pattern of influencing factors across gender. Many applications of models from the sociocultural perspective have been employed with female samples focusing on the thin body ideal, limiting their relevance across gender (Hargreaves & Tiggemann, 2006). Further applications of sociocultural models that are applicable across gender are required. Additionally, the inclusion of a comprehensive range of factors highlighted in important theoretical frameworks and the literature base can increase our understanding of the multiple interacting influences that may impact on body image. For example, cognitive-behavioural perspectives highlight the need to consider biased cognitive processing in the form of appearance schemas to determine the differential role of cognitive mechanisms that increase vulnerability to negative body image evaluations. Additionally, the inclusion of further individual characteristics, such as BMI, has been recommended to account for underlying vulnerabilities and normative life stressors (e.g., Keery et al., 2004).

As both boys and girls are immersed in a similar sociocultural environment, more information is needed on how these influences are differentially experienced, and how social and appearance-related pressures interact with individual factors across gender. These contextual elements have been missing from many existing assessments of sociocultural factors, which frequently contain a narrow range of indicators and assess sources of influences separately, failing to capture the often-interactive nature of real-world processes. Additionally, with the rapid advancement of the digital revolution, assessments need to address newer sources of influence from the sociocultural environment, such as the Internet. The exploration of young people's views regarding the adolescent body image experience in present-day Ireland is also lacking, and without this, the success of prevention efforts is unlikely. Such research informed by young people is important in order to gather data reflecting the pressures experienced by the modern-

day Irish adolescent. Thus, it may be useful to integrate ideas from sociocultural and ecological perspectives in the investigation of the interrelationships between individuals, interpersonal activities and social structures to produce a contextual conceptualisation of the appearance culture and the influential processes that operate within it. This can provide a representative account of current sociocultural influences and perhaps a greater understanding of the mechanisms that produce variations in body image outcomes.

The high prevalence of body image issues in youth and the possibility of underestimation among boys points to the need to develop interventions that focus on the whole spectrum of body image issues and associated weight-related concerns. Body image issues often fail to reach government agendas for health matters, possibly due to the seriousness of the problem being overlooked. The distressing consequences, including poor psychological functioning, risky health behaviours, and impaired social functioning (e.g., Espinoza, Penelo, & Raich, 2010; Stice & Bearman, 2001; Tantleff-Dunn & Lindner, 2011), may not have been recognised as stemming from negative body image. However, based on the plethora of research highlighting the significance of the issue, the provision of appropriate universal prevention initiatives at various developmental stages within school curricula is imperative (Paxton, 2011).

The need for the Department of Education and Skills to develop consistent, nationally rolled-out school policies to promote adolescent health and wellbeing has previously been highlighted by the National Taskforce on Obesity (Department of Health and Children, 2005). This process has already begun, as in line with the WHO's Health Promoting School Framework (HPS), the Junior Cycle *Social, Personal, and Health Education* (SPHE) syllabus was implemented in 2000 (Nic Gabhainn, O'Higgins, & Barry, 2010). The syllabus aims to promote self-esteem, shared learning, active participation and discussion of relevant physical, mental, and emotional health issues (SPHE Support Service, 2009). The importance of regular evaluations and consultations with stakeholders to meet the changing needs of students is recognised, so that the 'voice' of young people is included in the ethos of SPHE. In an evaluation of the effectiveness of the SPHE curriculum, the majority of stakeholders perceived the syllabus favourably, and students had a particular interest in the subject (Nic Gabhainn et al., 2010). Although the formal SPHE curriculum touches on body image issues and gender stereotypes, many educators have claimed that they feel ill equipped to delve too far into serious discussion on the topic (McSharry, 2009). Additionally, in the recent Dail na nOg survey, young people strongly suggested the need to incorporate body image issues into the mainstream curriculum for all years in post-primary school and suggested a whole-school awareness initiative (O'Connell & Martin, 2012).

There has been relatively little comprehensive research on body image issues in Ireland, associated risk factors, and the views and experiences of young adolescents regarding the current appearance culture (McNicholas, Lydon, Lennon, & Dooley, 2009). Research on health issues highlighted by Irish youths is needed to improve the quality and effectiveness of services such as SPHE, and to complement the continual development of programmes to meet the changing needs of the modern-day adolescent (Kilkelly, 2007). Research focusing on the aetiological process of negative body image in early adolescence has the potential to benefit much-needed primary prevention strategies addressing negative body image evaluations and a range of adverse health outcomes.

Early adolescence is a challenging developmental stage where a new sense of self is formed in the face of a number of changes in both intrapersonal and interpersonal realms (Spruijt-Metz, 1999; Striegel-Moore, Silberstein, & Rodin, 1986). Given the central role of appearance and body image in this process (Jones, 2001), further knowledge of the differential role of influencing factors can contribute to understanding the dynamics associated with negative body image experiences. By focusing on the narrow developmental stage of early adolescence, risk factors can be detected and differentiated with greater specificity. The review of the literature will emphasise the importance of prevention and intervention before middle adolescence, where body image concerns become a more stable aspect of the self (Bucchianeri et al., 2013; Paxton, Eisenberg, & Neumark-Sztainer, 2006), adding weight to the argument that efforts are needed in early adolescence to target body image concerns while they are still modifiable. Indeed, early adolescence is a critical time to promote the adoption of healthy attitudes and behaviours that can be sustained throughout life.

1.1.2 The Present Study

The aim of the current study was to integrate theoretical ideas and findings from the existing body image literature to further explore the patterns of influence, in particular the contribution of risk factors and direct and indirect pathways associated with the development of unhealthy attitudinal body image in adolescents, as well as the moderating role of gender. This was accomplished through testing two competing integrative sociocultural models and selecting the most parsimonious fit. The models were based on Keery and colleagues' (2004) adolescent adaptation of Thompson, Heinberg, and colleagues' (1999) tripartite influence models with the addition of physical characteristic and cognitive processing factors that have been highlighted in the literature and from cognitive-behavioural perspectives. Moreover, the present research partially employed Bronfenbrenner's bioecological model (1995, 2005) to provide an ecological perspective of the multiple and interactive processes between individuals and sociocultural influences that are associated with body image evaluations, such as the transmission of media

messages through significant others in the proximal environment. The influential processes and perceptions of them were then incorporated into a quantitative scale to reflect sociocultural influences in the testing of the aetiological models. The intention was to address the shortcomings of previous integrative sociocultural models by providing comparisons across gender and attempting to increase the variance explained through the use of an inclusive set of constructs, an ecological reflection of modern-day sociocultural influences, and broad measures assessing bodily concerns.

In order to meet the formulated objectives, the study was divided into two phases. Phase One of the research aimed to qualitatively explore young adolescents' perceptions and experiences of the appearance culture and to use the findings to inform the development of a quantitative measure reflecting the endorsement of influential processes stemming from the current sociocultural environment. An *Exploratory Sequential Mixed Methods* design was adopted, where the information from the first qualitative stage was used to inform the second quantitative stage from which a survey instrument was developed (Creswell & Plano-Clark, 2007). The qualitative stage consisted of a focus group study with young adolescents, intended to explore experiences of the appearance culture across gender, and identify the processes from the external environment that influence attitudinal body image. In devising the measure of the appearance culture, variables that were presumed to be associated with each other as well as the outcome variable were chosen, based on the focus group findings and the empirical research base. The objective of the devised measure was to provide a quantitative representation of the influential processes commonly encountered by young adolescents within the appearance culture. The development of the measure consisted of a series of clearly identified rigourous steps, including successive administrations with the target population for conceptual and statistical refinement, and tests to provide an initial account of psychometric properties. Subsequently, the Appearance Culture Scale for Young Adolescents (ACS-YA) was created.

Phase Two of the research aimed to test extensions of Keery and colleagues' (2004) adolescent version of Thompson, Heinberg, and colleagues' (1999) two competing tripartite influence models, explore the patterns of influence in the best fitting model, and compare the fit indices and multivariate pathways across gender. A quantitative survey package including the ACS-YA and a number of other well-validated measures was administered to a large sample of Irish adolescents. The intentions were to provide descriptive information about adolescent body image, and to attain a parsimonious final model appropriate for male and female adolescents. For the sociocultural influence constructs, the aim was to provide a representation of the influential processes that adolescents currently experience in the face of the constantly changing appearance culture, both proximally (e.g., new social roles) and distally (e.g., the proliferation

of digital media), and to incorporate them into the models. The physical characteristic variables of BMI and pubertal status were included to further determine potential susceptibility to body image problems, while the additional cognitive mechanism of appearance schemas was intended to clarify the differential role of appearance-related cognitive processing. To meet these objectives, structural equation modelling (SEM) was employed as it can account for measurement error whilst permitting multiple indicator analysis and the testing of direct and indirect hypotheses within a single model (Kline, 2010). The chosen model was then estimated separately for males and females, and through a multi-group analysis to determine model comparability across gender.

1.2 Outline of Thesis

Chapter 2 provides an overview of theoretical frameworks and conceptual models relevant to aetiological research on body image in adolescence, in particular sociocultural, cognitive-behavioural and ecological perspectives, setting the stage for the integrated theoretical framework adopted in the present study. Chapter 3 provides a literature review of the influencing factors associated with negative body image in adolescence. First, a description of the body image issues that commonly emerge during early adolescence, the role of gender, and the associated health risks sets the context. A review of factors within the appearance culture, individual characteristics, and appearance-related cognitive processing that influence body image evaluations follows, before an evaluation of the body image construct, an overview of the study, and a description of the overall objective and research questions is provided.

Chapters 4 and 5 constitute Phase One of the study involving the mixed methods approach to develop the quantitative measure of the appearance culture in early adolescence. Chapter 4 describes the first stage of Phase One, a focus group study investigating the perceptions of sociocultural factors and common processes occurring in the appearance culture for the target population. It concludes with an interpretation of the findings and their value in informing the quantitative stage of Phase One. Chapter 5 follows up on the qualitative investigation for the purpose of the second stage of Phase One, the development of a quantitative measure that provides an ecological reflection of influences from the sociocultural environment, the ACS-YA. The chapter describes the survey development procedure, including the piloting stages permitting evaluation of the response process and exploratory factor analysis for refinement; and the administration of the measure in the main study where confirmatory factor analysis is performed to verify the structure of the ACS-YA and provide initial indications of its psychometric properties. The method of the main study is fully described, including sample

characteristics and recruitment, the description of the survey package for Phase Two of the study, and the data collection procedure.

Chapter 6 presents the findings from Phase Two of the study. It begins with an overview of SEM, the statistical approach used to test the two competing integrative models, and continues to describe the preparation of the data and the procedures involved in the model testing. Findings are produced for the overall sample and across gender, to fulfil the aim of determining the relative contribution of the sociocultural and individual factors in explaining negative body image evaluations and the direct and indirect pathways involved. Chapter 7 concludes the thesis by discussing the findings of both phases of the study and how the research fulfills the predetermined objectives. Following this, the theoretical and methodological issues are considered, the implications of the findings for prevention and intervention initiatives are outlined, and avenues for future research highlighted.

Chapter 2.
An Integrated Theoretical Framework for the Aetiology of Body Image Issues in Early Adolescence

2.1 Aim of the Chapter

This chapter aims to provide an overview of the perspectives from which the integrated theoretical framework adopted in this study was formed. Two of the main theoretical approaches that have informed research in the area of body image will be described, the sociocultural perspective and the cognitive-behavioural perspective. Following this, the ecological perspective and its suitability for adoption in Phase One of the study will be discussed. Finally an overview of these perspectives will be presented.

2.2 Uses of a Theoretical Framework

A theoretical framework is fundamental when researching a health phenomenon as broad as body image concerns. A theoretical basis can set the stage for the identification of important constructs, the discovery of additional constructs, the nature of association between constructs, and the impact of these constructs on the outcome variable (Tudge, Mokrova, Hatfield, & Karnik, 2009). The legitimacy of a theory for the target population and social context can be tested, providing supporting or non-supporting evidence for already formulated hypotheses (Tudge et al., 2009). Alternatively, to enhance understanding, a theoretical framework can be used as a basis from which hypothetical formulations can evolve and progress (Bronfenbrenner, 2005).

Therefore, if existing theories are limited in their predictive power, small successive modifications and an integration of perspectives may be needed to account for more variance (Baranowski, Cullen, & Baranowski, 1999). More effective prevention and intervention efforts will emerge when there is a deeper understanding of how negative body image develops in early adolescence. Aetiological research underpinned by a strong theoretical framework is first needed to identify the most influential constructs and associations between them, and this insight can then be used to inform programmes targeting the promotion of positive changes to these variables (Baranowski, Cullen, Nicklas, Thompson, & Baranowski, 2003).

2.3 Review of Major Theoretical Models

2.3.1 Sociocultural Perspectives

Sociocultural models of body image propose that societal standards of the ideal body are transmitted through, and reinforced by, a number of socialisation agents, which become accepted and internalised. These internalised expectations form the basis from which one evaluates his or her body. Since the ideal portrayed in society is extremely difficult to attain, body dissatisfaction and associated unhealthy behavioural outcomes are likely to result (Tiggemann, 2006). From the sociocultural perspective, body dissatisfaction is conceptualised as "a function of the extent to which individuals do (or do not) meet the ideal prescription" (Tiggemann, 2011, p.13).

Despite one's body image ultimately pertaining to subjective evaluations, these evaluations are rooted in internalised beliefs and goals, which have been shaped by experiences with others and within the culture in which one lives (Jones, 2011). Societal ideals for men and women are, respectively, hyper-muscular and hyper-thin (Tiggemann, 2011), both of which are impossible for most men and women to attain by healthy means. Nonetheless, these ideals are characterised as easily achievable and the body as highly malleable, which is rarely the case. Additionally, the expectancy that the attainment of an ideal body will lead to happiness and success in many areas of life is also portrayed (Levine & Chapman, 2011; Thompson, Heinberg, et al., 1999), when in fact the opposite is more likely as the pursuit of such ideals often leads to body dissatisfaction and problematic psychological functioning.

Sociocultural pressures are predominantly transmitted through the triad of parental, peer, and media influences (Jones, 2011; Thompson, Heinberg, et al., 1999). The cumulative power of these influences combine to create an appearance culture that endorses and models the values and ideals of appearance, body shape and weight (Jones, Vigfusdottir, & Lee, 2004; Thompson, Heinberg, et al., 1999). The appearance culture not only plays a large role in the development of negative body image but also serves to maintain it through its pervasive presence and impact. The most pervasive and powerful transmitter of cultural ideals is undoubtedly the mass media, and its influence has been widely noted in adolescence for females (e.g., Jones et al., 2004; McCabe & Ricciardelli, 2005), and to a lesser extent for males (e.g., Bartlett, Vowels, & Saucier, 2008; Polce-Lynch, Myers, Kliewer, & Kilmartin, 2001). The transmission of influence from significant others in one's proximal environment also plays an important role in sociocultural theories. For example, girls who are part of a friendship clique that share similar appearance-related values, discuss body image concerns and model associated behaviours are more likely to have similar levels of body image concerns and engage in similar levels of body-change behaviours (Jones & Crawford, 2006; Jones et al., 2004). Although these socialisation

agents can exert their influences separately, they can also interact as exposure to media portrayals can affect values of significant others which are transmitted to the individual. The multidimensionality of these influences is a key factor to consider when examining the impact of the appearance culture.

The dominant role of interpersonal influences for the development of an unhealthy body image has been empirically supported in both cross-sectional (e.g., Jones et al., 2004), and prospective (e.g., Jones, 2004; Paxton et al., 2006) research. Sociocultural models have focused largely on females and have received wide empirical support (e.g., Smolak & Levine, 2001), and when these models are applied to males, interpersonal factors certainly appear to be correlated with body image concerns (Ricciardelli & McCabe, 2003a). Indeed, sociocultural factors have received the most attention in research exploring risk factors and it is widely posited that perceptions of one's appearance and attitudinal body image stems from these sources (Cafri, Yamamiya, Brannick, & Thompson, 2005; Currie et al., 2012). Accordingly, the sociocultural perspective has become a major theoretical framework for conceptualising the development of body image (Tiggemann, 2011), and due to its broad conceptualisation, several specific models exist.

One limitation of the sociocultural explanation for body image problems is that its singular approach fails to explain the wide range of body image experiences or the continuum of body image disturbance (Thompson, Heinberg et al., 1999). Since the majority of people in a Westernised culture are subjected to body image-related sociocultural influences and only a fraction are highly body-dissatisfied, other moderating and mediating factors must also play a role. These may include individual characteristics or cognitive mediators, and in recent years, processes such as appearance comparison and internalisation have been proposed to play a role (Tiggemann, 2011). Other psychological influences have also been acknowledged resulting in the proposal of a number of integrative models. These models have greater potential to identify individual differences in vulnerability to the influence of the sociocultural environment. A further limitation is that research utilising sociocultural models has paid little attention to "newer" forms of media, such as the Internet (Tiggemann, 2011, p.17). Internet use is currently highly prevalent among adolescents with increased access through home computers, laptops, and smart phones (Madden, Lenhart, Duggan, Cortesi, & Gasser, 2013). The potential influence of appearance-related advertising, websites with an appearance focus, and social media sites warrants urgent attention in order to fully understand the body image experiences of modern-day adolescents.

In summary, sociocultural theory provides a useful theoretical framework from which more structured models can be based, and has been the dominant framework in the body image research area (Dittmar, 2009). Applications of sociocultural models with males have been less systematic but appear to be appropriate for males' body image concerns. The growing interest in males' body image needs to continue through further applications of sociocultural models that are comparable across gender. Future research is also needed to identify individual characteristics that moderate or mediate the influences of sociocultural factors, and newer forms of media influence. Recently proposed integrative models are a step in the right direction.

Since it has become clear that a unitary approach to the development of body image disturbance will not encapsulate the aetiological process adequately, a number of multifactorial, integrative sociocultural models have been proposed (Thompson, Heinberg, et al., 1999; Wertheim, Paxton, & Blaney, 2004). These models encompass additional elements to account for the complex interaction of sociocultural and individual-level influences. Thus, integrative sociocultural models of negative body image introduce additional factors and propose possible mediating mechanisms to account for individual differences in body image disturbance.

2.3.1.1 The Tripartite Influence Model

Thompson, Coovert, and Stormer (1999) incorporated many of the contributing factors found in the literature into an integrative model, in an attempt to account for individual differences in body dissatisfaction within one theoretical framework. The tripartite influence model, as the name suggests, proposes that the three core sources of sociocultural influence (i.e., parents, peers, and the media) have an effect on body dissatisfaction. But, they are posited to affect body dissatisfaction indirectly, through the extent to which appearance-related cognitive processing is utilised. Specifically, two processes have been postulated: appearance comparisons, where comparisons are made with individuals across a range of appearance-related dimensions that are important to the person (Suls, Martin, & Wheeler, 2002); and internalisation of the ideal body, the extent to which the ideal portrayed by society is accepted as an aspirational standard for oneself and others (Clark & Tiggmann, 2007). Both of these processes have been posited to intensify the effects of sociocultural influences on body dissatisfaction. Body dissatisfaction is then proposed to lead to eating disturbance.

Thompson, Heinberg, and colleagues (1999) proposed two further integrative tripartite influence models also focusing on the triad of sociocultural influences but including a more comprehensive set of constructs. The first model postulates that the core sources of sociocultural influence will lead to internalisation and appearance comparison, which will lead to body dissatisfaction. Comparison is also indirectly associated with body dissatisfaction

through internalisation. Body dissatisfaction leads to restriction and bulimic tendencies, and bulimic tendencies have reciprocal effects with deficits in global psychological functioning (see **Figure 2.1**). The second model places global psychological functioning between sociocultural influences and internalisation and appearance comparison tendencies, proposing that problematic psychological functioning will increase vulnerability to appearance-related cognitive processing, in turn leading to body dissatisfaction (see **Figure 2.2**).

Promising findings have arisen from previous research applying variations of the tripartite influence model to adolescents. Keery and colleagues (2004) were the first to test adaptations of the model on adolescents and interesting findings emerged from their female sample. Several models based on the original tripartite influence models were evaluated but there were some important differences. Although the original model posits that the triad of parents, peers, and the media independently exert their influence through the two cognitive mechanisms of comparison and internalisation, Keery and colleagues proposed that sociocultural influences are best thought of as a multidimensional construct and used a composite measure in their model testing. In constructing the measure, factor analysis was conducted on a pool of items from a number of established measures assessing parent, peer and media influences and a factor structure reflecting the dimensions of the triad emerged. Thus, although the model was not fully representative of the key features of the tripartite influence, the triad was represented within the sociocultural influence construct. Findings confirmed the mediating roles of social comparison and internalisation, while body dissatisfaction led to disordered eating and impaired psychological functioning. Their SEM analysis produced a final model similar to Thompson, Heinberg, and colleagues' (1999) first hypothesised model but with slight variations. Important pathways emerged including a direct pathway from sociocultural influences to restricted eating and a strong direct pathway between body dissatisfaction and global psychological functioning.

Shroff and Thompson (2006) further tested Keery and colleagues' model with adolescent females as well as a modified version that more closely reflected the original tripartite influence model where the triad of sociocultural influences were distinct from one another. The model was supported and the direct pathway between body dissatisfaction and psychological functioning was again confirmed. These findings have implications for the application of tripartite influence model variations to adolescent samples. Furthermore, with parent, peer and media influences also conceptualised as distinct constructs in Shroff and Thompson's study, a nonsignificant association was found for parental influences while the other two sources contributed significantly to the model. This application showed the differential effects of these sources of sociocultural influence, but the overall fit of the model in both of these studies was relatively low, indicating that other factors might also play an important role, such as BMI and

pubertal status. A recent study among Hungarian adolescents partially addressed this issue by testing similar models but with the inclusion of BMI and weight perception (Papp et al., 2013). Peer and media influences but not parental influence significantly contributed to the model for girls, and only media influences showed unique contributions among the boys. The association between sociocultural influences and body dissatisfaction was indirect through internalisation for the girls but not the boys, as media influence was directly associated with body dissatisfaction. However, appearance comparison was not addressed, impacting the cognitive processing outcomes. BMI was strongly associated with body dissatisfaction across gender and this was fully mediated by weight perception, indicating the importance of addressing physical characteristics in the model.

In investigating the role of the appearance culture, Jones et al. (2004) found that internalisation played a mediating role between peer appearance conversations and criticism, and body dissatisfaction for adolescent boys and girls; and between magazine exposure and body dissatisfaction for girls only. The model explained much less variation for boys indicating that important factors for males were not considered, such as social comparison, parental influences and other forms of media exposure. Important gender differences have also emerged in prospective investigations of risk factors. Jones' (2004) longitudinal analysis found social comparison to play a facilitating role in body dissatisfaction for girls while internalisation of the muscular ideal predicted changes in body dissatisfaction for the boys. The tripartite model has also been partially applied to boys to investigate the pathways leading to body image problems and muscle-building strategies (Smolak, Murnen, & Thompson, 2005). Parent, peer, and media influences were directly associated with muscle-building strategies, while indirect effects were also noted via appearance comparisons. In this study muscle building in boys was thought to be comparable to dieting in girls, but a focus on muscularity alone may be inadequate in understanding body image problems in boys, as weight concerns are also likely to play a role (Jones, Bain & King, 2008).

Since virtually all individuals are exposed to sociocultural influences to some extent, and only a percentage develop body image concerns, the inclusion of cognitive processing variables in the tripartite influence model provides a credible account for individual differences in vulnerability. Increased understanding of these mechanisms reflect how external influences can structure internal representations (Jones, 2004), although the role of these pathways require further clarification, particularly differences across gender. These models have accounted for more variance in body dissatisfaction among girls than boys (e.g., Jones et al., 2004) but, with the dominant weight-related focus in much research and the absence of key variables in some cases, many models perhaps failed to capture important influencing factors for males. Despite this, the

support thus far for variations of the tripartite model in male samples suggests that it has potential to progress further and discern the aetiological paths across gender.

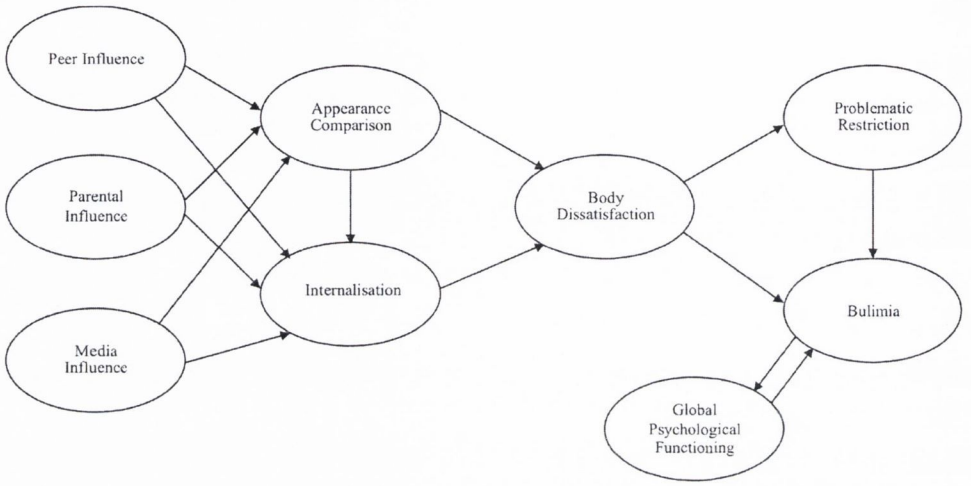

Figure 2.1 Thompson, Heinberg, et al.'s (1999) First Hypothetical Integrative Tripartite Influence Model for the Development of Body Image Disturbance

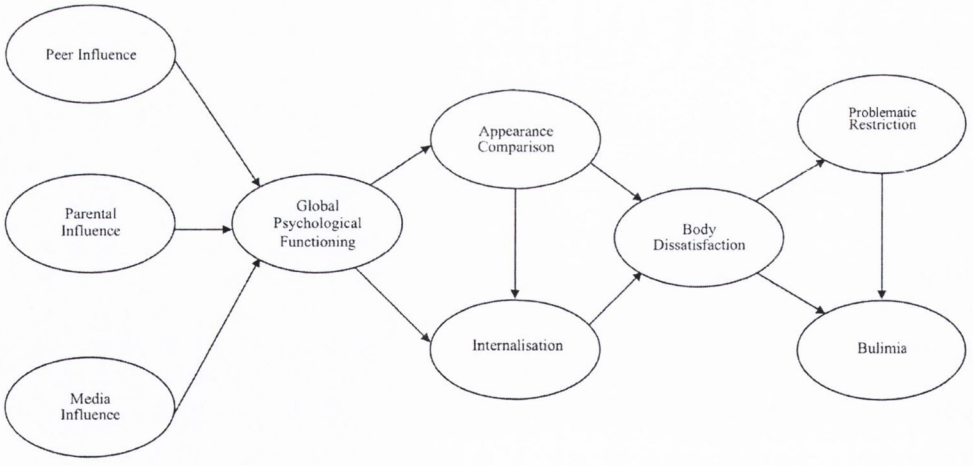

Figure 2.2 Thompson, Heinberg, et al.'s (1999) Second Hypothetical Integrative Tripartite Influence Model for the Development of Body Image Disturbance

2.3.2 Cognitive-Behavioural Perspectives

Cognitive-behavioural (CB) perspectives have also been applied to body image research. Within this framework, the focus is on the cognitive processes arising from social learning experiences that mediate resulting body image attitudes and associated behaviours (Cash, 2011). An early model by Cash (2002) was provided as a heuristic from which to conceptualise the multidimensionality of body image. He emphasised the role of historical features that determine how one feels about their body, and proximal features that maintain influences on body image experiences (Cash, 2011; Paxton et al., 2006). Historical influences encompass personality attributes (e.g., self-esteem), physical attributes (e.g., BMI), and cultural and interpersonal socialisation (e.g., appearance-related interpersonal experiences). These features are proposed to contribute to the development of an individual's body image by instilling body image attitudes through social learning and conditioning. Historical features also serve to maintain these attitudes as they continually influence proximal features or everyday activating events (Cash, 2011).

Positive personality attributes can promote a healthy body image as, for example, self-esteem and a secure attachment system can act as a protective buffer to potentially negative proximal influences. Conversely, low self-esteem or an insecure attachment system can predispose an individual to unhealthy body image attitudes by increasing vulnerability to the proximal environment. The importance of physical characteristics is acknowledged as the discrepancy between one's actual body and the societal ideal will affect self-appraisals and interpersonal experiences. An individual must continually adapt as the body changes throughout the lifespan, increasing vulnerability to the sociocultural appearance environment. Cultural socialisation refers to the appearance-related norms that are transmitted by society. These norms are widely dispersed in Western cultures through the power of mass media and portray gender-specific and social values of the ideal body. Means of attaining the ideal are also promoted through the use of make-up, cosmetics, hair products, and body-change behaviours (Murnen, 2011). Interpersonal experiences refer to the modelling of values and behaviours, and the verbal and non-verbal communications that contribute to an individual's internalised standards of appearance (Cash, 2011). The internalisation of these sociocultural messages contributes to the formation of body image attitudes. Historical features are especially prevalent during adolescence when faced with the rapid physical changes associated with puberty, increased self-evaluation, and new interpersonal roles and relationships.

Proximal influences refer to more immediate activating events and the reactions and experiences that arise. Conceptually, the body image attitudes that are formed from historical influences lead to the schematic processing of activating events as appearance-related. Despite

the implication of a causal sequence, the notion of triadic reciprocality outlined by social cognitive theory (Bandura, 1986) is followed to account for the complex reciprocal causal loop between activating environmental events, interpersonal factors, and associated behaviour (Cash, 2011). To elaborate further on the proximal processes, the conceptualisation of body image attitudes and appearance schematic processing must be delineated.

Attitudinal body image involves body image evaluation and body image investment. Historical features such as personal attributes and sociocultural influences play a role in the adoption of such attitudes as they set norms for gendered desirable physical characteristics (Cash, 2011). If one holds negative body image evaluations and is highly invested in their appearance, biases in the interpretation and processing of environmental information are likely, leading to body image disturbance. Consequently, body image disturbance is partly reflective of cognitive bias, where general situations are interpreted as appearance-related and appearance-related situations are interpreted negatively (Thompson, Heinberg, et al., 1999). Based on Markus' (1977) self-schema theory, the concept of appearance schemas has been applied to conceptualise this biased processing of information. The negative body image schema reflects organisational structures related to one's body that are predominantly maladaptive, yet become a reference point for the organisation of new information regarding one's appearance. The transactional interplay of social and personal influences with this biased cognitive processing causes selective assimilation of information to support beliefs of the importance of the ideal body, creating emotionally charged inflexible thoughts, and triggering processes such as social comparison and a focus on perceived deficits (Altabe & Thompson, 1996; Baker, Williamson, & Sylve, 1995).

The final element of Cash's conceptual CB model refers to adaptive strategies and behaviours that have a bidirectional association with body image disturbance. These can involve cognitive and behavioural responses triggered by environmental events, which can range from ubiquitous appearance self-management behaviours such as wearing certain clothing and applying make-up, to extremely maladaptive appearance-management behaviours such as compulsive checking or social avoidance.

The conceptual CB model is a useful perspective to consider and much body image research has adopted its ideas (e.g., Clark & Tiggemann, 2007). It is merited for its delineation of attitudinal body image and the biased cognitive processing that leads to body image disturbance. As previously noted, a limitation of sociocultural theory is its failure to account for individual differences in vulnerability to appearance-related sociocultural influences. The consideration of appearance-related schematic processing may address this shortcoming. The role of context is also highly noted in CB perspectives as activating environmental events play an important role

in the processing of appearance-related information. Therefore, the proximal environment one encounters on a daily basis can prime body dissatisfaction. This has implications for adolescents if they are highly immersed in the appearance culture.

2.3.3 Ecological Theory

Ecological theory centres on the connections between individuals and the environment in which they live. Urie Bronfenbrenner (1995; Bronfenbrenner & Morris, 2006) has provided the dominant ecological framework, which has been widely utilised in developmental and health research (e.g., Greene et al., 2010). Bronfenbrenner's central focus was the study of development in its ecological context, where individual behaviour is viewed as, both affecting and being affected by, multiple levels of influence within the social and physical environment (Baranowski et al., 2003). In contrast to the dissociative trend of investigating individual and environmental factors separately, he argued that the only way to fully understand individual outcomes was to explore them within the ecological context in which people live, from the distal context of the wider sociocultural environment to the more proximal contexts of family and community systems.

Bronfenbrenner's model was continually developed until his death in 2005. His earlier work was revolutionary in the assertion that developmental research must take place in ecologically valid settings in order to understand and produce ecologically valid outcomes (Lerner, 2005). The developmental contribution of the environment was provided through the conceptualisation of environmental influences as operating through four interacting systems: the microsystem, mesosystem, exosystem, and macrosystem. His later work from 1994 onwards emphasised the role of *proximal processes*, the progressively more complex interactions with persons, objects or symbols in an individual's immediate environment, and the consequential effects of these processes on development (Bronfenbrenner, 1995; Tudge et al., 2009). The theory evolved to provide an understanding of the continuity and change in the biopsychological characteristics of human beings, and their dynamic fusion with ecological systems (Bronfenbrenner & Morris, 2006; Lerner, 2005).

The mature form of the theory also proposed the Process-Person-Context-Time (PPCT) research design to permit the study of developmental processes as a fused and dynamic relation between the individual and the environment (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006). This dynamic relation reflects how processes within the layers can affect changes in all levels of the multi-tiered ecological context and how individuals play an active role in shaping their development. Hence, with the integration of these new features and the original conceptual elements of the theory, the model became known as the *bioecological model* of human

development (Bronfenbrenner & Morris, 2006). The primary objective progressed to determine how the combinations of environmental and individual characteristics within a particular ecological context interact to influence human development.

2.3.3.1 Process

A core proposition of bioecological theory is that the primary mechanism of development involves interactions between the active individual and the ecological context that operate over time and become progressively more complex (Bronfenbrenner & Morris, 2006). These proximal processes, must take place on a regular basis over extended periods of time to be effective (Bronfenbrenner, 2005), and can be strong predictors of developmental outcomes. A second proposition states that the influence of proximal processes is proposed to vary as a function of the other components of the model: the biopsychological characteristics of the individual, the proximal and distal contexts, and the time periods in which the processes occur (Bronfenbrenner, 1995). An investigation encompassing both of these propositions reflects the PPCT model.

2.3.3.2 Person

Proximal processes and associated developmental outcomes vary as a function of the biopsychological characteristics of the person, calling for their due consideration in relation to the phenomenon under study. Person characteristics appear twice in the model, as one of the four elements of the PPCT research design and again as the developmental outcome. The developing person at a later point in time is the result of the interactive effects of the PPCT model (Lerner, 2005).

2.3.3.3 Context

Proximal processes may also vary as a function of the context, since they involve interactions with significant others, objects and symbols in the immediate environment. The distinctive characteristics, values, and expectations of persons present in the immediate environment require acknowledgement in addition to the belief systems, customs and social interchanges entrenched in each of the ecological systems (Bronfenbrenner, 2005). Interest lies in determining the effects of interactions within environmental contexts and the nature and power of the proximal processes that take place within them.

2.3.3.4 Time

The final element of Bronfenbrenner's PPCT model is the concept of time. A number of temporal aspects are incorporated, including chronological age, the passage of time over which development proceeds, and the historical period within which the person lives (Bronfenbrenner & Morris, 2006). Developmental pathways are a function of the historical time and place in which an individual resides, and since proximal processes are continually progressing,

experiences will differ even within similar environmental contexts (Bronfenbrenner & Morris, 2006). The timing of certain events, either biological or social, in relation to culturally defined expectations will also powerfully shape developmental outcomes (Bronfenbrenner, 1995). Furthermore, cultures are in a continual state of change with some historical periods experiencing change at a higher rate than others (Tudge et al., 2009).

2.3.3.5 The Appearance Culture from a Bioecological Perspective

By focusing on proximal processes, insight can be gained into individual-environment interactions and how developmental outcomes vary as a function of individual characteristics and the contexts in which the interactions are taking place. In relation to body image, regular interaction with the appearance culture over extended periods of time will become increasingly complex as the individual enters adolescence. Depending on person characteristics, this may lead to endorsement of the values, expressions, and activities of groups and symbols in the immediate and distal environment that promote the ideal body. Consequently, the level of endorsement will produce different developmental consequences for an individual's body image.

As individuals enter adolescence, biological changes such as puberty, and environmental changes such as increased time is spent with peers and the initiation of romantic relationships will alter the dynamic processes within the appearance culture. Furthermore, the interaction of personal characteristics such as gender and BMI, and contexts such as home or school, will lead to distinctive operating processes that produce various consequences. For example, the power of the proximal process of a peer group discussing a celebrity diet is likely to be increased for a female with a high BMI, leading to possible internalisation of the thin ideal as a personal goal, a considerable self-ideal discrepancy, and body dissatisfaction.

The influential processes within the appearance culture at the current point of historical time are important aspects to consider. Portrayals of the societal ideal changed rapidly over the latter half of the twentieth century, as the female ideal body became thinner and less curvaceous while the male ideal became leaner and more muscular (Spitzer, Henderson, & Zivian, 1999). These increasingly less attainable societal ideals are widely portrayed in the proximal environment through magazine images (e.g., Harrison & Bond, 2007) and children's figural toys (e.g., Pope, Olivardia, Gruber, & Borowiecki, 1999). The pervasiveness of these representations is also reinforced by the proliferation of digital media in recent years. The cumulative effects of these portrayals are likely to set standards for adolescent aspirations and lead to body dissatisfaction if discrepancies are perceived (Wertheim et al., 2004).

A bioecological perspective provides a useful multilevel, interactive framework for understanding and explaining the role of the appearance culture in the determination of a negative body image in young adolescents. The model views development as both affecting and being affected by multiple levels of influence. For example, an adolescent girl might be adjusting to the physical changes associated with the recent onset of puberty, such as weight gain. These are individual-level factors. This girl's friends may have negative feelings about their appearance and conversations about weight and shape are common amongst females throughout school. These are factors from the immediate social and physical environment in which the girl lives. Furthermore, overly thin female figures are heavily portrayed to adolescents in the mass media. These are macro-level factors from the distal environment and all, or a combination of these factors, can directly or indirectly influence an adolescent's body image evaluations.

Indeed, many areas of health and social research have acknowledged the need to delve deeper into the relationships between individual attributes and social contexts, in order to increase understanding of their impact on outcomes of interest (Williams, 2003). In producing aetiological models, the objective is generally to identify and enumerate risk factors. However, this approach can lead to decontextualised explanations, as the interrelations between social variables and the combined influence of people and contexts can be overlooked (Frohlich, Corin, & Potvin, 2001; Williams, 2003). Bronfenbrenner's bioecological model has not been applied to the aetiological investigation of sociocultural influences related to body image, although such ecological designs have been utilised in the investigation of factors affecting eating behaviour (e.g., Story, Neumark-Sztainer, & French, 2002), and ecological models for the prevention of unhealthy body image and disordered eating have been proposed (e.g., McVey, Tweed, & Blackmore, 2007). More research is needed on the intricate ways individual-environment interactions affect body image appraisals. From this perspective, an insight into the influential processes that occur between individuals and the sociocultural environment can be gained for a thorough account of the appearance culture and the resulting impact on body image in early adolescence.

2.3.4 Overview of Relevant Theoretical Frameworks

The sociocultural perspective offers much promise for the aetiological investigation of body image, notably the application of integrative models. The integrative tripartite influence model has been highly informative in addressing the differences in vulnerability to body image concerns. Particularly, Keery and colleagues' (2004) revised version of the model with a female adolescent sample appears applicable across gender. While the pathways require further confirmation in both cross-sectional and prospective designs, insight has been gained on the role

of both proximal and distal sociocultural influences. Additionally, linking mechanisms that account for variations in body image appraisals have been explicated. Generally, the explanatory power of integrative sociocultural models has been much greater for females but with the inclusion of key variables such as physical characteristics and constructs that encompass all forms of bodily concerns, perhaps a more thorough account of body image variables across gender can be achieved.

Cognitive-behavioural perspectives acknowledge the influential role of historical influences, including interpersonal experiences, psychological attributes, and physical characteristics in shaping appearance-related proximal processes. The inclusion of these features may determine the pattern of influence that serves to produce and maintain negative body image evaluations. Additionally, the delineation of the attitudinal body image construct is a useful conceptualisation. Biased cognitive processing in the form of appearance schemas may be an important consideration in progressing Keery and colleagues' (2004) integrative model, to specify the differential role of appearance-related cognitive processes, and ultimately, vulnerability to negative body image appraisals. The important role of context is also acknowledged in this perspective with interactions in the proximal environment priming body image evaluations.

The influential processes occurring between individuals and sociocultural contexts have been highlighted in much developmental and health research. Nevertheless, no known studies have adopted an ecological perspective in their measurement of sociocultural influences that acknowledges the interacting influence of these contexts (both proximal and distal) and interpersonal factors on body image outcomes. Incorporating an ecological representation of the sociocultural influence constructs within integrative aetiological models will not only provide a deeper understanding of the appearance culture in which adolescents currently reside, but can also determine its influence on other specified risk factors, related cognitive processing, and the evaluative body image outcome.

2.4 Conclusion

This review of relevant theoretical frameworks provides the foundation upon which the two competing integrative aetiological models tested in the present study was based. With evaluative body image as the outcome of interest, the present study adopted an expanded version of Keery et al.'s (2004) model with the inclusion of physical characteristic variables and appearance schematic processing informed by the CB perspective, and a representation of sociocultural influences through an ecological reflection of the appearance culture. This

innovative focus within a specified age period can provide a more comprehensive understanding of the development of negative body image across gender than previous sociocultural models. As evaluative body image was the outcome of interest, the behavioural strategies posited in the Keery and colleagues' adaptation of the tripartite influence model were not included in the tested models. The review of the literature in the following chapter builds on this integrative theoretical framework for understanding and explaining factors influencing young adolescents' body image.

Chapter 3.
A Review of Sociocultural and Individual Factors that Influence the Development of a Negative Body Image in Early Adolescence

3.1 Aim of the Chapter

This chapter aims to contextualise the present study's focus by reviewing the literature investigating the factors that influence a negative body image in young adolescents. An overview of the developmental stage of early adolescence, gender differences in body image issues, and the implications of bodily concerns will be provided. Following this, a review of the appearance culture, individual characteristics, and cognitive processes that influence body image will be presented. Next, the body image construct will be delineated before the rationale, design, and aims and objectives of the present study are outlined.

3.2 Early Adolescence

Early adolescence is a significant developmental period with rapid physiological growth and change, new levels of cognitive functioning and affective regulation, and new social roles and relationships to contend with (Levine & Smolak, 1992). The onset of puberty requires adjustment to many concrete physical changes and the intensification of sex roles (Spruijt-Metz, 1999; Striegel-Moore et al., 1986). New cognitive structures emerge to enable advanced decision-making and the regulation of mood and impulses, resulting in greater autonomy and responsibility in issues concerning health, family, peers, and school (Beyth-Marom & Fischoff, 1997; Smolak & Levine, 1994). Socially, there is a shift from close ties with the family to more emphasis placed on peers, social acceptance, and the development of heterosexual relationships (Attie & Brooks-Gunn, 1992; Paxton et al., 2006).

Although adolescents in Ireland are generally a healthy population (United Nations Committee on the Rights of the Child, 2003), the demanding developmental stage of early adolescence can interact with pressures from sociocultural influences and modern-day lifestyles, leading to engagement in unhealthy behaviour. Additionally, the large-scale national My World Survey (MWS) found that mental health difficulties and a decrease in protective coping strategies tended to emerge in early adolescence before peaking in the late teens and early twenties, further supporting the vulnerability of the early adolescent period (Dooley & Fitzgerald, 2012).

3.2.1 Intrapersonal Changes

The major intrapersonal change the young adolescent faces is the realisation of a new sense of self, which requires the amalgamation of rapid physical growth, reproductive maturity,

cognitive advancement and emotional regulation (Striegel-Moore et al., 1986). Changes associated with puberty, and individual differences in the onset, present increased attention to one's body image and the intensification of gendered roles (Attie & Brooks-Gunn, 1989; McCabe & Ricciardelli, 2004a; Spruijt-Metz, 1999), with concepts of masculinity and feminity becoming increasingly polarised (Galambos, Almeida, & Peterson, 1990; Polce-Lynch, Myers, Kilmartin, Forssmann-Falck, & Kliewer, 1998).

Young adolescents develop an advanced level of cognitive skills, in particular the ability to engage in abstract thought, higher levels of problem solving, hypothetical reasoning, and memory skills. New value systems are formed while greater independence and responsibility is experienced (Spruijt-Metz, 1999). Additionally, Elkind's (1967) notion of adolescent egocentrism proposes that the increased focus on the self that occurs as a consequence of the early adolescent transformation results in the belief that others are as preoccupied with their experience as they are themselves. This egocentrism is most prominent in early adolescence and in order to develop a personal identity and to be accepted socially, others' approval of one's appearance is of high importance (Price, 2009). Furthermore, gender differences have been suggested in adolescents' emotional regulation and sense of coherence. Girls appear to see life as less coherent than boys and are more emotionally vulnerable, possibly affecting their ability to adapt to the challenges inherent in adolescence (Möksnes et al., 2012).

3.2.2 Interpersonal Changes

In addition to the major intrapersonal challenges, early adolescence is awash with interpersonal changes. Although relationships within the family remain important, there is increased investment in peer relationships (Wrzus, Hanel, Wagner, & Neyer, 2013). Brown, Dolcini, and Leventhal (1997) describe three changes in peer relations that occur in early adolescence. Firstly, friendships change from the quite superficial and activity-based friendships in childhood to become more stable and emotionally involved with increased importance placed on, and time spent with, friends. Secondly, the value of heterosexual popularity increases as new relationships of a romantic and sexual orientation begin to develop. Thirdly, *peer crowds* emerge where adolescents who share similar values and interests group together.

High importance is placed on establishing peer relationships, and peer acceptance crucially contributes towards an adolescent's sense of self (Lieberman, Gauvin, Bukowski, & White, 2001). The peer group also plays a major role in clarifying the socialisation process in adolescence, in turn influencing the development of value systems, self-evaluation, and identity formation (Brown et al., 1997; Giordano, 2003). More activities take place outside the home in the company of peers without adult supervision (Coleman & Hendry, 1999), coinciding with

endeavours for greater emotional autonomy from parents (Steinberg & Monahan, 2007). Indeed, with increased time spent within peer contexts, early adolescence has been identified as a period where social conformity is especially high, possibly due to this developmental stage representing a period where individuation from parents has commenced but a sense of identity has not yet been established (Steinberg & Monahan, 2007).

3.2.3 Health

With the emergence of new cognitive abilities, values related to the importance of personal health are formed. In spite of this, adolescence is often cited as a time where unhealthy behaviours materialise (LaGreca, Prinstein, & Fetter, 2001). The decision to engage in healthy behaviour involves the ability to absorb complex and often inconsistent information, and to think in terms of multiple causes and (often long-term) effects. Adolescents generally value outcomes that occur in the here and now, and through their singular experience of time, long-term effects are often conceptualised as reversible or in the far distant future (Spruijt-Metz, 1999).

3.2.4 Early Adolescence and Body Image

The vast number of normative changes that occur throughout the early adolescent period increase vulnerability to a range of stressors, and since the integration of the physical self into one's self-concept is an important aspect of identity formation, the risk for developing a negative body image is amplified during this transitional phase (Jones, 2001; Smolak & Levine, 1994). Appearance is seen as a means to gain approval from significant others in order to improve social positioning (Price, 2009), with peer acceptance, romantic relationships and popularity all inextricably embedded (Jones & Crawford, 2006; Westerberg-Jacobson et al., 2010).

In a five-year prospective investigation, body image was quite fluid in nature during the early adolescent period, with both inter- and intrapersonal influences having a strong impact, before becoming a more stable aspect of the self from middle adolescence onwards (Paxton, et al., 2006). Furthermore, correlates of negative body image and disordered eating appear to be more concrete in early adolescence, such as the onset of puberty and dating, whereas more psychological correlates, such as the discrepancy between actual and internalised ideal body shapes, emerge in later adolescence (Gralen, Levine, Smolak, & Murnen, 1990). Indeed, body dissatisfaction becomes more salient with age for both girls and boys (Bucchianeri et al., 2013; Calzo et al., 2012). A recent survey with a large Irish population revealed that the largest decline in body satisfaction occurs at 14 years of age, peaking at the age of 15 years (O'Connell & Martin, 2012). Therefore, early adolescence is particularly significant for the development of

body image concerns and has been recommended by a number of researchers as the key time for the implementation of intervention strategies (e.g., McCabe, Ricciardelli, & Karantzas, 2010).

3.3 Gender

Gender differences in body image concerns increase as children enter adolescence, possibly due to the interaction of intensified sex roles (Calzo et al., 2012; Galambos et al., 1990) and environmental exposure to gendered messages about the ideal body (Wertheim & Paxton, 2011). Cultural norms have created gendered roles, in particular focusing on what the female body should look like and what the male body can do (Murnen, 2011). Feminist perspectives attribute the gender difference in body image concerns to the pervasive societal objectification of the female body and its inextricable link to happiness and success (McKinley, 2006; Murnen, 2011). However, with the gradual overlapping of male and female roles in modern society, appearance is becoming increasingly important for males and this societal change may diminish the gender imbalance (McKinley, 2006).

3.3.1 The Female Ideal

The societal ideal for females is generally portrayed as extremely thin despite possessing many sexual signifiers (Levine & Chapman, 2011; Murnen, 2011). Society also portrays that a higher quality of life in psychological, social, romantic, and occupational realms coincides with the attainment of the ideal body (Thompson, Heinberg, et al., 1999). The centrality of appearance to the female gender role is clearly evident through the ubiquitous endorsement of the female ideal body stereotype (McKinley, 2006; Stice, 1994), and the higher levels of body dissatisfaction reported for females (Currie et al., 2012).

As females enter adolescence, the natural increases in weight due to pubertal development deviates from the cultural ideal. In addition, the strong societal messages of the importance of physical attractiveness and thinness in combination with heightened vulnerability to sociocultural influences and the opinions of others may result in dysfunctional cognitive processing and unfavourable evaluations of one's body (McCabe & Ricciardelli, 2004a; McNicholas, Dooley, McNamara, & Lennon, 2012). Accordingly, internalisation of the societal ideal and social appearance comparisons have shown consistent associations with body dissatisfaction in female adolescents (Jones, 2004; Knauss, Paxton, & Alsaker, 2008), and have been found to influence negative eating attitudes and behaviours longitudinally over five years (Westerberg-Jacobson et al., 2010).

3.3.2 The Male Ideal

The societal ideal body for males is lean and muscular with broad shoulders and six-pack abdominal muscles (Murnen, 2011). Qualitative work with males ranging from 8 to 20 years confirmed the ubiquitous importance of these attributes to males' perceptions of physical attractiveness (Grogan & Richards, 2002). The muscular male ideal has received greater attention in the media and in society more generally (Leit, Pope & Gray, 2001; Pope et al., 1999), and this has been paralleled by the increased commonality of body image concerns associated with muscularity among adolescent males (Hargreaves & Tiggemann, 2006; Ricciardelli & McCabe, 2011).

The early adolescent experience provides a unique opportunity to explore body image issues in males. The differential rates of pubertal onset will increase awareness and later maturation may lead to greater deviation from the societal ideal (Smolak et al., 2005), while the social pressure to adapt to the male gender role also intensifies (Galambos et al., 1990). Indeed, there is growing evidence that muscularity is the most common source of adolescent boys' body image concern (Hargreaves & Tiggemann, 2006; Jones, 2001). As is the case with the drive for thinness in females, the drive for muscularity appears to be closely interconnected with the male gender role. It has been positively associated with indices of masculinity and traditional gender-type beliefs (McCreary, Saucier, & Courtenay, 2005) and predominantly reflects concerns with the body's function over and above its looks (Murnen, 2011).

Masculine attributes often portrayed from societal ideals are those of strength, power, and competitiveness, and these attributes are also highly desirable for sporting success (Ricciardelli & McCabe, 2011). The increased portrayal of muscular men including sporting heroes that are high quality competitors can increase competition between boys based on the body's function and signs of masculinity (Swami, 2011). Engagement in sport is important for physical and social development and is associated with higher self-esteem in boys (Ricciardelli & McCabe, 2011). Conversely, if competition based on masculinity becomes maladaptive, an increased drive for muscularity and body dissatisfaction can ensue (Smolak & Stein, 2006; Swami, 2011). Additionally, males may possess some unique personality traits that may be partly accountable for gender differences in body image experiences. For example, males are more likely to use self-serving biases to maintain positive self-evaluations despite contradictory external influences (Ricciardelli & McCabe, 2011). Males also report higher levels of perceived physical competence, and considering the link between body image and sporting prowess in males, physical competence has the potential to act as a strong protective factor against body dissatisfaction (Lyu & Gill, 2012).

3.3.3 Gendered Body Image Concerns

Coinciding with differences in body ideals, body image concerns also display differences across gender, with males often wishing to increase their muscle size and females wishing to decrease their body weight (Smolak & Stein, 2006). Therefore, patterns of beliefs, thoughts, and feelings associated with the body and appearance are likely to differ across gender. Whereas body image ideals and concerns are gendered constructs, sources and forms of environmental influences that impact body dissatisfaction can be considered comparable (Helfert & Warschburger, 2011; Smolak & Stein, 2006).

Gender differences in evaluative body image have been widely reported in adolescence with girls experiencing greater body dissatisfaction than males (e.g., Knauss et al., 2008; McCabe, Ricciardelli, & Finemore, 2002) and this pattern remains consistent over extended periods of time (Bucchianeri et al., 2013). However, research with an exclusive focus on weight concerns has overlooked many unique aspects of the male body image experience (Hargreaves & Tiggemann, 2006). With a focus on weight and muscularity, research is progressively revealing the increased muscularity concerns of young males (Brunet, Sabiston, Dorsch, & McCreary, 2010), and mean levels of pressure to conform to muscular ideals has at times been greater than female pressure to lose weight (Ata, Ludden, & Lally, 2007).

Body dissatisfaction in males tends to be split between desires to decrease weight and desires to increase muscles. In fact, with this extended conceptualisation of body image issues, considerable concerns have been found in underweight boys (Cohane & Pope, 2001; Jones & Crawford, 2005). Qualitative research conducted thus far with males has also revealed some invaluable insights. Of interest is the common finding that, in addition to the increased societal pressure to conform to body ideals, there is also an expectation for males to appear to put little thought or effort into their appearance (Bardone-Cone, Cass, & Ford, 2008; Frith & Gleeson, 2004), coined the "not being bothered" discourse (Grogan & Richards, 2002, p.227). Furthermore, boys also display reluctance when discussing body image concerns in an open-ended format for they are perceived as feminine issues (Hargreaves & Tiggemann, 2006). Openly applying effort to one's appearance or the discussion of body image issues are not compatible with traditional masculine roles and have implications when researching with young boys. These social and psychological barriers to maintain a masculine façade may produce response bias (Hargreaves & Tiggemann, 2006; McSharry, 2009), and this should be an important consideration in future research.

To summarise, the levels of body dissatisfaction displayed in boys and girls are likely to be influenced strongly by perceived gender norms and these norms are intricately linked to the

social context (Calzo et al., 2012; Wertheim, et al., 2004). The extended conceptualisation of gender-appropriate body image concerns has led to an increased recognition of the extent of body image concerns in males and points to a pressing need to further explore their body image experiences. More qualitative work is also needed focusing on young adolescents' body image experiences that is comparable across gender. It is insight into the lived experience of being male or female that is required to further understand how gender contributes to body image problems (Smolak, 2009). Perhaps with continual consideration of gender differences throughout the entire research process, from the methodological design to the assessment strategy, a more thorough account of body image issues in early adolescence can be uncovered and reliable gender comparisons can be made (Brunet et al., 2010).

3.4 Health Risks Associated with Negative Body Image

Appearance is a construct so powerful, that it often trumps health. Since body image disturbance is a multifaceted phenomenon, it is integrally connected to an individual's physical, psychological and social wellbeing (Thompson, Heinberg, et al., 1999). Accordingly, body dissatisfaction has been identified as a significant and consistent correlate of unhealthy eating and body-change behaviours, overweight and obesity, and impaired psychological and social functioning.

3.4.1 Unhealthy Eating Behaviours

Body dissatisfaction has been associated with dieting behaviour in both boys and girls (Field et al., 2003; Keery et al., 2004; Ricciardelli & McCabe, 2009). Unhealthy dieting behaviour can include severe caloric restriction, fasting, and use of meal supplements (Neumark-Sztainer et al., 2006). Energy and nutrient needs in adolescence tend to parallel rates of growth, and are higher during adolescence than at any other time throughout the lifespan (Story et al., 2002). An appropriate diet is extremely important for optimal growth and health, and for the prevention of health-related diseases in the future (Spruijt-Metz, 1999). Dieting behaviour can have particularly negative effects in adolescence, affecting concentration and academic performance (Chen & Liao, 2002), and increasing the risk of impaired growth and delayed onset of puberty (Story et al., 2002).

Despite these negative implications, dieting is currently a common practice among adolescents, particularly girls. The level of dieting in adolescence has risen since the new millennium (Department of Health and Children, 2005). The international 2010 HBSC study assessed the prevalence of weight-reduction behaviour through dieting or 'something similar' and found that levels were 9% for Irish males across all age groups (11, 13, and 15 years of age) while levels

increased from 11% to 29% across the three age groups for Irish females. The increasing size of this gender difference with age was evident across almost all countries and regions (Currie et al., 2012). Disconcertingly, frequent dieting in adolescent girls and boys has been associated with weight gain rather than weight loss (Field et al., 2003; Westerberg-Jacobson et al., 2010) possibly increasing the risk of the adoption of more serious weight loss strategies (Neumark-Sztainer et al., 2006).

In addition to dieting, body image disturbance has been highlighted as a longitudinal precursor for disordered eating behaviours, including extreme fasting, bingeing and purging behaviour (Byely, Archibald, Graber, & Brooks-Gunn, 2000; Espinoza et al., 2010; Stice, 2002). In fact, the diagnostic criteria for anorexia nervosa and bulimia nervosa include the features of body image disturbance (American Psychiatric Association, 2000), and these eating disorders have a peak onset during adolescence (Striegel-Moore et al., 1986; Wertheim & Paxton, 2011). In addition, partial syndrome eating disorders in adolescence, defined as fulfilling at least two diagnostic criteria, can lead to an increased susceptibility to depression, anxiety, persistent weight disturbance and substance misuse (Patton, Coffey, Carlin, Sanci, & Sawyer, 2008; Patton, Coffey & Sawyer, 2003).

A longitudinal investigation over ten years found that once adopted, the prevalence of dieting and disordered eating behaviour remained constant or increased from adolescence to young adulthood (Neumark-Stzainer, Wall, Larson, Eisenberg, & Loth, 2011). Research in the area of eating pathology has largely focused on females, as its prevalence is clearly higher in this population (Kjelsas, Bjornstrom, & Gotestam, 2004; Mäkinen, Puukko-Viertomies, Lindberg, Siimes, & Aalberg, 2012). However, the prevalence of eating pathology is increasing in males (Hay, Mond, Buttner, & Darby, 2008; Kjelsas et al., 2004), and similar pre-dispositional personality traits have been found across gender (Leon, Fulkerson, Perry, Keel, & Klump, 1999). In a large-scale study of Irish school children, Eating Problems in Children and Adolescents (EPICA; McNicholas et al., 2009), 10.9% of females and 2.4% of males produced scores indicative of eating pathology on the Eating Attitudes Test (EAT). The prevalence of dieting and disordered eating among adolescents and the evidence pointing to early adolescence as a period of high risk indicates that prevention efforts at this time are imperative while greater change is possible.

A negative body image undoubtedly plays a large role in the adoption of unhealthy eating behaviour, which can also place adolescents at risk for weight gain and poorer overall health (Neumark-Sztainer et al., 2006; Neumark-Sztainer, Story, & Faibisch, 1998). In addition, high BMI has emerged as an important prospective risk factor for body dissatisfaction in girls and

boys (Mond, van den Berg, Boutelle, Hannan, & Neumark-Sztainer, 2011; Paxton et al., 2006), and body image issues are intricately associated with the wellbeing of overweight and obese adolescents (Mond et al., 2011; Smolak & Thompson, 2009). Concurrently, the risk of disordered eating behaviours is greater for those with higher BMIs (Neumark-Sztainer, Story, Falkner, Beuhring, & Resnick, 1999; Westerberg-Jacobson et al., 2010).

The 2010 HBSC study reported that rates of overweight in early adolescence were 12% for males and 9% for females. Levels of overweight and obesity across age groups showed a U-shaped curve with highest levels among 11-year olds, lowest among 13-year olds, and an increasing trend emerging again at 15 years of age (Currie et al., 2012). Obesity has many serious health implications, including its persistence into adulthood increasing the risk of long-term morbidity (Mulvihill, Németh, & Vereecken, 2004), and an increased risk of psychological conditions such as depression and eating disorders in some cases (Department of Health and Children, 2005). Government documents such as *Obesity: The Policy Challenges* have emphasised the pressing need for prevention and intervention programmes in this country (Department of Health and Children, 2005; Mulvihill et al., 2004). Efforts made to promote a healthy body weight, healthy eating practices, and physical activity must also consider body dissatisfaction to promote overall respect and care for the body.

3.4.2 Other Body-Change Behaviours

Body image concerns centred on a drive for muscularity and leanness generally result in different behavioural outcomes than concerns focused on the drive for thinness. Common strategies for muscle building include excessive exercise, weightlifting, food supplements, binge eating without the purge cycle, and use of anabolic steroids (McCabe et al., 2010; McCreary & Sasse, 2000). A combination of these strategies are often used and emerging research has suggested that food supplements and steroids carry health risks, particularly when consumed during a time of rapid development, such as adolescence (Cafri, Thompson, Ricciardelli, McCabe, Smolak, & Yesalis, 2005; Smolak et al., 2005).

Boys generally report greater body satisfaction than girls, but they engage in higher levels of extreme exercise to influence their body shape (McCabe & Ricciardelli, 2004b; Smolak et al., 2005). The national body image survey by Dail na nÓg revealed that the only category where boys scored higher than girls for putting effort into their appearance was for taking diet and body-building supplements (15% male; 12% female; O'Connell & Martin, 2012). Additionally, while steroid abuse is considered an extreme form of muscle building, over 11% of adolescent boys have reported the use of steroids to some extent (Smolak et al., 2005). It has been suggested that the rate of steroid use in adolescent and adult males is greater than the rate of

anorexia nervosa and similar to the rate of bulimia nervosa in females (Spitzer et al., 1999), highlighting the need to concentrate on both males and females when exploring the development of body image concerns.

3.4.3 Problematic Psychological Functioning

The association between body image disturbance and problematic psychological functioning such as unstable self-esteem, anxiety over body weight and shape, and negative affect, has been widely noted in both cross-sectional and longitudinal research with adolescents (Keery et al., 2004; Johnson & Wardle, 2005; Leon et al., 1999; Mäkinen et al., 2012; Papp et al., 2013; Stice & Bearman, 2001; Wojtowicz & von Ranson, 2012). Body dissatisfaction has repeatedly correlated with negative affect (Keery et al., 2004; Stice, 2002; Stice & Agras, 1998) and low self-esteem (Keery et al., 2004; Shroff & Thompson, 2006; Wojtowicz & von Ranson, 2012) in females. Moreover, the drive for muscularity in boys has also been associated with these psychological constructs (Cafri, Thompson, et al., 2005; McCreary & Sasse, 2000; Ricciardelli & McCabe, 2003b). Since body image and psychological functioning are closely intertwined, the implications may be particularly undesirable in early adolescence as feelings of self-worth are critical for identity formation.

3.4.4 Impaired Social Functioning

Body dissatisfaction can be problematic in adolescence and can exacerbate the already complex task of forming and regulating peer relationships. Consequently, social interactions can be impaired, and it has been suggested that body image acts as a filter through which social functioning and relationships are evaluated (Tantleff-Dunn & Lindner, 2011). Greater body dissatisfaction has been associated with social anxiety and insecurity in social situations for female adolescents (Schutz & Paxton, 2007). These girls also rated their personal qualities as a friend negatively and believed thinness was important for successful interpersonal relationships. Body satisfaction has also been associated with more positive same-sex and opposite-sex friendships in girls and more positive opposite-sex friendships in boys (Davison & McCabe, 2006). Furthermore, the Dail na nÓg survey revealed that adolescents' body image can influence participation in social activities such as dating, swimming, and posting photographs in social media (O'Connell & Martin, 2012).

To summarise, it is clear that a negative body image can potentially lead to a range of adverse health outcomes in physical, psychological, and social realms. Of concern is the finding that body dissatisfaction does not disappear as one develops but can intensify or manifest itself behaviourally (Paxton et al., 2006). Additionally, the majority of associated adverse outcomes appear to stabilise or increase over time. With respect to gender, unhealthy eating behaviours

appear at a significantly higher level for girls (McNicholas et al., 2009) and other body-change behaviours at a significantly higher level for boys (McCabe & Ricciardelli, 2004b). Nevertheless, many of these behavioural outcomes have been noted across gender and are often accompanied by impaired psychosocial functioning (Canals, Sancho, & Arija, 2009; McCabe & Ricciardelli, 2006). Development is a continuous process and the long-term effects of the adolescent experience for later health in adulthood supports the importance of addressing these issues before they become stable aspects of the self. The wide range of adverse behavioural and psychosocial outcomes associated with negative body image, coupled with the vulnerable period of early adolescence, emphasises the need to further our understanding of this complex and widely diffused phenomenon for both boys and girls. Consequently, research is warranted to clarify its aetiology and identify modifiable risk factors. The following three sections review a range of social and individual factors that can influence the development of a negative body image in early adolescence.

3.5 The Appearance Culture

Adolescents are overwhelmed with sociocultural influences related to appearance. Sociocultural influences are the most reputed risk factor for body image concerns and have received the greatest attention both theoretically and empirically (Stice & Whiteton, 2002). When compared, these influences seem to have a greater impact than physical or psychological factors (Knauss, Paxton, & Alsaker, 2007), and 60% of Irish adolescents have reported feeling pressurised to look good from these sources (70% for girls and 46% for boys; O'Connell & Martin, 2012).

From a sociocultural perspective, individuals residing in an environment with endorsement of dysfunctional appearance norms from a cumulative number of sources will be at greatest risk of developing a negative body image (Jones, 2011; Wertheim et al., 2004). Weight-specific social norms among family and peers have shown strong influences on both adolescents' (Neumark-Sztainer, Wall, Story, & Perry, 2003) and children's (Dohnt & Tiggemann, 2006) body image. Additionally, when males were asked to choose a male ideal from a female perspective they chose figures significantly leaner and more muscular than what females chose (Olivardia, Pope, Boroweicki, & Cohane, 2004). A similar pattern was found for females who chose thinner figures than those males actually preferred (Paxton, Norris, Wertheim, Durkin, & Anderson, 2005). Therefore, even though these socially constructed portrayals are not reflecting actual male and female body shapes or sexual preferences, modern social pressures are largely impacting on bodily standards. Consequently, their pursuit can potentially lead to harmful outcomes (Spitzer et al., 1999).

Appearance norms are pervasively portrayed in society. Distally, commercialism and media influences are on such a mass scale that they have the capacity to reach all regardless of their location or ethnic background through magazines, radio, television, and more recently, the Internet (Story et al., 2002; Wertheim & Paxton, 2011). Proximally, the cultural emphasis on appearance is also widely dispersed: in the physical environment through shop windows, magazines at shop check-outs or waiting rooms, and billboards on the street; and in the social environment through the appearance norms and attitudes of significant others, conversations regarding appearance, and the everyday grooming and body change behaviours practiced by many (Tiggemann, 2011). Parents and peers are central transmitters of body image attitudes and behaviours due to their continuous presence in the adolescent's immediate environment. Pressures can be transmitted in a variety of forms: directly communicated through discussion, encouragement and teasing; or indirectly through the modelling of appearance-related concerns, attitudes and behaviours (Helfert & Warschburger, 2011; Vincent & McCabe, 2000). Furthermore, the perceived quality of relationships with significant others is an important indirect influence to consider (Byely et al., 2000).

3.5.1 Family Influences

Influences from the family are a fundamental factor to consider with the emergence of body dissatisfaction and weight concerns among young people (Canals et al., 2009; Neumark-Sztainer et al., 2003). Parents in particular are instrumental in reinforcing appearance-related cultural values (Wertheim, Mee, & Paxton, 1999). Parents that value appearance and put pressure on their children to attain appearance ideals are more likely to have children with high levels of body dissatisfaction (Canals et al., 2009). Girls have reported higher levels of pressure from parents than their male counterparts (Ata et al., 2007, Vincent & McCabe, 2000), although no gender differences have emerged in some cases for encouragement to lose weight (Vincent & McCabe, 2000) or negative appearance-related comments (Baker, Whisman, & Brownell, 2000).

Parents' perceptions of their child's body have also shown interesting gender patterns. In a study of parental evaluations of their children aged 12 to 16 years, parents were generally satisfied with their children's physical attractiveness (Striegel-Moore & Kearney-Cooke, 1994). In spite of this, adolescent girls were evaluated as heavier than adolescent boys when in fact the opposite was the case, suggesting that cultural norms of thinness for females may play a role in parental body-size judgments. Additionally, a strong relationship was found between parental dieting and encouragement for the child to diet and this was the case for all combinations of parent-child dyads, suggesting that pressures for males as well as females are being filtered through the family system. These findings support an interactive effect of the appearance

culture where societal standards are being further reinforced through parental evaluations and attitudes.

Since parental emphasis on appearance and body shape and weight is being transmitted by significant others, it is more likely to be internalised, particularly during childhood (Kluck, 2010). In early adolescence parents remain primary role models regarding eating and appearance-related standards (Rodgers & Chabrol, 2009). Hence, the family appearance culture can be transmitted by parents indirectly through their own attitudes to body image evaluations and behavioural examples of body-change behaviours, and directly through appearance-related discussion, encouragement, teasing and criticism (Jones, 2011; Neumark-Sztainer, Bauer, Friend, Hannan, Story, & Berge, 2010).

3.5.1.1 Indirect Forms of Transmission

Indirect influences from the family that have been found to reinforce body image concerns include the quality of family relationships and the modelling of concerns and behaviours associated with appearance. Low family orientation can lead to problematic interactions with the family group leading to poor quality relationships and problematic psychological adjustment (Bowerman & Kinch, 1959; Rueger, Malecki, & Demaray, 2010). Perceived negative family relations have been associated with body dissatisfaction in girls (Byely et al., 2000) and boys (Ricciardelli & McCabe, 2003a). Byely and colleagues' study showed a concurrent negative association with body image in girls while a longitudinal association was found for dieting suggesting that the enduring effect is behavioural. Conversely, other research has failed to find significant associations with body image concurrently (O'Koon, 1997) or longitudinally in females (Presnell, Bearman, & Stice, 2004).

Furthermore, parents' concerns and behaviours related to their own appearance can set standards for self-improvement creating a modelling effect on their child's bodily concerns and eating behaviours (Vincent & McCabe, 2000). Parental modelling is highly influential in childhood (Fisher, Sinton, & Birch, 2009) but the consistency of this influence decreases throughout adolescence (Jones, 2011). Parental weight concern and family focus on appearance has been hypothesised to lead young girls to view their body negatively (Kluck, 2010), predisposing them to the development of disordered eating behaviours (Gowers & Shore, 2001). Indeed, the evidence appears strong for parental modelling of restrictive weight-loss behaviours in predicting similar behaviours in girls (Neumark-Sztainer, Bauer, et al., 2010; Wertheim, Paxton, & Blaney, 2009). Prospectively, maternal body image concerns have predicted weight concern among adolescent boys and dieting behaviour among adolescent girls over one year (Field et al., 2001), and with body dissatisfaction and eating disturbance in both male and

female adolescents over two years (Canals et al., 2009). In another sample of boys and girls, the effects of mothers' body image and dieting behaviour was limited to menstruating girls (Wertheim, Martin, Prior, Sanson, & Smart, 2002), while in another case, no associations were found with girls' body concerns and dieting either concurrently or longitudinally (Byely et al., 2000). It has also been proposed that fathers' concerns about eating, weight and shape may play a significant role in the development of eating-disordered behaviours for adolescents (Canals et al., 2009). In fact, both boys and girls have rated the importance of thinness to fathers stronger than that of mothers and these adolescents were more likely to become dieters (Field et al., 2001). Yet, non-significant associations have also been reported between father dieting behaviours and body image concerns or related behaviours (Neumark-Sztainer, Bauer, et al., 2010; Wertheim et al., 2002).

3.5.1.2 Direct Forms of Transmission

Direct influences from the family appear to predict body dissatisfaction and body change behaviours more so than the quality of family relationships (Vincent & McCabe, 2000) and parental modelling of weight-loss behaviours (Wertheim et al., 1999; Wertheim et al., 2002). Direct communications regarding appearance can negatively impact body image regardless of whether the intent is to encourage or disparage (Helfert & Warschburger, 2011). In fact, in a retrospective study, encouragement emerged as the strongest predictor of body dissatisfaction when examined with teasing and criticism (Kluck, 2010).

Parental encouragement and pressure has been associated with body dissatisfaction and weight-control strategies for both male (Ricciardelli & McCabe, 2003a, 2003b; Ricciardelli & McCabe, 2001) and female adolescents (Neumark-Sztainer, Bauer, et al., 2010; Wertheim et al., 2002). These associations have also emerged prospectively across gender (Helfert & Warschburger, 2011) and have been important correlates in both child and young adolescent cohorts (Gardner, Sorter, & Friedman, 1997). On the other hand, positively intended comments have produced protective effects against negative body image evaluations (Rodgers, Paxton, & Chabrol, 2009; Ricciardelli, McCabe & Banfield, 2000; Stice & Whiteton, 2002), suggesting that individuals may differ in how they process this information in relation to their internalised standards and goals.

Encouragement from fathers as well as from mothers has been influential and both have been highly correlated suggesting that an appearance-focused culture may exist in some households (Wertheim et al., 1999). However, direct communications from mothers have had a stronger influence on girls (Neumark-Sztainer, Bauer, et al., 2010) and boys (McCabe & Ricciardelli, 2005; Ricciardelli et al., 2000) when both sources were included. In contrast, maternal pressure

has not shown significant prospective correlations for dieting behavior in girls (Byely et al., 2000). Furthermore, when BMI is accounted for, associations have reduced (Neumark-Sztainer, Bauer, et al., 2010; Wertheim et al., 2002), suggesting that to a certain degree, parents are responding to their overweight children. Still, associations did remain significant indicating that this pressure can be exerted regardless of BMI. Moreover, since encouragement to diet has been related to body dissatisfaction (Wertheim et al., 2002), and the long-term risk of overweight (Neumark-Sztainer, Wall, Story & van den Berg, 2008), these messages are producing lasting detrimental effects.

Teasing from siblings about appearance can be quite common, although it is more likely to occur in households where parental teasing is prevalent (Jones, 2011). Thus, much of the research has focused on the role of parents as their attitudes and behaviours appear to show more predictive effects (Vincent & McCabe, 2000). Regarding criticism and negative comments concerning body weight and shape, associations have been found for girls and boys (Neumark-Sztainer, Bauer, et al., 2010; Vincent & McCabe, 2000). Additionally, while encouragement from parents concerning muscularity in boys has been related to body image importance and strategies to increase muscles (Ricciardelli & McCabe, 2003a), negative comments and teasing in regards to muscularity have been associated with higher levels of muscle dissatisfaction (McCabe & Ricciardelli, 2005), body dissatisfaction, and increased use of nutritional and pharmacological supplements to increase bulk (McCreary, 2011). Prospectively, disparaging comments have not correlated with body dissatisfaction while encouragement has (Helfert & Warschburger, 2011), suggesting that encouraging messages, contrary to their intent, may be more problematic in regards to body dissatisfaction.

3.5.1.3 In Summary

Overall, the support for indirect forms of family influence is less consistent than that for direct forms of transmission (e.g., Wertheim et al., 2002). However, research assessing direct forms of influence has focused on limited sets of messages from the family, and there has been a failure to provide a comprehensive account of direct and indirect messages or the vicarious experience of parental influences within the same study (Rodgers & Chabrol, 2009). The findings thus far have been useful but variability in measurement limits the ability to make firm conclusions regarding the family context within the appearance culture. Much of the research focuses on a particular form of influence or use narrow indicators, creating difficulty differentiating influences from mothers and fathers, and at times, influences from family or peers (Ricciardelli & McCabe, 2003a; Stice, 2001). Further research is needed to more fully assess the role of the family and the direct and indirect transmission of these influences related to body image, to determine which forms of influence have the most detrimental effects (Thompson, Heinberg, et

al., 1999). Subsequently, these forms need to be examined in relation to influences from other sociocultural sources to determine their relative importance in the appearance culture.

3.5.2 Peer Influences

In the developmental stage of early adolescence, peers become increasingly important socialisation agents and their influence may take precedence over that of parents (Wertheim & Paxton, 2011). The greater time spent with peers places increased value on peer relationships, which fulfil a number of important functions such as providing information, opinions and support, enhancing psychological wellbeing and contributing to identity formation (Brown et al., 1997). With this stronger reliance on, and investment in, peer interactions, and the pursuit of social rewards such as prestige and popularity from one's social standing (Bandura, 1986; Wang, Houshyar, & Prinstein, 2006), the peer context is of great importance in relation to body image development.

In self-evaluation and appraisal, peers provide the best reference for comparison and social learning. Jones and colleagues' (2004) notion of a peer appearance culture posits that norms, beliefs, and expectations related to appearance are transmitted to, or created within, a peer group, shaping attitudes and behaviours about one's own and others' appearance. The peer culture experience involves peer relationships, social acceptance, and perceived pressures. In this review, pressures are referred to as potentially negative forms of influence associated with body image that can be transmitted either indirectly or directly through modelling of concerns and behaviours, perceived judgments, conversations, and teasing.

3.5.2.1 Peer Relationships in Adolescence

As previously described, peer relationships intensify in early adolescence due to increased emotional involvement, the development of romantic relationships, and the grouping of peers with similar values (Brown et al., 1997). Peer relationships thrive regardless of parental input and have implications for the adolescent's sense of self and health-related attitudes and behaviours (Raynor, Schniering, Rapee, Taylor, & Hutchinson, 2012). Girls report greater levels of peer support than boys, particularly from their close friends (Dooley & Fitzgerald, 2012), and greater support from classmates has predicted lower levels of depressive symptoms, physical inactivity, and antisocial behaviour among girls and boys (John-Akinola & the HBSC Ireland Team, 2012; Rueger et al., 2010). Peer relationships appear just as important for body image issues as loss of friendships over a school year have been related to decreases in body esteem but not general esteem for early adolescent boys and girls (Jones, 2011). Negative aspects of friendships have been associated with body dissatisfaction and bulimic symptoms (Schutz & Paxton, 2007), although inconsistent findings have also emerged with perceived

support deficits showing no contribution to these outcomes in females (Paxton, Schutz, Wertheim, & Muir, 1999; Stice & Whiteton, 2002).

A poor body image may also impede the development of opposite-sex relationships. In comparing body image relations with same-sex and opposite-sex interactions, body image was more important to the former for girls and the latter for boys (Davison & McCabe, 2006). On the other hand, messages from opposite-sex peers have not prospectively contributed to body-change strategies in early adolescent males or females, indicating that these influences may not have set in at this stage (McCabe & Ricciardelli, 2005). However, the contributing role of pubertal development and BMI were not addressed and the measures reflected limited domains. In a sample with greater age range (11-16 years of age), less positive opposite-sex peer relations were prospectively associated with strategies to increase muscles in boys suggesting that boys may pursue the muscular ideal to increase their level of attractiveness to girls (Ricciardelli & McCabe, 2009).

Peer crowds are especially powerful in transmitting values and information and provide a sense of identity and social belonging to the adolescent (Brown et al., 1997). Peer crowd affiliations have been associated with eating, exercise, and weight-control behaviours (Mackey & LaGreca, 2007). Paxton and colleagues' (1999) analysis of female peer groups also found high similarities within groups rather than between them with the groups displaying higher levels of body concerns also reporting higher levels of discussions, comparisons, and teasing regarding weight. Within-group peers were regarded as highly preoccupied with their weight and highly influential in the initiation of dieting behaviour (Paxton et al., 1999). These findings highlight the importance of considering peer crowds, as members tend to display similar attitudes and behaviours within each group.

3.5.2.2 Peer Acceptance

Peers are omnipresent in the adolescent's immediate environment and thus, peer acceptance is central in order to avoid negative social consequences such as exclusion and peer victimisation (Lyu & Gill, 2012; Wang et al., 2006). Given the social rewards attributed to the ideal body portrayed in society (Levine & Chapman, 2011), its pursuit may become synonymous with peer acceptance and popularity in the mind of the adolescent (Presnell et al., 2004; Striegel-Moore et al., 1986). If peer acceptance is perceived to be dependent upon conformity to appearance ideals, the risk for body dissatisfaction is increased (Jones, 2011).

Research on peer acceptance and body image has been largely carried out with girls and, generally, girls who believe that peers will like them more if they were thinner had higher levels

of body dissatisfaction (Paxton et al., 1999; Westerberg-Jacobson et al., 2010). In a focus group study with Irish girls, peer acceptance was cited as an important reason for pursuing the thin ideal (Mooney, Farley, & Strugnell, 2009). In recent years, peer acceptance has increasingly been explored across gender in adolescence and similar associations have been found (Jones, 2004; Lyu & Gill, 2012; Schutz & Paxton, 2007). Interestingly, peer-rated acceptance measures have been inconsistently related to body dissatisfaction (Jones, 2011), suggesting that it is the perception of this influence that produces a detrimental effect. Furthermore, Lyu and Gill (2012) found that perceived physical competence was also closely related to peer acceptance suggesting an additional factor pertaining to the functional nature of body ideals. This may be particularly relevant for males and a focus group study suggested that peer conformity and sporting goals were strong influences on boys' body image (Hargreaves & Tiggemann, 2006). Indeed, peer exclusion based on appearance has shown prospective associations with weight concerns for boys but not girls (Helfert & Warschburger, 2011), leading the authors to suggest that boys who do not fit the physical requirements to engage in sporting activities experience greater incidents of exclusion.

3.5.2.2.1 Popularity

The attainment of appearance ideals is perceived as central for popularity with both same-sex and opposite-sex peers (McCabe & Ricciardelli, 2004a; Westerberg-Jacobson et al., 2010), and ideal body shapes are highly evident among popular peers (Jones, 2011). Consistent with developmental patterns, the main focus reported for females has been to gain popularity with same-sex peers while the focus shifts to heterosexual popularity throughout adolescence (McCabe et al., 2002). Popular peers are more likely to impact and set standards for self-evaluation, and with levels of popularity associated with increased levels of dieting behaviour (Wang et al., 2006), these individuals are also feeling pressure to maintain these standards. Self-perceived unpopularity has been associated with negative responses to media portrayals of appearance ideals and negative affect (McNicholas et al., 2009). Moreover, using sociometric methods, lower levels of perceived popularity was associated with a higher BMI for girls and both low and high BMIs for boys (Wang et al., 2006), coinciding with the perception that emulation of appearance ideals corresponds to peer popularity.

3.5.2.2.2 Heterosexual Popularity

In early adolescence, and particularly with the advent of puberty, both internal and external demands induce a preoccupation with appearing attractive to the opposite sex as the pursuit of romantic partners begins (Brown et al., 1997). Heterosexual popularity, like peer popularity is associated with physical appearance and thus, romantic interests are likely to trigger body image concerns and related behaviours (Jones, 2011; Levine & Smolak, 1992). Adolescent boys tend to seek out romantic partners based on physical attractiveness more so than girls, placing

increased pressure on girls (Jones, 2011; Paxton et al., 2005). On the other hand, athleticism is a major feature of attractiveness for boys (Brown et al., 1997), and so they may feel pressure to achieve a body that can dominate athletically.

The perceived importance of heterosexual popularity has been associated with negative body image in girls (Gralen et al., 1990; Paxton et al., 2005), and was considered the primary reason for girls to attain the thin ideal in a focus group study (Mooney et al., 2009). Furthermore, Paxton et al. (2005) found that the association between the importance of heterosexual popularity and negative body image was mediated by the importance of thinness for heterosexual popularity, although actual measures of dating behaviour were not associated with lower BMI. These findings suggest that pressure to attain ideals are not stemming from observations of dating behaviour in the real world but reflect wider appearance-related schemas that have been reinforced by sociocultural influences.

3.5.2.3 Peer Pressure

Peer pressure for body change can be transmitted both implicitly and explicitly, intensifying levels of body image concerns (Striegel-Moore et al., 1986). Peer pressure has emerged as a significant predictor of body dissatisfaction in cross-sectional (Knauss et al., 2007), prospective (Paxton et al., 2006), and experimental (Stice, Maxfield & Wells, 2003) designs. These effects have been seen across gender (e.g., McCabe & Ricciardelli, 2003b) and have also been strongly associated with body change strategies for boys (Ricciardelli & McCabe, 2003a) and girls (McCabe & Ricciardelli, 2005). Additionally, higher degrees of peer pressure have been observed in middle rather than early adolescence, suggesting that the relevance of appearance within the peer culture shows an increasing trend with greater pressure experienced by girls (Helfert & Warschburger, 2011). Therefore, peer pressure for body change can have both a concurrent and long-term impact, intensifying as the individual progresses through adolescence, and can lead to adverse behavioural outcomes. However, since measures of perceived pressure are generally quite vague, the various forms of implicit and explicit transmission must be examined to determine the specificity of this form of influence.

3.5.2.3.1 Indirect Forms of Transmission

Peer groups tend to share values and norms that can even stretch to mood and self-worth (Paxton et al., 1999), and there appears to be no exception in relation to body image attitudes. In examining attractiveness attributes in adolescent girls and boys, Jones (2001) found that perceptions of physical attractiveness had a solid grounding in norms that were shared among adolescents. Norms within the interpersonal environment have shown strong correlations with weight and shape concerns in adolescent girls (Schutz & Paxton, 2007), and across gender although the differential roles of peer and family norms were unclear (Neumark-Sztainer et al.,

2003). It is also unclear whether adolescents adopt peer group norms over time or whether they select peer groups with already similar attitudes to their own. Research has pointed towards both the former (e.g., Stice, 2002), and the latter (e.g., Paxton et al., 1999). Furthermore, in a longitudinal examination of peer selection and socialisation processes, Raynor and colleagues found that adolescent girls selected friends who had similar levels of body dissatisfaction and bulimic behaviours, and when this selection effect was accounted for, none of the socialisation processes played a significant role, suggesting that similar values and behaviours did not emerge over time (Raynor et al., 2012). Overall, findings point to the importance of perceptions of peer values and the possibility of selection in linking peer influences with body dissatisfaction.

Social conformity is a major pressure for adolescents' interpersonal wellbeing and can strongly influence the engagement of behaviours within the peer context. In childhood, Dohnt and Tiggemann (2006) found that girls who engaged in higher levels of social imitation had lower appearance satisfaction after one year, showing the temporal precedence of peer influences to negative body image outcomes. Peer dieting-behaviour has been associated with the development of increased body concerns over time with adolescent girls (Paxton et al., 2006; Westerberg-Jacobson et al., 2010) but not with boys (Paxton et al., 2006). However, this may have been attributable to the failure to acknowledge male-appropriate modelling behaviours and concerns, as when these were considered, modelling predicted changes in weight-concerns for girls and muscularity concerns for boys (Helfert & Warschburger, 2011). Pressure from the peer group can also be transmitted through subtle gestures or looks that are perceived to carry appearance-related judgments or criticisms These perceived judgments have shown a threatening impact on adolescent body image (Jones & Crawford, 2006; Thompson, Heinberg, et al., 1999), and are predominantly reported by girls (e.g., Milkie, 1999; Paxton et al., 1999), increasing pressure to conform to peer appearance norms.

3.5.2.3.2 Direct Forms of Transmission

In line with the notion of the peer appearance culture, conversations among friends related to appearance including clothing styles, looks and attractiveness represent an everyday context where values, expectations, and stereotypes of the ideal body are particularly attended to, constructed and reinforced (Jones, 2004; Jones & Crawford, 2005). Among girls, conversations with peers concerning weight and dieting behaviour referred to as 'fat talk' has been proposed as a means to express concerns, gain reassurance, and evaluate themselves in relation to appearance standards within the peer context (MacDonald Clarke, Murnen, & Smolak, 2010). These conversations have been prospectively related to appearance-schematic processing (Clark

& Tiggemann, 2008), and with body dissatisfaction in childhood (Dohnt & Tiggemann, 2006) and adolescence (Lawler & Nixon, 2011; Paxton et al., 2006).

Other forms of discussion within the peer context are those concerning muscularity and body-building behaviour strategies that similarly reinforce, attend to, and construct societal ideals and appearance norms, and encourage self-evaluation on the basis of these norms (Jones, 2011). When boys report a peer appearance context where general appearance concerns are discussed they tend to express greater weight-related concerns, while boys who report discussing muscular build are more often preoccupied with muscularity (Jones & Crawford, 2005). The level of pressure through such conversations has been higher for boys when both types of conversations were considered (Jones & Crawford, 2006). BMI also plays an important role. While similar levels of appearance conversations have appeared across BMI categories, boys with higher BMIs reported higher levels of muscle-related discussions while boys with lower BMIs reported receiving more negative comments regarding their appearance (Jones & Crawford, 2006). However, when negative affect and anxiety concerning levels of muscularity were controlled, such discussions were positively related to body esteem (Jones & Crawford, 2005), with boys who conversed about body building activities reporting less body dissatisfaction. This pattern of findings highlights the importance of individual factors in shaping the processes that occur in the peer appearance context.

Considering the importance of the peer group during adolescence, appearance-based teasing can be a particularly potent influence on body dissatisfaction and psychosocial functioning. Both boys and girls have reported that the most damaging form of teasing is weight-related and felt it would generate the greatest negative affect (Jones, Newman, & Bautista, 2005), possibly due to the value and importance placed on body shape and weight in the sociocultural context. Peer appearance criticisms and teasing have been associated with body dissatisfaction and problematic psychological functioning for both boys and girls (e.g., Eisenberg, Neumark-Sztainer, & Story, 2003; Lawler & Nixon, 2011; Tremblay & Lariviere, 2009). The negative experiences of others observed in the peer context can also serve to transmit appearance norms and expectations by identifying the physical attributes that are devalued or stigmatised within the peer appearance culture (Jones & Crawford, 2006). In fact, vicarious appearance teasing has shown associations with body dissatisfaction in adolescent girls regardless of BMI status (Jones & Crawford, 2006).

Appearance-related teasing is a potent means of reinforcing the value of appearance to peers and frequently meets several of the criteria for bullying. In the Irish context, the most recent HBSC report found that, among 10-17 year-olds, 25.5% of boys and 23% of girls had been

bullied (Callaghan & the HBSC Ireland Team, 2012). Moreover, in a qualitative exploration of the role of the body in the peer context, McSharry (2009) noted that anti-bullying policies in the Irish education system currently condemn bullying on the grounds of race, colour, identity, and ability, but do not focus on body weight or shape. Her findings revealed that bodies deviating from the societal ideal were highly stigmatised, and that this issue required urgent attention in the school system (McSharry, 2009).

Although appearance-based teasing is a common form of teasing among both adolescent girls and boys, the male gender role in adolescence regards such teasing to be essentially normative behaviour (Jones et al., 2005). Indeed, teasing has been associated with body dissatisfaction, eating disturbance and problematic psychological functioning more often in adolescent girls (Paxton et al., 1999; Thompson, Coovert, Richards, Johnson, & Cattarin, 1995), and has mediated the effects of high BMI and body image indicating that targets are generally girls who are overweight (Thompson et al., 1995). Nonetheless, appearance-related teasing also appears to negatively affect boys' level of body dissatisfaction and body image concerns. Direct associations have been found for weight and body concerns concurrently (Neumark-Sztainer et al., 2003), and prospectively over five years when mediated by negative affect (Paxton et al., 2006). Alternatively, Jones (2004) found no significant contribution from teasing after a period of one year and suggested that the role of teasing might have been overestimated in the cross-sectional literature. This null finding was further supported with girls (Stice & Whiteton, 2002) and in a more recent prospective study with boys and girls (Helfert & Warschburger, 2011), suggesting that more earnest processes within the peer appearance culture have greater impacts over time.

3.5.2.4 In Summary

In reviewing the peer appearance culture and its association with body image, the literature points to numerous forms, sources, and levels of influence and the central role of peers in the adolescent's immediate environment. The differential experience of the peer appearance culture for males and females has been evident throughout, and a greater sense of the appearance culture across gender can be obtained when all forms of bodily concerns are considered. For example, since the male gender role is more activity-oriented, muscle-building discussions and teasing may be more accepted forms of appearance-related exchanges within the male appearance culture (Jones & Crawford, 2006; McCreary & Sasse, 2000).

Much of the findings also point to the detrimental effect of perceptions of the peer appearance culture, and how attitudes regarding the importance of physical appearance in the peer context can differ from reality (e.g., Paxton et al., 2005). This suggests that the appearance culture

generates schematic processing of appearance-related information that reinforces values and perceptions, such as those concerning heterosexual popularity and the values and concerns of others. These findings, however, may also point to measurement bias; since the data obtained are generally retrospective through self-report, they can be difficult to validate. Given the importance of the peer environment in adolescent development, further research investigating the experience of the current peer appearance culture and the identification of the most influential and potentially detrimental aspects are required. Early adolescence offers a prime opportunity to explore this context, as the influences appear to develop at this stage and intensify throughout the middle and late adolescent period.

3.5.3 Media Influences

The media are interconnected organisations that disseminate news, information, advertising and entertainment, ranging from local to international levels (Glanz & Rimer, 2005). The messages portrayed in the mass media, which includes the mediums of television, movies, magazines and the Internet, reach the everyday contexts of many youths. The media are overloaded with flawless images of models and celebrities, messages regarding body shape ideals, and appearance management products and behaviours, such as cosmetics and clothing, as well as dieting and exercise (Murnen, 2011). Moreover, the expectancy that attaining the ideal body will result in happiness, morality, attractiveness, and power is promoted through the media (Levine & Chapman, 2011). This pervasive transmission of societal ideals undoubtedly affects one's body image, and potentially detrimental effects can vary according to access, the extent of exposure, media content, perceived pressure, and individual agency.

3.5.3.1 Access

The symbolic representations generated by the mass media can be absorbed into people's images of realism, and the more media is accessed, the more impact it will have (Bandura, 1986). Adolescents currently live in a historical period that has experienced revolutionary change in media ecology over the last two decades. In current society, adolescents can interact with media in almost any environmental context at any time with the proliferation of personal and mobile devices, and can choose content from a range of print media, hundreds of television channels, interactive video games and countless amounts of websites online (Currie et al., 2012; Ito et al., 2010; Story et al., 2002). A national survey in the US carried out by the Kaiser Family Foundation found that 24-hour media access has led to a dramatic increase in the amount of time adolescents spend with entertainment media. Amid 99% of 8 to 18 year-olds with televisions and 84% with Internet access, it was found that an average of over seven and a half hours were spent using entertainment media on a typical day, and this was considered to increase to 10 hours 45 minutes if media multitasking was accounted for. Moreover, 71%, 36%,

and 50% of youths had a television, computer, and game console in the bedroom respectively, suggesting that media use is becoming more solitary in its experience (Rideout, Foehr, & Roberts, 2010; Story et al., 2002).

3.5.3.2 Media Exposure

Exposure to media in daily life is considerable and effects may be cumulative. As previously mentioned, reports are likely to be underestimated as multiple media activities can be undertaken simultaneously, such as flicking through a magazine while watching the television (Rideout et al., 2010; Tiggemann & Miller, 2010). In females, findings from cross-sectional research designs in the literature indicate that the amount of time spent exposed to appearance-focused media is associated with body dissatisfaction (Field, Camargo, Taylor, Berkey, & Colditz, 1999) and this association has been mediated by internalisation of the thin ideal (Jones et al., 2004), appearance schemas (Clark & Tiggemann, 2007), and appearance conversations (Clark & Tiggemann, 2008; Jones et al., 2004). In a critical review of a causal association, effect sizes were larger for adolescent than for adult females (Levine & Murnen, 2009). The inconsistent support in some longitudinal designs may reflect the stabilisation of media influences with causal effects occurring at the preteen stage (Tiggemann, 2006). A meta-analysis of 25 experimental studies indicated that on average, compared to control groups, females who viewed thin models experienced significantly greater negative effects on body image, and these effects were stronger for those who had internalised the thin-ideal and who were under the age of nineteen (Groesz, Levine, & Murnen, 2002). In addition, Hargreaves and Tiggemann (2004) found that exposure to television advertisements with thin-ideal content led to greater body dissatisfaction and negative affect in comparison to controls, and those most adversely affected had higher levels of trait body dissatisfaction at a two-year follow-up when initial trait body dissatisfaction was controlled. Generally, in line with the tripartite influence model, support has been strongest for the indirect association between media exposure and body dissatisfaction, with related cognitive processing mediating the impact on body image evaluations (Levine & Chapman, 2011).

The effects of exposure on males have been generally small but noteworthy all the same. In their meta-analysis of correlational research, Bartlett et al. (2008) found a significant overall effect of media pressure on body image concerns. Age was an important consideration as media exposure showed stronger correlations with negative body image outcomes in older adolescent and college-aged males. In experimental paradigms, brief exposure to television advertisements of the muscular ideal did not significantly impact adolescent males' body dissatisfaction (Hargreaves and Tiggemann, 2004). More stable results have been found in older male samples (Agliata & Tantleff-Dunn, 2004; Hargreaves & Tiggemann, 2009), suggesting that males'

vulnerability to muscular ideal media images progressively develops and is more salient from late adolescence onwards. In a review of experimental studies with males, exposure to idealised content had a small but significant impact on body dissatisfaction; effects were stronger for those already dissatisfied while those who displayed body satisfaction were protected from the negative impact (Blond, 2008). Increased exposure over the years and individual factors such as pubertal development may be accountable for the stronger effects noted with adult males.

The genre of media utilised may be more important to assess and may provide more valuable information than attempting to measure the amount of exposure. For example, Tiggemann and Pickering (1996) found that overall television exposure did not correlate with body dissatisfaction in adolescent females but exposure to particular types of television programmes did. Watching music videos was associated with a drive for thinness, watching soap operas and movies correlated with body dissatisfaction, and watching sports programmes was negatively related to body dissatisfaction. Furthermore, in a sample of ethnically diverse adolescent girls, music videos were positively associated with body image importance and weight concerns (Borzekowski, Robinson, & Killen, 2000).

In a recent investigation of media genre on body monitoring and disordered eating in adolescent boys, watching soap operas and reality television programmes was positively related to body surveillance and disordered eating behaviours (Slater, 2012). Additionally, in a study focusing on muscular depictions in four magazine genres (health and fitness, sport, fashion, and gaming magazines) in a sample of White and Black boys, prospective associations were only found between gaming magazine exposure and drive for muscularity in White boys (Harrison & Bond, 2007). Since video game characters are often represented as hypermuscular and powerful figures, the blatancy of the representations may provoke a stronger reaction in younger males, highlighting this genre of media as worthwhile consideration for future research.

3.5.3.3 Media Content

The media's depiction of the ideal female body has decreased in size dramatically in recent decades, and in line with the current cultural ideal, is very thin (Spitzer et al., 1999; Voracek & Fisher, 2006). With slimmer models appearing more often in movies as well as magazines, young girls are exposed to media replete with highly unattainable ideals (Grabe et al., 2008; Voracek & Fischer, 2006). The media's depiction of the male ideal is also in line with the standards approved by current cultural norms. The depictions of increased muscularity and leanness are just as unattainable as the female ideal and are represented in multiple ways (e.g., Harrison & Bond, 2007; Pope et al., 1999).

A content analysis of two preteen and two teen female magazines found that the body was highly dominant in the teen magazines with health and entertainment a much more distant second. Body-related topics were predominantly appearance-oriented in teen magazines while preteen magazines framed them with much more breadth (e.g., information on bodily experiences). There appeared to be a threshold between preteen magazines and teen magazines with teen magazine content containing much objectifying material (Daniels & Porzerlius, 2013). Although these teen magazines are generally aimed towards middle to late adolescent populations, it is highly likely that they are also accessed in early adolescence.

While female magazines do report the adverse affects of unhealthy weight-control behaviours, images of extremely thin models and information about slimming are included in the same issue, weakening the effect of any health promoting features (Field et al., 1999; Maltby, Giles, Barber, & McCutcheon, 2005). The prevalence of diet-related articles and advertisements in female magazines have been over ten times greater in comparison to male magazines (Andersen & DiDomenico, 1992). In addition to the increase of features related to diet and exercise in female magazines (Wiseman, Gray, Mossimann, & Ahrens, 1992), features concerning physical activity and health in male magazines have increased over the decades (Thompson, Heinberg, et al., 1999), although these too could potentially influence body image concerns and related behaviour.

In addition, the schematic processing of appearance-focused media is a relevant factor to consider. Mooney and colleagues (2009) found in their focus group study that the girls were very much aware of ideal portrayals and had tried fad diets that promised similar outcomes. The girls also reported that they believed other personality attributes were more important than appearance, but due to the sheer volume and intensity of media portrayals, they strived to attain the thin ideal (Tiggemann, Gardiner, & Slater, 2000). Even with parental mediation of critiquing the unrealistic nature of televised ideal media images, adolescents' belief remained that emulation of these images would lead to popularity and acceptance (Nathanson & Botta, 2003). Together, these findings suggest that individuals are active consumers of the media but despite critically evaluating media content, appearance-schematic beliefs may override logical conclusions.

3.5.3.4 Perceived Pressure

Adolescents are clearly heavy consumers of the media and if the media's skewed depictions of the ideal are adopted as reality, problems may arise (Schooler, Ward, Merriwether, & Caruthers, 2004). Additionally, with the attainment of these ideals represented as the epitome of happiness, success and control, as well as the corresponding stigmatisation of deviation in the form of

overweight and obesity, strong implications arise for body image concerns. When asked in an open-ended format, both boys and girls have failed to report media as an influence on body image (Polce-Lynch et al., 1998), but this may indicate that the ubiquitous nature of its influence is largely at a subconscious level. In a recent study of Irish adolescents, the majority felt adversely affected by the portrayals of body weight and shape in the media and this was associated with negative affect and with lower perceived popularity. Those who were considered *at-risk* for eating pathology were more likely to consider the media portrayal as "just right" (McNicholas et al., 2009).

The ideal body reflected in the media has been cited as the source of the thin ideal to which adolescent girls subscribe (Tiggemann et al., 2000), provoking a desire to lose weight (Harrison & Hefner, 2006) and emulate the looks of celebrities and models (Levine & Chapman, 2011). The strong emphasis on the thin body promotes critical self-evaluation that can lead to body dissatisfaction (Bartlett et al., 2008; Brandsma, 2007) and widespread eating-disordered behaviours (Field et al., 1999) in females. Psychological functioning variables such as self-esteem and negative affect have also shown close associations with media influences and body image. Polce-Lynch and colleagues (2001) found that media influences were filtered through body image before leading to self-esteem and adverse effects were stronger for girls than boys. Alternatively, media exposure was hypothesised to affect emotions before affecting one's body image (Nathanson & Botta, 2003). The associations between these factors are clear from correlational research (Bartlett et al., 2008); further research is needed to determine the directionality of these effects.

Media influences are not as strong for adolescent males (Jones et al., 2004; Polce-Lynch et al., 2001; Ricciardelli & McCabe, 2001), but have been linked to body dissatisfaction (Blond, 2008) and strategies to decrease weight (Ricciardelli & McCabe, 2003b). Moreover, when the focus is on muscular attributes, media influences have been associated with body image importance and body dissatisfaction (McCabe & Ricciardelli, 2005; Ricciardelli & McCabe, 2001). In some cases, boys have perceived the media as having either no effect or positive effects on their body image (McCabe et al., 2002), while in others media portrayals have produced desires to attain the ideal body (Spitzer et al., 1999). Qualitatively, similar trends have emerged. In one case, a significant proportion perceived the mass media as having no effect or a positive effect on their body image, eating or exercise behaviour (Ricciardelli et al., 2000), while in another, boys have discussed the use of media for information on fashion trends but not for appearance comparisons with celebrities or models (Hargreaves & Tiggemann, 2006). Inconsistencies regarding the effects of media pressure on boys may be due to the messages focusing on functionality rather than appearance per se (Grogan & Richards, 2002). Effects on body image

may be a consequence of how male bodies match up functionally with societal standards. Alternatively, they may be due to the vague nature of many of the measures utilised with a small number of indicators reflecting media 'messages' or 'pressure'.

3.5.3.5 Media and Agency

In accordance with an ecological perspective, an important consideration when examining media influences within the context of the appearance culture is the agency of the individual. Adolescents are not passive recipients of media messages and it is important to explore the processes that determine whether these portrayals are accepted in relation to the self. One hypothesis for explaining how media messages become internalised is whether an individual believes that significant others in the proximal environment are so affected. The *third-person effect* postulates that people will overestimate the influence of mass communications on the attitudes and behaviours of others, leading them to act on it (Davison, 1983). This may be particularly relevant in adolescence when the opinions of significant others are highly important. If individuals believe that others are evaluating themselves using appearance standards portrayed in the media, they may find it difficult to resist similar comparative processes (Milkie, 1999). The family or peer group may be used as a means of validating such critical assessment, and if members of these groups are also appearance-focused, the individual may internalise these messages in relation to the self.

In a qualitative investigation of White and Black female adolescents, Milkie (1999) found that although the White girls acknowledged that media portrayals were unrealistic, they believed that these portrayals were important to the people around them and were negatively affected by them. Ideal media images were used as a means of self-evaluation through social comparisons and the perceived judgments of significant others. In contrast, Black girls reported the portrayals as unrealistic and unimportant both to the people around them and to themselves, and were more immune to unfavourable social comparisons. This pattern of findings among White and Black American females was supported in a more recent investigation where the negative impact of media portrayals did not generalise to the Black females in the sample (Schooler et al., 2004). Therefore, a sense of identity within a culture that does not place particular importance on the thin ideal can serve as a protective factor against the negative impact of media portrayals.

3.5.3.6 Models and Celebrities in the Media

A further potentially detrimental influence of the media in terms of body image outcomes is the endorsement and glamourisation of unrealistic and unattainable ideals by models and celebrities. In addition to promoting an unrealistic body weight and shape, some celebrities are used in the media to promote diets or describe the diet and exercise regimes used to attain and

maintain their body shapes. In their longitudinal investigation, Field and colleagues (2001) observed that male and female adolescents who were focused on looking like their same-sex role models in the media were more likely to be concerned with their weight and become regular dieters. This has implications, in particular for adolescent boys as the research investigating impact and exposure suggests they are not as pressured from media influences as females. If a greater focus was placed on highly admired figures in the media, effects could possibly be stronger across gender.

An important aspect of celebrity admiration is the notion of *para-social relationships* with celebrities in the media (Giles, 2002), where individuals may become intensely attached to a celebrity figure, feel that they know the celebrity personally, and adopt similar attitudes and behaviours. These relationships are most likely to develop around early adolescence (Maltby et al., 2005), when external forces are more influential to body image (Paxton et al., 2006). Indeed, intense-personal orientation towards a celebrity was associated with attention to body shape and was apparent at age 14, peaking at age 15 and decreasing thereafter (Maltby et al., 2005). Significant associations with negative body image were confined to females and intense-personal orientation, where an exclusive para-social relationship with the celebrity is maintained. The impact of celebrities was also clearly evident in Mooney and colleagues' (2009) focus group study when young Irish adolescent girls revealed that celebrities greatly influence their body image and they aspired to be like them. The girls were highly informed on celebrity lifestyles including their diet and exercise regimes, and discussed them as if they knew them personally. This supports Giles' notion of para-social relationships and the significance of this form of influence at this developmental stage.

3.5.3.7 The Internet

The advancement of the digital revolution since the millennium means that adolescents are growing up in a time where the Internet is a pervasive aspect of their lives (Brown & Bobkowski, 2011; Madden et al., 2013). The majority of the research carried out thus far on media influences in relation to body image has predominantly assessed the mediums of magazines and television without including such 'new' forms of media (Tiggemann & Miller, 2010), which has the potential to substantially increase exposure to sociocultural pressures. The Internet can now be considered one of the primary means of transmitting cultural norms with its ability to communicate and interact with a staggering amount of users worldwide (Hinduja & Patchin, 2008). Its increasing access and generation of users means its effects on daily life are rapidly evolving (Greenfield & Yan, 2006; Subrahmanyam & Greenfield, 2008). Adolescents are considered among the highest users of the Internet, in particular its communication sites, and children are increasingly becoming users at younger ages (Subrahmanyam & Lin, 2007;

Wartella, Vaendwater & Rideout, 2005). Gender differences in online activities have also narrowed, as social communication sites have become a leading use for both boys and girls (Gross, 2004).

Adolescents have recently been referred to as the "defining users" of the Internet (Valkenburg & Peter, 2009, p.1), and with their distinct presence, web content providers will accommodate the needs and interests of this population. Thus, teen-targeted sites are likely to proliferate, covering fashion, shopping, and music (Rickert & Sacharow, 2010), much of it with an appearance orientation, no doubt. A content analysis of advertisements on teen-based websites found that the most frequent weight related advertisement regarded tips for losing 'belly fat' in a pop-up format (Slater, Tiggemann, Hawkins, & Werchon, 2012); such invasive, attention-grabbing advertising could trigger negative body-related evaluations. Moreover, Tiggemann and Miller (2010) included appearance-related Internet exposure in their partial application of the tripartite influence model and findings confirmed its association with body dissatisfaction. Internalisation and social comparison partially mediated the effect of Internet exposure on the drive for thinness with independent mediation effects. Other forms of media influence also correlated with Internet exposure indicating that the cumulative effect of appearance focused media is likely to be stemming from multiple mediums that are widely apparent within the everyday contexts in which adolescents reside.

3.5.3.7.1 Social Networking Sites

Social networking sites (SNS) are a form of Internet use that has surged in popularity with adolescents in recent years. In 2009, 73% of American adolescents aged from 12 to 17 years who accessed the Internet used online SNSs (Lenhart, Purcell, Smith & Zickuhr, 2010). This figure is likely to resonate in other countries also at the forefront of Internet technology. Indeed, in assessing youth's use of social media, over 60% of young Irish adolescents from the HBSC 2010 survey reported that they use e-communication everyday with their friends, ranking high among adolescents from the 39 countries surveyed in Europe and North America (Clark & the HBSC Ireland Team, 2012).

SNSs allow a public online life with easy and instant interaction with others, raising many interesting issues for researchers (Subrahmanyam & Greenfield, 2008; Tiggemann & Miller, 2010). Although much of the interaction is positive, there is also potential for negative effects and victimisation to arise from the public nature of this form of communication (Boyd, 2007). In recent times, there has been an increased awareness in Ireland on how the popularity of social media has also provided a new platform for bullying (Callaghan & the HBSC Ireland Team, 2012). The digital representations of the self that are portrayed through SNSs point to the

significant role of the media in the current adolescent identity-formation process (Brown & Bobkowski, 2011). The use of SNSs for identity construction means that the process is been carried out with similar others creating an additional context where self-presentation and social interaction are combined (Hinduja & Patchin, 2008; Manago, Graham, Greenfield, & Salimkhan, 2008). Manago and associates (2008) explored the influence of gender roles in identity construction on SNSs using a focus group methodology. Participants felt that females work harder on their profiles in aspects of physical attractiveness, and males' portrayals are more concerned with appearing powerful and strong; again paralleling patterns found offline (Murnen, 2011).

Membership to SNSs has been associated with internalisation (Tiggemann & Miller, 2010) and body image disturbance (Slater & Tiggemann, 2012), while time spent on SNSs has been positively correlated with a drive for thinness (Tiggemann & Miller, 2010). Moreover, since users display a number of photographs on their pages, it is reasonable to assume that it opens up the possibility of appearance comparisons (Haferkamp & Kramer, 2011), particularly since this online world is thought to parallel similar issues in the offline world (Subrahmanyam & Greenfield, 2008). In an experimental paradigm where participants were exposed to attractive and non-attractive profile pages, the exposure to attractive profiles led to higher levels of body dissatisfaction, indicating that processes of social comparison were at play and had a negative effect even when targets were unfamiliar (Haferkamp & Kramer, 2011). Posting comments to a friend's page is a popular use of social networks and a recent survey found that 86% of adolescent social network users post comments, with 83% posting comments in response to a photograph (Lenhart et al., 2010). If related to appearance, negative interpretation of such comments can have detrimental implications for one's body image. Indeed, the Dail na nÓg survey revealed that 27% of girls and 14% of boys reported that their body image impedes their desire to put photographs on their Facebook profiles (O'Connell & Martin, 2012). Given the already vast and ever-expanding numbers of adolescent Internet users, it is crucial to further our understanding of the adolescent online world and how it is impacting their lives (Boyd, 2007; Subrahmanyam & Greenfield, 2008).

3.5.3.8 In Summary

To summarise, the literature on media influences highlights its power to define and construct social messages regarding the ideal body, which in turn, can contribute to body dissatisfaction in adolescents. For females, causal inferences cannot yet be made, but the review of the literature and the integration of quantitative data in meta-analytic work has provided useful indications. In general, findings support the notion that exposure to appearance-focused media increases vulnerability to body image concerns (e.g., Grabe et al., 2008). In males, the picture is

less clear. Cross-sectional research generally points to an association between media influences and negative body image outcomes, but experimental and prospective research indicates that effects are not as strong until later in adolescence. With variation in research designs and measurement, and a limited focus on particular forms of media influence such as magazines in some cases (e.g., van den Berg, Neumark-Sztainer, Hannan, & Haines, 2007), the true effects of media exposure on body image issues are unlikely to be accounted for. Experimental designs carry the particular strength of providing indications of causality between media effects and body image outcomes due to the power of media manipulation, but brief presentation of images or advertisements are not fully representative of real-world contexts (Grabe et al., 2008; Leit et al., 2001). Thus, in reality the effects may be far greater than those observed in highly controlled settings.

The support of a general negative effect of media consumption on body image is apparent although effect sizes tend to be small to moderate, suggesting that additional factors must be considered. Individual differences in the cognitive processing of the messages may largely account for variations in media effects. Furthermore, the research points to the need to examine how media messages may negatively affect body image attitudes and behaviour through the reflected appraisals of significant others in the immediate appearance culture. Research addressing these important cognitive processing variables and the diffusion of wider media influences within the proximal appearance environment will be highly informative.

A further issue involves the limited and varying forms of media influences that are assessed. Certainly, assessing one form of media influence will not provide an adequate account of the extent of its impact. All forms of media highlighted as important among adolescents should be encompassed in research designs to gain a clearer picture of how this influence is dispersed in the appearance culture. Granted, due to the variety of forms and the multitasking that is often involved, media use is very difficult to empirically assess. Standardised measures are not widely applied and assessments reflecting 'messages from the media' are vague, providing limited information. Furthermore, measures of exposure alone may not be sufficient as the chosen genre or admired figures will have a greater impact on how appearance-related information is processed, both generally and in relation to the self. Despite the various procedures and measures used, converging results from multiple methodologies have provided many insights. With its central position in the lives of youths, the mass media is a ubiquitous and powerful form of influence that reverberates throughout sociocultural contexts. As with other forms of influence from the appearance culture, interrelations between the individual and the immediate environment are likely to be complex and multidimensional.

3.5.4 Differential Impact of Sociocultural Influences

When the triad of sociocultural influences have been included in the same study, the differential contribution of each source has varied. For example, in girls, peer and media, but not parental influences played a significant role in predicting body image concerns and eating disturbance (Papp et al., 2013; Shroff & Thompson, 2006), while in other applications, all sources from the triad have shown significant contributions (e.g., Keery et al., 2004). For boys, parent and peer influences have been more strongly associated to body dissatisfaction than the media (Ricciardelli & McCabe, 2003b), while in a recent application, contributions emerged exclusively from media influences (Papp et al., 2013). Moreover, all three sources have shown significant independent contributions in predicting muscle-building techniques (Smolak et al., 2005), although peer and media influences were stronger correlates. Many studies have included only peer and media influences, possibly due to the greater independence from parents during adolescence. For girls, both peers and the media have independently contributed to body image and weight-related behaviours (Field et al., 1999; Jones et al., 2004). For boys, peer influences but not media influences have been related to internalisation and body dissatisfaction, although in this instance only the medium of magazines was assessed (Jones et al., 2004).

The combined influence of the three socialisation agents generally contribute to the prediction of body dissatisfaction better than any one of the sources individually (e.g., Dunkley, Wertheim, & Paxton, 2001), and are often correlated with each other (Clark & Tiggemann, 2007), supporting the notion of a culture of appearance consciousness in which the three sources of influence interact and reinforce each other. The contributions of the triad of sociocultural influences are often considered independently, but in reality these relationships are often interrelated or convergent (Jones, 2011). In order to fully capture the essence of these influences, it may be more appropriate to attempt to understand the contribution of each from a collective notion of the appearance culture.

The media needs to be conceptualised in the same manner as the more immediate influences of family and peers, as part of the everyday collective experience of the appearance culture, acknowledging the interconnections between and within the triad of sociocultural influences. For example, the active mediation of parents and peers in either facilitating or mitigating the effects of the media warrants attention. The small to modest effect sizes seen with direct media effects combined with these indirect effects are likely to be substantial (Harrison & Hefner, 2006). Future research also needs to apply qualitative techniques to obtain a better understanding of the nature of relationships between various sociocultural sources and the meanings placed on messages received in various contexts. For example, greater understanding of how messages, whether explicit or inferred, translate into pressures to lose weight or gain

muscle for adolescent girls and boys will be valuable.

From the review of parent, peer and media influences, important insights have been gained. Nonetheless, issues common to all sources within the triad have limited the ability to make firm conclusions. One such issue is narrow stimulus sampling (Kazdin, 2003), where assessment strategies have used one-dimensional indicators of possible sources of sociocultural influence, failing to capture the multidimensionality of constructs. Keery and colleagues (2004) applied a variety of indicators and used factor analysis to produce a set of items that reflected influential aspects of the sociocultural environment for their female sample. A similar approach encompassing the interactive nature of the appearance culture is warranted; to include a comprehensive set of indicators and then, through psychometric refinement, produce a concise measure of pertinent influences currently faced by adolescents in the modern-day appearance culture.

3.6 Individual Characteristics

Many integrative theoretical models propose that the consideration of certain individual characteristics can increase understanding of differential levels of vulnerability to body image disturbance, as they will shape experiences within the appearance culture as well as developmental outcomes. Individual characteristics that are important to review in relation to body image in early adolescence include the physical characteristics of BMI and pubertal development. In addition, the psychological factors of self-esteem and negative affect are often cited as correlates of body image concerns.

3.6.1 Body Mass Index

BMI is a standard measure of physical status that is defined as a relationship between height and weight that provides an indication of body fat and health risk (Jones & Crawford, 2006; Ricciardelli, McCabe, Mussap, & Holt, 2009). BMI has been identified as an important factor in the development of body image concerns. The association between the two appears to progress during childhood (Wertheim & Paxton, 2011) and is evident in both adolescent boys and girls (Mäkinen et al., 2012; Woodruff, Hanning, Lambraki, Storey, & McCargar, 2008).

In relation to societal portrayals of physical attractiveness, low BMI is desirable for females, although for the muscular male, the relationship is not so straightforward. The measure of BMI is based on weight and height and does not account for muscularity, thus highly trained athletes may have a high BMI due to muscularity rather than body fat. Early adolescent boys, however, tend to show most dissatisfaction if they are above or below the average level of BMI (Papp et

al., 2013; Presnell et al., 2004). Moreover, deviation from norms of physical attractiveness in the form of overweight or obesity is highly unfavourable in society. BMI is associated with impairment in the emotional-wellbeing of adolescents and this is largely due to the effects of body dissatisfaction (Mond et al., 2011). In qualitative investigations, children have reported feeling that being overweight should not matter, but equally feeling that it does, as susceptibility to victimisation, bullying, and low popularity is heightened within the peer context (Dixey, Sahota, Atwal, & Turner, 2001). Overweight girls have described hazardous social interactions where they have been stigmatised, both directly and indirectly through teasing and unintentional comments (Neumark-Sztainer et al., 1998), and the experience was strongly associated with body dissatisfaction (Neumark-Sztainer et al., 1998; Neumark-Sztainer, Story, Falkner, et al., 1999). Body size is often perceived as a socially acceptable target of prejudice and this is also reflected through representations in the media, such as TV shows where overweight persons are the subjects of comedy and ridicule (Thompson, Heinberg, et al., 1999).

With the increasing rates of childhood and adolescent obesity both in Ireland and internationally (Currie et al., 2012; Mulvihill et al., 2004), weight and shape concerns have become a prominent health issue. Subjective levels of body dissatisfaction are likely to correspond (Mond et al., 2011). Indeed, adolescents with above-average BMIs have higher levels of body image concerns than their peers and these patterns are relatively consistent across populations and methodologies (Neumark-Sztainer, 2011). Some groups, such as those with African-American ethnicity, have higher levels of body satisfaction but even within these groups, BMI is positively associated with body image concerns (Neumark-Sztainer, Story, Falkner, et al., 1999).

3.6.1.1 Empirical Evidence: Girls

In his meta-analysis, Stice (2002) deduced that BMI is a risk factor for perceived pressure to be thin and body dissatisfaction in adolescent girls. Indeed, support has been widely found in cross-sectional (e.g., Chen, Gao, & Jackson, 2007; Lawler & Nixon, 2011) and longitudinal designs (e.g., Jones, 2004; Wojtowicz & von Ranson, 2012), although some null effects have also emerged (e.g., Bearman, Presnell, Martinez, & Stice, 2006; Byely et al., 2000). One reason for the contradictory results may be the normative levels of body image concerns and related behaviours reported in girls regardless of BMI status. Perceptions of BMI clearly play a role in body image evaluations, as subjective evaluations are not always consistent with objective measures (Papp et al., 2013). Females bordering on underweight have been found to perceive themselves as somewhat overweight (Suka, Sugimori, Yoshida, Kanayama, Sekine, Yamagami et al., 2006; Tiggemann & Pickering, 1996), and even if girls correctly perceive themselves as average weight, desires to be thinner and body dissatisfaction are clearly evident (Neumark-

Sztainer, Story, Hannan, Perry, & Irving, 2002; Ryan, Gibney & Flynn, 1998).

3.6.1.2 Empirical Evidence: Boys

Overall, BMI has been the most significant biological factor associated with body dissatisfaction in boys (Cafri, Thompson, et al., 2005; Lawler & Nixon, 2011; van den Berg et al., 2007), and in one study showed even more explanatory power than sociocultural factors (Paxton et al., 2006). Conversely, in some cases, no significant associations have emerged (Bearman et al., 2006; Jones, 2004). In accordance with girls, boys with high BMIs are also more likely to express weight concerns (Mäkinen et al., 2012; Paxton et al., 2005) and to have higher levels of body dissatisfaction (Jones & Crawford, 2005; Jones et al., 2004; Paxton, et al., 2006). Moreover, when both weight and muscularity concerns were applied as dual pathways to body dissatisfaction, lower BMI was significantly related to muscularity concerns and higher BMI with weight concerns (Jones & Crawford, 2005). The majority of the evidence points towards this relationship (McCabe & Ricciardelli, 2005; Neumark-Sztainer et al., 2002), and boys who are small for their age have shown increased interest and engagement in muscle-building strategies (McCabe & Ricciardelli, 2004b; Ricciardelli & McCabe, 2009; although see Ricciardelli & McCabe, 2003a for a null finding). It is likely that the high cultural value placed on muscularity impacts standards and motivations of boys regardless of their BMI status. Thus, as seen with girls, pressure may be prevalent across BMI categories, at least in early adolescence (Jones et al., 2008).

3.6.1.3 In Summary

Those with a high or low (particularly for boys) BMI will deviate from culturally determined norms of the ideal body increasing the risk for body image concerns (Stice, 1994, 2002; Thompson, Heinberg, et al., 1999). The context can be set for other influencing factors if an individual possesses certain physical attributes that influence initial environmental interactions (Wertheim & Paxton, 2011). However, when BMI has been applied in multifactorial models of body dissatisfaction, results generally point to the direct association between BMI and body dissatisfaction, with no evidence emerging for the mediating role of internalisation or comparison for girls or boys (Jones, 2004; Jones et al., 2004; Lawler & Nixon, 2011). Furthermore, although indirect associations have emerged with sociocultural pressures such as peer influences, direct associations have been stronger (Keery et al., 2004), and the direct associative pathway has been evident even when perceived sociocultural pressure was low (Stice & Whiteton, 2002).

3.6.2 Pubertal Development

Pubertal development in adolescence is associated with many physical changes including hormonal changes, the onset of sexual maturation, and changes in interpersonal realms (Spruijt-

Metz, 1999). The physiological changes that accompany puberty are immense, including changes in height, weight, and the development of secondary gender characteristics, all of which increase attention to one's body and the bodies of peers, in turn influencing the sense of self (Mulvihill et al., 2004; Spruijt-Metz, 1999).

For girls, puberty involves the commencement of menstruation and increases in body fat deposits with the development of breasts and broadening of hips (Wertheim & Paxton, 2011). While the development of secondary sexual characteristics may symbolise femininity, the accompanying increases in body fat places the female further from the cultural ideal of thinness. Consequently, many young girls become more preoccupied with their weight and shape (Piran, 2001) and more dissatisfied with their bodies (Wertheim et al., 2009). In contrast, the weight spurt that boys experience during puberty is often due to increases in muscle mass and lean tissue. This, in addition to the increases in height and the widening of the shoulders, generally places boys closer to the male sociocultural lean and muscular ideal (McCabe et al., 2002). However, the onset of puberty generally occurs in middle or late adolescence for boys and in early adolescence for girls (Tanner, 1989). Thus, early adolescence is a developmental stage with heightened body consciousness and an increased likelihood of normative deviation from cultural appearance norms, particularly for postpubescent girls and prepubescent boys.

3.6.2.1 Empirical Evidence: Girls

Pubertal development in girls has been associated with greater body dissatisfaction, internalisation, and weight-loss attempts (Field et al., 2001; McNicholas et al., 2012). Postpubertal adolescent females have been more likely to perceive themselves as overweight, evaluate their bodies negatively (Abraham & O'Dea, 2001; Suka et al., 2006), and display signs of eating pathology (Cortufo, Cella, Cremato, & Labella, 2007). In fact, the long-term effect of the earlier onset of puberty and its associated weight gain has been posited as a reason why body dissatisfaction is higher in females across the adolescent period (Byely et al., 2000; Tremblay & Lariviere, 2009).

An awareness of body image, the understanding of the concept of dieting resulting in weight loss, and the understanding of behaviours associated with weight loss have been evident in postpubescent girls but not with prepubescent girls within the same sample (Abraham & O'Dea, 2001), indicating that pubertal changes may be initially responsible in drawing girls' attention to the body and related concepts. Negative body image has shown a mediating role in the association between pubertal development and low self-esteem when it occurs earlier than adolescence, however, the mediating role was not evident when it occurred in early adolescence, despite associations emerging between body dissatisfaction and low self-esteem

for this age group (Williams & Currie, 2000). This indicates that a negative body image was present in this instance regardless of pubertal status in early adolescence, contrary to Abraham and O'Dea's (2001) findings.

3.6.2.2 Empirical Evidence: Boys

As previously noted, the later onset of puberty for boys may increase vulnerability in early adolescence as their pre-pubertal bodies are more departed from the ideal (Ricciardelli & McCabe, 2011). However, findings in the literature regarding the associations between pubertal status and body image-related outcomes in adolescence have been inconclusive. Pubertal status has been negatively correlated with drive for thinness and internalisation in Irish boys (McNicholas et al., 2012), while positive correlations have also been noted in boys for dieting and purging behavior (Field et al., 1999). In support of puberty placing boys closer to societal ideals, the relevance of weight concerns and muscle building strategies has been greater in prepubescent boys (Smolak et al., 2005; Suka et al., 2006), also decreasing over time during adolescence (Helfert & Warschburger, 2011; Smolak, 2004; McCabe et al., 2002; Tremblay & Lariviere, 2009).

An age-related increase in muscularity concerns has also been found in adolescent boys, however, indicating a greater awareness of masculine ideals and drive for muscularity as the individual progresses through adolescence (Jones & Crawford, 2005). Moreover, pubertal status has shown no associations with body dissatisfaction (Barker & Galambos, 2003), disordered eating behaviours (Keel, Fulkerson, & Leon, 1997) or the drive for muscularity (Smolak & Stein, 2006), with authors concluding that sociocultural factors pose a greater risk. Evidence has also emerged in boys regarding associations between decreased body dissatisfaction and the perception of future pubertal physiological changes (Suka et al., 2006). Qualitatively, young adolescent boys have also reported that they did not feel pressure from sociocultural influences, as they were cognizant of their bodies growing towards the muscular ideal and rated the pubertal experience favourably (Hargreaves & Tiggemann, 2006).

3.6.2.3 Pubertal Timing

Pubertal development is sensitive to internal and external factors and although girls generally experience puberty earlier than boys, there are individual variations in its onset (Tremblay & Lariviere, 2009). The *off-time hypothesis* posits that adolescents who mature both earlier and later than their peers will develop more emotional, social and behavioural problems than their on-time peers, likely due to the importance of peer acceptance during this time (McCabe & Ricciardelli, 2004a; Ricciardelli & McCabe, 2011). Processes within the peer context come into play such as social comparisons and conformity, and if an individual perceives that they fall outside the 'norm', they will have increased vulnerability to poorer body image evaluations and

lower self-esteem (Wertheim et al., 2004; Williams & Currie, 2000). In accordance with the sociocultural perspective, early maturing girls and late maturing boys will be most susceptible to body image concerns.

3.6.2.3.1 Empirical Evidence: Girls

Early maturation is most concerning for girls if they notice that the rate and size of developmental change deviates from the majority within the peer group (Wertheim et al., 2009), and associations have been found with drive for thinness, body dissatisfaction and eating concerns (McNicholas et al., 2012). The direct effect of early maturation on body dissatisfaction has also emerged prospectively (McCabe & Ricciardelli, 2004a), particularly if increases in body size coincide (Wertheim et al., 2002). Furthermore, early maturing girls have shown greater engagement in strategies to decrease weight (McCabe & Ricciardelli, 2004b) and eating pathology in both cross-sectional (Kaltiala-Heino, Rimpela, Rissanen, & Rantanen, 2001), and longitudinal research (Keel et al., 1997; McCabe & Ricciardelli, 2009). However, there has also been conflicting data (Stice & Whiteton, 2002; Thompson et al., 1995). Additionally, late maturers have also reported negative body image on the basis of being too thin (Williams & Currie, 2000), suggesting that despite the cultural preference of thinness, some girls may report dissatisfaction due to the later development of sexualised characteristics that match the female gender role in comparison to their peers.

3.6.2.3.2 Empirical Evidence: Boys

Although the off-time hypothesis has been more fully developed in the case of early maturing girls, there is support that it also applies to boys, although, again, findings have been inconsistent. Both early and late maturation have been associated with concerns and extreme body-change behaviours in some cases (Dominé, Berchtold, Akré, Michaud, & Suris, 2009; McNicholas et al., 2012), while no association has been found in others (Galambos et al., 1990; Ricciardelli & McCabe, 2003a). One of the longitudinal studies located suggested that early maturing boys were more likely to report higher popularity with opposite sex peers, and engage in strategies to decrease weight and increase muscles, while late maturing boys were more likely to express body dissatisfaction and use food supplements (McCabe & Ricciardelli, 2004a). A further longitudinal study assessed both pubertal timing and development, finding only a cross-sectional association with the former and a prospective association with the latter (Ricciardelli & McCabe, 2009).

3.6.2.4 In Summary

Overall, findings point to the multifaceted and complex nature of the pubertal transition and the associated effects on adolescents' body image. The effects of pubertal status and timing are consistent with the cultural notions of the ideal body in males and females (McCabe &

Ricciardelli, 2004a). Despite some inconsistencies in the literature, puberty generally has a negative impact on girls and a positive impact on boys regarding evaluative body image (McNicholas et al., 2012), further highlighting the differential experience of body image issues across gender in adolescence.

3.6.3 Self-Esteem

Self-esteem is a global construct defined as an overall evaluation of the self (Rosenberg, 1965). Body esteem is a major contributor to overall level of self-esteem and, not surprisingly, body image and self-esteem are often highly associated (Keery et al., 2004; Polce-Lynch et al., 1998). The close association between self-esteem and body image in adolescence is likely to be affected by interactions with the sociocultural environment and how such information is processed (Ata et al., 2007). The MWS survey found that levels of self-esteem generally decrease throughout adolescence (Dooley & Fitzgerald, 2012). Self-esteem is often viewed as a determinant of body dissatisfaction and associated behaviours (e.g., Ricciardelli & McCabe, 2003a), and was identified as the strongest risk factor in a prospective study with girls in relation to internalisation, BMI, teasing, and perfectionism (Wojtowicz & von Ranson, 2012). On the other hand, body image has been proposed as a predictor of self-esteem (e.g., Tiggemann, 2005). These two propositions correspond to the differences in the two tripartite influence model configurations proposed by Thompson, Heinberg, and colleagues (1999).

3.6.3.1 Self-Esteem across Gender

Interesting gender differences have emerged in relation to self-esteem and body image. Polce-Lynch and colleagues (1998) found in their qualitative study using written narratives that body image was important for both positive and negative self-appraisals in girls but was reported less often as a source of self-esteem for the boys. In terms of social self-esteem, however, boys and men have cited the importance of aesthetic aspects of the body (Grogan & Richards, 2002). In quantitative investigations, girls have reported lower self-esteem than boys (Dooley & Fitzgerald, 2012; Polce-Lynch et al., 2001), and the association between body dissatisfaction and low self-esteem is generally stronger for girls (Mäkinen et al., 2012). Yet, it has also been found that despite lower levels of body dissatisfaction among boys, the relevance of self-esteem to body image was comparable across gender (Davison & McCabe, 2006). Moreover, boys with low self-esteem were more strongly affected by sociocultural influences related to appearance while girls were affected independent of their levels of self-esteem (Ricciardelli & McCabe, 2001).

Girls have reported that media influences and peer relationships affected their body image, which in turn affected their self-esteem. This mediated pathway was not present for boys, as

media influence appeared to directly affect self-esteem (Polce-Lynch et al., 1998; Polce-Lynch et al., 2001). Conversely, self-esteem has emerged as a longitudinal predictor of body dissatisfaction for early and middle adolescent girls (Paxton et al., 2006). The nature of the association between self-esteem and body image is less clear for adolescent boys. In early adolescence, boys have reported higher levels of self-esteem and associations have been noted with body satisfaction in comparison to boys later in adolescence (Cohane & Pope, 2001; Polce-Lynch et al., 2001). One possibility is the later occurrence of puberty increasing pressures and heightening awareness of the link between self-esteem and body image.

3.6.3.2 Self-Esteem and Bodily Concerns

Due to the stigmatisation of overweight and the centrality of appearance in society, self-esteem has shown close associations with weight, weight-related concerns, and behaviours (Mond et al., 2011; Tiggemann, 2005). In examining the relation between BMI and self-esteem, inverse relationships were found between BMI and physical appearance aspects of self-esteem across gender. Similar patterns emerged between BMI and global self-esteem in girls, and between BMI and athletic and romantic aspects of self-esteem for boys (French, Perry, Leon, & Fulkerson, 1996), further coinciding with the cultural values of appearance for girls and boys (appearance vs. function; Murnen, 2011). In terms of the temporal precedence of the association, high BMI, perceptions of overweight, and weight dissatisfaction have prospectively increased vulnerability to low self-esteem, while the reverse association did not hold (Dohnt & Tiggeamnn, 2006; Mond et al., 2011). Another prospective study also found support for body dissatisfaction predicting lower self-esteem (Johnson & Wardle, 2005). Conversely, low self-esteem has contributed to predicting weight concerns, body dissatisfaction, and weight-related behaviours in girls, both concurrently (Darnall, Smith, Craighead, & Lamounier, 1999; Riccirdelli & McCabe, 2001) and longitudinally (Riccirdelli & McCabe, 2003a).

The literature centred on muscularity concerns may provide a clearer picture regarding the nature of the relationship for adolescent boys. Negative correlations have emerged between self-esteem and the drive for muscularity in boys but not girls (McCreary & Sasse, 2000). Additionally, self-esteem has moderated the effects of sociocultural influences on body dissatisfaction and muscle-building techniques (Ricciardelli & McCabe, 2001), and direct associations with muscle-building techniques have been evidenced with boys but not girls (Ricciardelli & McCabe, 2003a).

3.6.3.3 In Summary

Early adolescence is a challenging time in terms of pubertal development, social changes, and new academic challenges. With the onset of puberty generally earlier in adolescent girls and the cultural emphasis on female appearance, the synchronous nature of these events for some may

induce negative effects on levels of both body image and self-esteem. Direct links between sociocultural influences and self-esteem appear more relevant for the boys. Furthermore, it is of interest that self-esteem was correlated more strongly with indices pertaining to muscularity concerns in males. Therefore, research failing to address such concerns may be underestimating the association between self-esteem and body image in males (Olivardia et al., 2004).

3.6.4 Negative Affect

The challenge of dealing with the many pressures and changes in adolescence, in addition to the confluence of other influencing factors pertaining to the individual and the social environment, can particularly impact emotional mood states. Consequently, adolescents report higher levels of negative mood than adults, and if judged by variability in mood, adolescence is a stressful period in the life cycle (Kandel & Davies, 1982). As for the link between body image and mood, research has found positive associations between body dissatisfaction and negative affect (Keel et al., 1997; McCabe & Ricciardelli, 2003a; Stice & Bearman, 2001)

Similar to self-esteem, the temporal precedence of the association between negative affect and body dissatisfaction is debatable. Inconsistent findings have emerged across gender for negative affect as a prospective risk factor for the development of body dissatisfaction. Support has been found in boys and girls (Bearman et al., 2006) and in boys but not girls (Paxton et al., 2006; Presnell et al., 2004; Stice & Whiteton, 2002). On the other hand, body dissatisfaction has been proposed to contribute to negative affect based on the centrality of appearance to an individual's self-concept (Stice & Bearman, 2001; Stice & Shaw, 2002), and this directional effect has been supported prospectively (Mond et al., 2011; Paxton et al., 2006).

3.6.4.1 Negative Affect across Gender

Negative affect has shown close relations to risk factors leading to body dissatisfaction and weight control strategies for both boys and girls (Leon et al., 1999; Mond et al., 2011). However, whereas these studies have indicated a relationship between body dissatisfaction and negative affect across gender, other studies have only reported the association with girls (Ricciardelli & McCabe, 2001) or boys (Paxton et al., 2006; Presnell et al., 2004) when both genders were included. In addition, in one instance, although significant relationships emerged between body image and negative affect variables, the significance of the relationships diminished when self-esteem was accounted for (Davison & McCabe, 2006).

Sociocultural influences are also closely intertwined, with perceived pressure from the media and negative peer relations correlating with body dissatisfaction, negative affect and poorer quality of life (McNicholas et al., 2009; Ricciardelli & McCabe, 2001). Experimentally,

exposure to ideal image advertisements resulted in higher depression and body dissatisfaction in adolescent girls (Hargreaves & Tiggemann, 2004) and young adult males (Agliata & Tantleff-Dunn, 2004). The mediating and moderating role of negative affect on sociocultural influences has also been noted. For both boys and girls, negative affect has moderated sociocultural messages directed at increasing muscles (Ricciardelli & McCabe, 2001). In boys, negative affect mediated the relationship between weight-related teasing and body dissatisfaction, and contributed to body dissatisfaction prospectively over a 5-year period (Paxton et al., 2006). In terms of appearance-related discussions, muscle-building conversations in boys have been related to preoccupation with muscularity, but when negative affect and anxiety were controlled muscle-building conversations were negatively related to body dissatisfaction (Jones & Crawford, 2005).

In relation to behavioural outcomes, negative affect appears to play a central role in predicting and maintaining eating pathology, particularly bulimic symptoms, in adolescent girls (Johnson & Wardle, 2005; Stice, 2002; Stice & Bearman, 2001) and to a lesser extent in adolescent boys (Leon et al. 1999; Ricciardelli & McCabe, 2001). In predicting a range of weight-change behaviours (e.g., the use of food supplements, bulimic symptomatology and exercise dependence), McCabe and Ricciardelli (2006) found that negative affect played a significant longitudinal role. In girls, body dissatisfaction and body image importance also showed strong contributions while in boys, negative affect was the most consistent predictor. Finally, in predicting behaviours to increase muscles, negative affect has played a role for boys but not girls (McCabe & Ricciardelli, 2003b; McCreary & Sasse, 2000).

3.6.4.2 In Summary

Negative affect appears to be a central feature of body image concerns. For boys, negative affect is an important consideration and at times has shown greater contributions than other body image-related variables. For girls, the role of negative affect is more inconsistent, although these findings may have emerged due to the uncertainty regarding temporal precedence of association. The debate surrounding the causal nature of these relationships continues and further prospective and experimental research is warranted to progress our understanding of the mechanisms at play (McCabe & Ricciardelli, 2006).

3.6.5 Differential Impact of Individual Characteristics

The reviewed individual characteristics have garnered the most consistent empirical support from the literature, which include both the physical characteristic factors of BMI and pubertal development, and the psychological functioning factors of self-esteem and negative affect. The literature predominantly supports the association between BMI and body dissatisfaction in both

adolescent girls and boys. The inconsistent support for the association in boys may be due to the curvilinear relationship found in relation to muscularity concerns and weight concerns. Due to stronger support for the direct association between BMI and body dissatisfaction, it has been recommended that future modifications of the tripartite influence model include BMI as an exogenous variable, directly correlated with body dissatisfaction (Keery et al., 2004).

The findings in relation to the contribution of pubertal development, albeit inconsistent and in need of further clarification, generally point to early adolescence as a time where both boys and girls are vulnerable to body image concerns, due to levels of pubertal development conflicting with cultural norms regarding the ideal body. Findings in relation to pubertal timing, again are inconsistent, but have provided important insights, such as evidence of pubertal timing moderating the effects from the immediate appearance culture. This supports the bioecological perspective where individual characteristics impact the proximal processes that occur within the appearance culture. This review suggests that puberty is an important consideration and its inclusion in multifactorial models is certainly warranted to further explore its utility in the development of body image.

The psychological functioning variables of self-esteem and negative affect are important to consider in relation to body image. Both variables have shown associations with body image but prospective associations have been inconclusive. These psychological functioning variables appear to correlate more strongly with muscularity concerns among boys so variability in measurement may have contributed to inconsistent findings. Thus, it is important to encompass all forms of bodily concerns when exploring these associations to gain a more comprehensive understanding of the processes at work. Additionally, the inconsistent prospective findings may be due to the temporal precedence of the relationship. It remains unclear whether self-esteem and negative affect are causes, consequences or simply correlates of body image concerns. When Keery and colleagues (2004) tested one hypothesis against the other in variations of the tripartite influence model, the model proposing the direct association between body dissatisfaction and psychological functioning was a more appropriate fit. This pathway was confirmed in a more recent application of the model (Papp et al., 2013). However, these studies were cross-sectional and so directionality cannot be confirmed. The relationship is likely to be reciprocal but further exploration of direct and indirect relationships cannot be overstated given the importance of both body image and psychological wellbeing in adolescence.

3.7 Appearance-Related Cognitive Processing

Cognitions can be viewed as the constructions that arise from the multiple interactions with the physical and social environment in order to increase our knowledge and make sense of the world (Woodhead, 2003). As the adolescent progresses, the more abstract concepts of body image and appearance ideals play an important role, possibly due to developments in cognitive processing that take place from early adolescence onwards (Gralen et al., 1990). When encountering the environment, individuals filter the received information and experiences through cognitive processes, and it is these processes that can alleviate or exacerbate the effects of the appearance culture. Cognitive processing allows beliefs and expectancies to be formed from prior experience and this guides future behaviour (Bandura, 1986). These processes may serve as mediators between personal and sociocultural influences and behaviour. For example, when appearance ideals are highly important to an individual, their body-image schema may be activated when they encounter triggering events such as appearance-related discussions or media portrayals of the ideal. Cognitive processes that have been identified in mediating the impact of social influences on body image concerns include appearance comparisons, internalisation of appearance ideals, and the development of appearance schemas (Tiggemann, 2005). It has been proposed that investment in these cognitive mechanisms is predictive of body image concerns, affecting one's quality of life (Cash, Melnyk, & Hrabosky, 2004).

3.7.1 Appearance Comparisons

Social comparisons are cognitive judgments that depend on how one evaluates the self in comparison to others on a particular attribute, regardless of objective circumstances (Wood, 1989). Since the developmental stage of early adolescence involves the initiation of a stable sense of self, self-evaluation across a number of dimensions, including physical appearance, will be high. In turn, appearance comparisons may increase (Martin & Kennedy, 1993). Social comparison theory (Festinger, 1954, cf. Thompson, Heinberg, et al., 1999) emerged from sociocultural theory and posits that individuals compare themselves with others across a range of dimensions, particularly when targets are similar to the individual. The preference to compare oneself with similar others stems from the perception that such individuals possess relevant attributes for self-evaluation (Suls, et al., 2002), and can help the individual understand their positioning in relation to the respective attributes (Wood, 1989). More recently, Wood (1989) has progressed from Festinger's original theory by emphasising the active role of the social environment in the comparison process, as the individual responds in accordance to the social context, which can impose comparisons onto the individual.

In relation to body image, this theory posits that the pervasive sociocultural pressures related to appearance and body shape will increase the tendency to compare oneself with others based on

appearance-related attributes. If upward comparisons are made with similar others, body image disturbance can result. Individual differences in these tendencies can reflect individual differences within the body image disturbance continuum (Thompson, Heinberg, et al., 1999). In accordance with both Festinger's and Wood's propositions, active comparisons are continually occurring within the appearance culture that impact body image evaluations (Price, 2009).

3.7.1.1 Appearance Comparisons in Adolescence

Adolescence presents a time where the tendency to engage in appearance comparisons is especially high. Adolescents spend the majority of their waking hours in the company of peers within the school system, providing a comparative reference point for an embodied sense of self (James, 2000). Indeed, a meta-analysis revealed that the relationship between social comparison and body dissatisfaction is especially strong during adolescence (Myers & Crowther, 2009). As previously noted, appearance is a central dimension of peer popularity and acceptance (e.g., Jones, 2011), and in order to determine one's social positioning and the social positioning of others on these bases, appearance comparison comes into play (Jones, 2001). Awareness of this link appears evident at an early age (Oliver & Thelen, 1996). Additionally, in adapting to the many normative physical changes that are occurring in early adolescence, engagement in appearance comparisons may be needed to seek reassurance and restore stability to one's self-evaluation (Martin & Kennedy, 1993). Despite this, overall appearance comparisons tend to lead to negative outcomes in early adolescence and have been linked quite consistently to body dissatisfaction (Jones, 2004; Smolak et al., 2005). The two predominant dimensions of appearance comparison in adolescence comprise weight- and muscle-related comparisons, with the former more strongly associated with girls and the latter with boys (Fisher, Dunn, & Thomspson, 2002).

3.7.1.2 Empirical Evidence

Interest in the role of appearance comparisons has grown since it was posited as a mediator in the tripartite influence model. A recent meta-analysis of 156 correlational and experimental studies on males and females ranging from early adolescence to adulthood produced a moderate effect size of 0.77, suggesting that levels of appearance comparisons are positively related to body dissatisfaction, and stronger relationships were found among females and younger ages (Myers & Crowther, 2009). Despite muscle-related comparisons generally being associated with males, weight-related comparisons have been the primary correlate of body dissatisfaction for both boys and girls regardless of BMI (Jones, 2001). Halliwell and Harvey (2006) also found that appearance comparison led to increased drive for thinness and disordered eating behaviours across gender, although no comparative muscle-related measures were applied.

3.7.1.2.1 Girls

Appearance comparison tendencies appear to be higher in girls than boys (Davison & McCabe, 2006; McCabe, Ricciardelli, & Ridge, 2006) and are associated with higher levels of body dissatisfaction. Experimental research shows that both adolescent and adult females with higher levels of body dissatisfaction and body image investment engage in more frequent social comparisons (Hargreaves & Tiggemann, 2004) and selectively attend to areas of the target's body that arouses negative self-evaluations (Janelle, Hausenblas, Ellis, Coombes, & Duley, 2009; Wertheim & Paxton, 2011). These negative effects on body dissatisfaction have also been evidenced in adolescent females when initial levels of body dissatisfaction have been controlled (Durkin, Paxton, & Sorbello, 2007). Furthermore, social comparison has mediated influences from parents, peers, and the media on body dissatisfaction, particularly for those with lower body esteem (Keery et al., 2004; Martin & Kennedy, 1993). Such comparisons have shown a longitudinal effect on change in body dissatisfaction over one year, particularly when induced by peer appearance conversations (Jones, 2004), and appear to increase with age from preadolescence onwards (Martin & Kennedy, 1993). The appearance culture plays a crucial role in shaping standards and encouraging comparisons that appear strongly linked to body dissatisfaction in adolescent girls (Jones, 2004; Myers & Crowther, 2009).

3.7.1.2.2 Boys

For boys, a qualitative analysis revealed that most participants perceived that appearance comparisons produced positive effects or felt that they were not engaged in at all (Ricciardelli et al., 2000). Indeed, boys appear to engage in appearance comparisons to a lesser extent than girls (Jones, 2001) with less detrimental effects (Myers & Crowther, 2009). It has been posited that this may be due to the appearance of the female body having greater sociocultural importance than the male body (Heinberg & Thompson, 1992). An alternative proposition suggests that boys may use a self-serving bias with social comparison moderating and protecting against sociocultural and individual risk factors (Ricciardelli & McCabe, 2011). However, there is also evidence that males engage in appearance comparisons following exposure to same-gender ideal images (Hargreaves & Tiggemann, 2004), which, in turn intensifies their body image concerns (Grogan, Williams, & Conner, 1996; Leit, Gray, & Pope, 2002) and negative mood (Hargreaves & Tiggemann, 2004). Correlational research with boys has also evidenced the indirect association between sociocultural influences and body dissatisfaction (Halliwell & Harvey, 2006), the drive for muscularity (Smolak & Stein, 2006) and muscle-building techniques (Smolak et al., 2005), through social comparison.

3.7.1.3 Comparison Targets

The targets of appearance comparisons are also important to consider. In addition to comparisons with similar others, individuals can also engage in *universalistic* appearance

comparison, for example comparisons with celebrities, models, and sport stars (Heinberg & Thompson, 1992). Images of cultural appearance ideals are highly prevalent in the social environment, setting a standard of attractiveness that is extremely difficult to attain, and increasing the likelihood of upward appearance comparisons. Consequently, a discrepancy between the self and the target emerges, negatively impacting one's body image (Hargreaves & Tiggemann, 2004; Jones, 2001). In fact, the goal of many advertisements and campaigns using these images is to induce such a response and to provoke the consumption of products or services from these feelings of inferiority (Thompson, Coovert, et al., 1999).

Heinberg and Thompson (1992) have proposed that females report peer comparisons and males report universalistic comparisons as most influential, and this has been supported in the literature (e.g., McCabe et al., 2006). Although social comparisons increased in adolescent girls when models were used as targets, such comparisons did not affect self-perceptions of body image (Martin & Kennedy, 1993). These findings suggest that comparisons were not applied to the self since models would not be considered under the umbrella of similar others, as outlined in social comparison theory. Similarly, Jones (2001) found that comparisons were more likely with peers than models for both boys and girls, with girls engaging in social comparisons related to weight and boys engaging in similar levels of comparison in relation to build. However, individuals with higher body image concerns reported a greater level of appearance comparisons with both peers and models regardless of gender (Jones, 2001).

3.7.1.4 In Summary

The effects of various social comparison targets require further clarification, but whether appearance comparisons are made with similar or universalistic targets, the research points to a relationship between appearance comparisons and greater body dissatisfaction (e.g., Myers & Crowther, 2009). Multiple-level influences within the appearance culture, from media to peers and interactions between the two, are all relevant sources for information gathering and self-evaluation regarding one's body (Jones, 2001). While a causal relationship has not yet been determined, SEM applications have indicated that appearance comparisons precede body dissatisfaction (e.g., Keery et al., 2004; van den Berg, Thompson, Obremski-Brandon, & Coovert, 2002). Although it appears that adolescent boys are less likely to engage in appearance comparisons and longitudinal contributions are more fully supported for females (e.g., Jones, 2004), appearance comparison tendencies in boys are certainly noteworthy and can also negatively impact body image (e.g., Morrison, Kalin, & Morrison, 2004).

3.7.2 Internalisation of Appearance Ideals

The internalisation of appearance ideals refers to the extent to which an individual accepts and endorses the societal ideal as a specification for themselves and others (Clark & Tiggemann, 2007). Since an adolescent's immediate and distal subcultures involve a multitude of influences regarding portrayals and pressures, internalisation of the appearance ideal is a cognitive mechanism that will determine whether an individual's body image is personally affected and to what extent. Internalised appearance ideals come to represent personal goals and standards for self-evaluation and the evaluation of others (Thompson & Stice, 2001). With these standards generally highly unattainable, internalisation can foster body dissatisfaction and lead to engagement in unhealthy body-change behaviours if and when a discrepancy is perceived (Hohlstein, Smith & Atlas, 1998; Thompson & Stice, 2001).

Much of the research investigating influences from the media has focused on how representations of the ideal body are internalised as a personal standard (Bardone-Cone et al., 2008; Knauss et al., 2008), and in some cases measures of media exposure have been replaced with measures of internalisation due to its more direct relationship with body dissatisfaction (Cafri, Thompson, et al., 2005). Research has provided compelling support for the effects of media influences on body dissatisfaction dependent on levels of internalisation for both girls (e.g., Clark & Tiggemann, 2008) and boys (e.g., Smolak, Levine, & Thompson, 2001). Of interest, in a meta-analysis of the effects of media influences on female body image, Grabe and colleagues (2008) found that internalisation effects were stronger in studies published in the 2000s compared to those published in the 1990s. This suggests that the increased objectification of the female body in the media is showing similar trends in levels of internalisation reported for females.

The awareness of appearance ideals and of the societal importance placed on appearance and body shape reflects a knowledge and understanding that the standard exists (Thompson, Heinberg, et al., 1999; Thompson & Stice, 2001). Thus, the perceived pressure and personal ratification involved in internalisation of the ideal body differentiates it from awareness of such ideals (Cash, 2005; Stormer & Thompson, 1996). Indeed, mere recognition of the societal ideal portrayed in the media and use of the media as an informational source on issues related to appearance has been much less detrimental than internalisation (Cafri, Thompson, et al., 2005; Calogero, Davis, & Thompson, 2004; Jones et al., 2004).

In addition to media portrayals, the body shapes approved by significant others are also more likely to be internalised, particularly those promoted by peers in adolescence, as they reflect the standard of the proximal appearance culture (Jones et al., 2004; Stice, 1994). Therefore,

Davison's (1983) third-person effect can come into play where an indirect influence can occur. If the adolescent perceives media portrayals to impact individuals in their immediate environment, these perceptions can further influence levels of internalisation. Theoretically, internalisation has been conceptualised as a gradual process, which begins in late childhood and accelerates with the advent of the normative changes that occur in early adolescence (Thompson & Stice, 2001). In support, Gardner and colleagues (1997) found that self-ideal discrepancies in children aged 6–12 years increased with age, particularly for girls.

3.7.2.1 Empirical Evidence

Individual differences in the level of internalisation can play a predictive role in body dissatisfaction (Jones, 2004; Stice, 2001, 2002) and eating pathology (Thompson & Stice, 2001). In applications of models based on the theoretical framework provided by the tripartite influence model, internalisation has, either fully or partially, mediated the relationship between all three sources of sociocultural influences and body image concerns in adolescent girls (Keery et al., 2004; Papp et al., 2013; Vartanian, Herman, & Polivy, 2005). Adolescent girls have generally reported higher levels of internalisation than boys (Knauss et al., 2007; Knauss et al., 2008). A recent Irish study showed that just under 60% of girls and 20% boys felt adversely affected by the media's portrayal of body shape and weight but felt that the standard set was acceptable (McNicholas et al., 2009). Moreover, another recent Irish study found that internalisation was significantly associated with body dissatisfaction across gender (Lawler & Nixon, 2011). The internalised muscular ideal may be as detrimental to males as the internalised thin ideal is to females if they are highly preoccupied with muscularity and body build (Levine & Chapman, 2011). Although Jones and colleagues (2004) found that the indirect effect of peer influences on body dissatisfaction through internalisation was stronger for girls, Jones (2004) found a strong association between the drive for muscularity and body dissatisfaction with boys. Longitudinal evidence for the mediating effect of internalisation has not been found across gender in some instances (Bearman et al., 2006; Jones, 2004; Wojtowicz & von Ranson, 2012). However, in some cases only internalisation in relation to the thin ideal was assessed (e.g., Presnell et al., 2004).

3.7.2.1.1 Girls

Internalisation of the thin ideal and the belief that thinness will lead to success in a number of social realms has been proposed to increase vulnerability to body dissatisfaction in female adolescents (Stice & Bearman, 2001). The correlational database suggests that thin-ideal internalisation is a strong risk factor for the development of female adolescents' body image concerns (Thompson & Stice, 2001), and increases vulnerability to sociocultural influences (Clark & Tiggemann, 2008; Knauss et al., 2007) and social comparisons (Stormer & Thompson, 1996). In Stice and Shaw's (2002) review of experimental and prospective studies, thin-ideal

internalisation emerged as a crucial risk factor, despite some contradictions (e.g., Presnell et al., 2004). In experimental studies, internalisation has consistently moderated the effects of exposure to media ideals (Groesz et al., 2002; Heinberg & Thompson, 1995), and the manipulation of a dissonance-based intervention programme led to reductions in levels of internalisation and body dissatisfaction (Stice, Mazotti, Weibel, & Agras, 2000). Concurrent and prospective associations have even been evident between internalisation and disordered eating behaviours regardless of body dissatisfaction, suggesting that the large emphasis placed on thinness is adequate in itself to lead straight to behavioural outcomes (Halliwell & Harvey, 2006; Westerberg-Jacobson et al., 2010). Of particular note, when early adolescent girls endorsed expectancies from dietary restraint they maintained these expectancies throughout their adolescent years, indicating that this developmental stage is critical for the acceptance and endorsement of the societal ideal (Smith, Simmons, Flory, Annus, & Hill, 2007; Westerberg-Jacobson et al., 2010).

3.7.2.1.2 Boys

Since the cultural portrayal of the ideal body for males is centred on muscularity, the drive for muscularity is often conceptualised as the extent to which an individual has internalised the muscular ideal body shape (McCreary & Sasse, 2000). This can similarly lead to body dissatisfaction through distress caused by self-ideal discrepancies (Presnell et al., 2004). A meta-analysis of the association between internalisation and body dissatisfaction in adolescent boys has not been conducted due to an insufficient number of appropriate investigations. However, a review of studies in males has suggested an association between internalisation of appearance ideals and body dissatisfaction, albeit smaller than those found with females (Cafri, Thompson, et al., 2005). Moreover, associations have been found for boys in cross-sectional (Chen et al., 2007; McCreary, 2011) and longitudinal designs (Jones, 2004). Although, there has also been failure to support the association (Papp et al., 2013; Presnell et al., 2004), or produce a mediation effect when initial levels of body dissatisfaction were controlled (Jones, 2004). Additionally, internalisation of the muscular ideal has been concurrently associated with problematic psychological functioning (McCreary & Sasse, 2000), disordered eating behaviours (Halliwell & Harvey, 2006), and muscle-building strategies (Smolak et al., 2001) in males.

3.7.2.2 In Summary

Overall, there is substantial evidence that internalisation of appearance ideals arise from cultural portrayals and pressures (Smolak, 2009), and perhaps is a means of adapting to the increasing pervasiveness of pressures and portrayals in society (e.g., Grabe et al., 2008). The ubiquity of sociocultural messages may also result in the perception that these norms are similarly accepted by significant others in the immediate environment, providing an extra source of pressure to internalise societal ideal standards (Davison, 1983; Levine & Murnen, 2009). The role of

internalisation of the thin ideal as a predictor of body dissatisfaction has been widely supported in females (e.g., Thompson & Stice, 2001). The internalised muscular ideal does not appear to be as influential in determining body image but this may be partially attributable to variations in measurement and the use of female-oriented assessments (e.g., Papp et al., 2013; Presnell et al., 2004). A further limitation is that the majority of prospective investigations have been conducted with exclusively female samples, leaving gaps in our understanding of the longitudinal effects of internalisation on body dissatisfaction in boys. Nonetheless, if there is a strong commitment to attain the muscular ideal, internalisation does appear to play a role in increasing levels of body dissatisfaction (Levine & Chapman, 2011).

3.7.3 Appearance Schemas

A schema represents an organisational structure consisting of beliefs, attitudes, and expectancies, affecting how information from the environment is interpreted and how experiences are recollected (Bandura, 1986; Thompson, Heinberg, et al., 1999). The impact will be most apparent to further processing, attitudes, and behaviour when the schema relates to the self (Markus, 1977). An appearance schema will reflect an individual's beliefs about appearance and the importance of appearance to one's self-evaluation and life, processing self-relevant information to guide schema-consistent attitudes and behaviour (Cash, 1996, 2002). In accordance with Markus' (1977) self-schema theory, appearance schemas are cultivated on the basis of past experiences within the appearance culture. These experiences may or may not have involved the individual but have portrayed the importance of appearance in life, and therefore are organised into a general representation of its value. This appearance schema is then activated when triggering events are encountered in the sociocultural environment, and used as a basis for determining what information is attended to and how much importance is attached, in addition to judgments, beliefs and evaluations about the self. Thompson, Heinberg, and colleagues (1999) used an analogy of a hurricane to describe this process, stating that "if conditions are right", a schema will develop and subsequent appearance-related experiences will reinforce and strengthen the schema leading to the development of body image disturbance (Thompson, Heinberg, et al., 1999, p. 283). Thus, activation of the appearance schema will correspond to multiple contexts and domains of the self, but individual differences will lie in its strength and accessibility (Hargreaves & Tiggemann, 2002).

The construct is integrally connected to cognitive-behavioural theories and models of body image. Individuals will selectively attend to appearance-related features in the environment, and if the information is processed negatively, body dissatisfaction can increase (Altabe & Thompson, 1996; Tiggemann, Hargreaves, Polivy, & McFarlane, 2004). Appearance schematic processing has been distinguished by Cash (2005) from internalisation as it provides a broader

construct encompassing beliefs about appearance that apply both to the self and to others, and the importance of appearance to an individual's self-worth. It has been implied that the development of schemas, like internalisation, is a gradual process that results from the cumulative effects of sociocultural messages leading to beliefs about the centrality of appearance to life (Hargreaves & Tiggemann, 2002). Schemas primarily develop in childhood and are often in place at least in a premature form in early adolescence (Smolak, 2004).

3.7.3.1 Empirical Evidence

In adolescent males and females, Hargreaves and Tiggemann (2004) found that exposure to appearance-focused television advertisements activated an appearance schema and in turn, the level of appearance schematicity moderated the level of appearance comparisons and the impact of the images on body satisfaction. Indeed, from a meta-analysis of experimental studies investigating the effects of ideal image exposure in females, Groesz and colleagues (2002) suggested that the effect was strongest for females who already invested highly in the thinness ideal (i.e., in the activation rather than the cultivation of the thinness ideal), although generally females in the experimental condition experienced adverse effects in comparison to controls. On the other hand, Agliata and Tantleff-Dunn (2004) found exposure led to higher depression and body dissatisfaction in college-aged males and all were adversely affected regardless of individual differences in levels of appearance schemas. These gender differences suggest that males may process appearance-related information without filtering it through the same schematic processes as females, highlighting the need for further research in relation to cognitive models across gender (Agliata & Tantleff-Dunn, 2004). Moreover, a further study with adolescent males and females found comparable levels of body-related cognitions and body dissatisfaction across gender with differences relating to the nature of concerns. Concerns regarding weight were more closely associated with females and concerns regarding muscularity and fitness with males (Wang et al., 2006).

3.7.3.1.1 Girls

Appearance schemas have fully or partially mediated the pathways between peer and media influences and negative body image both concurrently and longitudinally in 9-12 year-old girls (Clark & Tiggemann, 2007, 2008), and longitudinally with adolescent girls (Hargreaves & Tiggemann, 2002; Tiggemann, 2006). These findings provide support for the gradual development of appearance schemas in late childhood that progress and intensify in adolescence (e.g., Smolak, 2004). Body image importance has also shown direct effects on strategies to decrease weight and increase muscles in girls (Ricciardelli & McCabe, 2003b).

3.7.3.1.2 Boys

Research investigating the role of appearance schemas in relation to boys' body image has been

scarce thus far. Body image importance has shown a negative relationship with body dissatisfaction, although interestingly within the same sample, body dissatisfaction was indirectly related to strategies to increase muscles through body image importance (Ricciardelli & McCabe, 2003b). Yet, this study was cross-sectional so mediation effects could not be appropriately implied. Hargreaves and Tiggemann (2002) failed to find a significant impact of appearance schematic processing in predicting body image over two years for boys in comparison to girls, although these findings should be interpreted cautiously as the sample of boys was very small (n= 25). Moreover, in a more recent longitudinal study, body image importance played a greater role than body dissatisfaction in shaping health-risk behavioural outcomes (McCabe & Ricciardelli, 2009).

3.7.3.2 In Summary

Body image investment or schematic processing regarding body shape and weight is a core feature of clinically diagnosable eating disorders (Cooper & Fairburn, 1993). However, this cognitive component of body image has often been overlooked in research focusing on evaluative body image dimensions. Theoretically, the development of appearance schemas precedes body dissatisfaction as the resulting dysfunctional information processing leads to negative evaluative body image (Cash & Szymanski, 1995; Hargreaves & Tiggemann, 2002). This has been evidenced in experimental manipulations with female adolescents and adults (e.g., Hargreaves & Tiggemann, 2004; Labarge, Cash, & Brown, 1998). Experimental demonstrations have also suggested interesting gender differences in the cognitive processing of appearance-related information. Nonetheless, further investigation of the role of appearance schemas is certainly warranted with adolescent males. The inadequate research base regarding appearance schemas or body image investment in adolescent boys and the use of varied and limited measures has led to inconclusive findings. The use of male-appropriate indicators in future research may provide more support for the role of schemas since gender differences decreased when gender-appropriate measures have been employed (e.g., Wang et al., 2006).

3.7.4 Differential Impact of Cognitive Processing Variables

In accordance with the tripartite influence model, social comparison and internalisation have shown distinct contributions to body image concerns (Groesz et al., 2002; Thompson, Heinberg, et al., 1999; Jones, 2004). Appearance comparison and internalisation have fully mediated between forms of sociocultural influences and body dissatisfaction in adolescent females (Keery et al., 2004) and males (Rodgers et al., 2009). When both constructs were employed within the same study as mediators between peer influences and body dissatisfaction, interesting gender differences emerged in relation to the differential role of each. Social comparison played a dominant role for the girls while boys with higher levels of internalisation had greater levels of

body dissatisfaction. However, longitudinal mediation for these constructs was not strongly supported (Jones, 2004).

Compelling evidence for the role of appearance schemas has also been produced, particularly for females. Close associations have been found between appearance comparison and appearance schemas and both have increased vulnerability to body dissatisfaction in adolescent girls (Durkin et al., 2007; Hargreaves & Tiggemann, 2004). Additionally, when both appearance schemas and internalisation were assessed with girls, media influences predicted change in appearance schemas and internalisation of the ideal over one year, but only appearance schemas predicted body dissatisfaction change over this time period (Tiggemann, 2006). However, problems do exist in defining and differentiating these cognitive processing constructs, and with their measurement (Cash, 2005). For example, some researchers view social comparison and internalisation as features of the body image schema (e.g., Yamamiya, Cash, Melnyk, Posavac, & Posavac, 2005) while others view the three features of cognitive processing separately (e.g., Tiggemann, 2005).

In summary, the literature highlights the importance of considering the three reviewed cognitive processing variables and the differential impact of each for the development of body image concerns. The effects are generally stronger for females but the variation in measurement of cognitive processing variables, including improvised assessments or the use of female-oriented assessments across gender in some cases (e.g., Presnell et al., 2004), may be responsible for the inconsistent findings in males. However, the effects of these processes on males are generally far from zero and since much more prospective research has taken place with adolescent female samples, further research is needed with adolescent males. Furthermore, the constructs that are included in research studies also vary widely, with generally only one or two cognitive processes at best included within the same research design (e.g., Smolak et al., 2005; Keery et al., 2004). This has also likely contributed to inconsistent findings, as the contribution of each process relative to another may differ for boys. The importance of explaining individual vulnerability to sociocultural influences highlights the need for future SEM and prospective investigations with the inclusion of all three cognitive mechanisms, in order to clarify and progress integrative conceptual frameworks (Cash, 2005).

3.8 The Negative Body Image Construct

Over the last couple of decades, the definition and measurement of the negative body image construct has evolved. Originally, negative body image was considered a perceptual disturbance but an attitudinal dysfunction was then added to the conceptualisation (Cash & Deagle, 1997).

The perceptual disturbance refers to an individual's distorted subjective perceptions of their bodily characteristics (Verplanken & Velsvik, 2008). Attitudinal body image was further divided into evaluation, investment, affective distress, and behavioural aspects of body image (Cash & Szymanski, 1995). More recently, Cash (2002) further distinguished attitudinal body image as consisting of evaluative-affective and cognitive-behavioural components. The evaluative-affective component refers to negative self-appraisals entailing dissatisfaction with one's body characteristics and emotional distress associated with one's appearance. The cognitive-behavioural component refers to the cognitive and behavioural investment in, and emphasis placed on, one's appearance (Jakatdar, Cash, & Engle, 2006).

The conceptualisation of a negative body image can be confounding as assessments reflecting evaluative dimensions or body dissatisfaction have often been exclusively employed in empirical applications, leading to the frequent interchangeable use of the terms body dissatisfaction and negative body image (Stewart & Williamson, 2004). Body dissatisfaction refers to the discrepancy between an individual's perceived body characteristics and the body characteristics they would ideally like to have (Wertheim & Paxton, 2011), or negative subjective evaluations of one's body or some aspect of it (Stice & Shaw, 2002). The equitable use of terms has been questioned as it fails to account for the multidimensionality of the body image construct (Cash, Jakatdar, & Williams, 2004). Essentially, the adhesive merging of the various facets of the body image construct is warranted in order to acquire a greater understanding of aetiology and manifestations.

3.8.1 Evaluative Body Image

The cognitive-behavioural perspective has conceptualised body dissatisfaction as the discrepancy between one's perception of their actual body size and shape and their ideal body size and shape (Cash, 2005; Cash & Deagle, 1997). Perceptual distortion is not necessary; individuals may correctly estimate their body shape or size but are extremely dissatisfied as it deviates from their personally internalised ideal. With an approach similar to social comparison theory, Higgins' (1987) self-discrepancy theory posits that the self is divided into a number of selves, such as the *actual self*, the *ideal self* and the *ought self* (cf. Altabe & Thompson, 1996). Problems arise when an upward comparison is made between the actual self and the ideal self, as the discrepancy can lead to body dissatisfaction and negative emotions, particularly if the discrepancy is quite large or if the person is highly invested in their appearance (Thompson, Heinberg, et al., 1999). Ideal selves are often reflective of cultural standards of physical attractiveness and since these standards are extremely difficult for most to achieve, the discrepancy can lead to body image distress (Altabe & Thompson, 1996). It is noteworthy that self-ideal discrepancies related to weight are likely to lead to body image concerns and eating

disturbance in females (Levine & Smolak, 1992); discrepancies related to weight have been linked with few body image concerns in males while discrepancies in terms of muscularity appear to be more damaging (McCreary, 2011).

Body dissatisfaction has also been defined as an unfavourable evaluation of global body components such as weight, shape and muscularity, or specific body sites such as hips, thighs, and shoulder width (Menzel, Krawczyk, & Thompson, 2011). The level of dissatisfaction can range from greater preferences for other body characteristics to extreme disparagement and associated negative affect (Wertheim & Paxton, 2011). Interestingly, when both self-ideal discrepancies and satisfaction with overall appearance was measured in young girls, the two aspects were uncorrelated with many girls desiring to be thinner despite being largely satisfied with their appearance. This suggests that the body dissatisfaction constructs relating to desire for thinness and overall appearance satisfaction may be relatively distinct until later in development (Dohnt & Tiggemann, 2006).

3.8.2 Body Image Investment

Discrepancies between one's perceived and desired body characteristics reflect evaluative components but they do not necessarily imply the level of importance placed on, or investment in, the attainment of an ideal body. The importance of differentiating between body image evaluation and body image investment in attitudinal body image research has been emphasised (Cash, 2005), since the importance placed on, as well as the personal preference for the appearance ideal, will ultimately influence body image and related behaviours (Wertheim & Paxton, 2011). While body dissatisfaction encompasses evaluative-affective components of a negative body image, investment involves schematic processing of appearance-related information comprised of two components: motivational salience and self-evaluative salience (Cash, Melnyk, et al., 2004). Motivational salience is the extent that one endorses appearance management behaviours and cherishes their appearance, while self-evaluative salience refers to the extent that individuals consider their appearance in determining their self-worth. Motivational salience is not necessarily maladaptive as it is typical for individuals to put effort and pride into their appearance. Self-evaluative salience is much more detrimental due to its stronger relationships with body dissatisfaction, eating pathology, and global psychological functioning (Cash, Jakatdar, et al., 2004; Cash, Melnyk, et al., 2004; Jakatdar et al., 2006). Additionally, when assessed, body image investment has been correlated with, but distinguishable from, evaluative aspects of body image (e.g., Cash, 1994; Cash & Labarge, 1996; Ricciardelli & McCabe, 2003b), with investment reflective of schemas pertaining to the increased processing of appearance-related information. If a person is highly invested in their appearance or a particular body site, discrepancies and dissatisfaction may have more negative

consequences. Thus, investment may act as a filter variable that influences the psychological effects of evaluative-affective body image (Cash & Szymanski, 1995).

It is clear from the review of the literature that much of the available research in the field has predominantly focused on evaluative aspects in the measurement of body image disturbance. However, due to the general inconsistency in measurement, attempting to draw concrete conclusions from such a large body of literature is difficult. Equating body image disturbance with dissatisfaction has led to the employment of measures assessing the evaluative component while disregarding the cognitive features. If the goal is to explore the development of negative body image, simple measures of body dissatisfaction are inadequate (Cash, 2002). For a comprehensive assessment of attitudinal body image, indicators of both the evaluative-affective and cognitive-behavioural components need to be included using appropriate measures (Cash & Labarge, 1996; Smolak & Cash, 2011).

3.8.3 The Nature of Body Image Concerns

Although, research generally points to female body concerns regarding weight and male body concerns regarding muscularity, these can vary both across and within gender subsamples. For example, Jones and colleagues (2008) found a more consistent contribution of weight concerns in prospectively predicting body dissatisfaction compared to muscularity concerns in their sample of adolescent boys even when BMI was controlled. Indeed, it is estimated that one-third of adolescent boys wish to be thinner and another third wish to be larger (McCabe & Ricciardelli, 2001; McCreary & Sasse, 2000). Additionally, Field and colleagues' (2005) study similarly found that almost one-third of their female sample reported frequent concern with muscle definition, an aspect of female body concern that has been overlooked in much research. Therefore, in order to adequately capture the full range of potential bodily concerns in early adolescence, it is important to ensure that unbiased measurements are employed. However, because male and female bodies differ and cultural appearance ideals differ, likewise dissatisfaction with particular aspects of the body will differ for males and females. Therefore, it will also be important to use measurement tools that are appropriate across gender.

3.9 Rationale for the Present Study

It is important that research targets individuals throughout the time of greatest risk for the emergence and progression of body image concerns and its related outcomes to further determine the aetiological process. The research presented above illustrates the heterogeneity and complexity of body image issues in early adolescence. In accordance with the broad and multifaceted nature of the body image construct, multiple influencing factors have emerged.

Thus, the progression of tested models is needed to further examine the patterns of influence and clarify the risk process (Thompson, Heinberg, et al., 1999). In recent years, the need for researchers to consider how variables are both directly and indirectly associated with negative body image constructs has been increasingly emphasised (Tiggemann, 2011). Promising findings have arisen from previous research applying integrative models to the area of body image in adolescence (e.g., Keery et al., 2004; Paxton et al., 2006; Shroff & Thompson, 2006). Despite the fact that this research has been beneficial, the low to moderate fit indices, absence of key variables, and narrow measurement of constructs in some cases, highlights the need for further research progressing from these models through investigating the aetiological process in relation to underlying vulnerabilities, normative life stressors, and important moderating factors. Advancement of these integrative models is warranted to provide greater explanatory power.

Generally, conceptual models of the aetiology of negative evaluative body image have been developed and tested on female samples due to the higher prevalence of body image concerns and behaviours reported among girls (e.g., Keery et al., 2004; Stice, 1994). In light of the increasing number of adolescents presenting with body dissatisfaction and related concerns across gender, it is important to further investigate body image concerns in males as well as females, using models that are applicable across gender subgroups. Many theoretical models have failed to consider the moderating role of gender despite the large evidence base highlighting how pressures, influences, and body-related experiences can vary drastically as a function (e.g., Lyu & Gill, 2012; Murnen, 2011; Paxton et al., 2006). Future research with a more inclusive set of constructs may identify additional predictors of body dissatisfaction, increasing the variance explained for boys.

In terms of the identified risk factors, future models need to incorporate an inclusive set of measures to determine how these influences are transmitted at the critical developmental stage of early adolescence (Jones, 2011). Prospective research, particularly with males, has identified a relatively small number of reputed risk factors (Wertheim et al. 2004). Moreover, it can be difficult to make comparisons across research studies and interpret overall trends due to the range of methodological differences in the samples tested, variables included, measurement of variables, time frames, and data analytic procedures (Neumark-Sztainer et al., 2007). The increasing use of sophisticated statistical methods such as SEM in the testing of multifactorial models have provided a clearer account of the risk process and mediating and moderating relationships, improving the aetiologic research base.

Many existing age-appropriate assessments of sociocultural influences reflect either a narrow range of influences or processes from limited sources. An additional issue is the inclusion of

one-dimensional items that fail to capture the dynamic or multidimensional nature of real-world proximal processes within the sociocultural environment. Thus, an important research direction involves addressing the contexts within which sociocultural pressures arise and the provision of an ecological reflection of body image experiences within the everyday appearance culture where adolescents reside (Smolak & Cash, 2011). This understanding can aid the development of informed and ecologically valid measures that accurately reflect current sociocultural influences. Subsequently, the constructs that emerge can be tested in aetiological models and used to inform the design of intervention programmes; as from sociocultural and ecological perspectives, these are the factors that need to change in order to improve body image outcomes.

In determining how these sociocultural pressures link to body image distress in a number of individuals and not universally, the interactive effects of appearance-related cognitive processing must also be examined to determine the direct and indirect means of society's impact (Cash, 2002; Thompson, Heinberg, et al., 1999). More theory-driven work is needed to clarify the role of cognitive processes, such as the inclusion of appearance comparison, internalisation and appearance schemas within the same model to determine the differential contribution of each across gender (Cash, 2005). The role of individual characteristics including psychological functioning, BMI, and pubertal development also needs to be investigated to determine any further potential vulnerability. This progressive focus can help to identify individuals who are most vulnerable to sociocultural influences that promote the societal ideal body and how these multiple interacting influences shape body image evaluations.

The literature review highlights the multifaceted nature of the body image construct with its perceptual and attitudinal aspects. There is a need for research to acknowledge the multidimensionality of body image and to consider which facets of the body image construct should be included within the context of the study's objectives, as global conceptualisations are not of much use without this specification (Cash, 2011). Multiple measures and a broad representation of important domains of the body image construct is recommended, particularly if the study is exploratory in nature or if comparisons across groups such as gender subsamples are performed (Thompson, 2004). Additionally, it has been increasingly recognised that bodily concerns can vary both within and between gender subgroups. Although weight concerns are most prominent in females and muscularity concerns in males, weight issues are also prevalent in a substantial portion of boys and muscular toning has been recognised as an issue for girls (Field et al., 2005; McCreary & Sasse, 2000). The use of assessments encompassing all forms of bodily concerns, including both weight and muscular build, will provide an evaluation of comparative, gender-appropriate variables and in effect, a more comprehensive understanding

of the development of negative body image during adolescence (Jones & Crawford, 2006).

3.10 The Present Study

The present research tests two expanded versions of Keery and colleagues' (2004) final model with the integration of an ecological reflection of sociocultural influences, physical characteristic variables, and three forms of appearance-related cognitive mechanisms. The variations in the competing models reflect Thompson, Heinberg, and colleagues' (1999) two hypothetical tripartite influence models (see **Chapter 2**). BMI, pubertal development, and appearance schemas are incorporated, based on the acknowledged theoretical and empirical relevance of these variables. Testing of the expanded models, presented in **Figures 3.1** and **3.2**, is intended through complex statistical modelling techniques with data obtained from large samples in order to select and produce the best-fitting final model. These techniques also permit testing of multiple hypotheses to identify associated variables and the direct and indirect pathways to the development of unhealthy body image evaluations. It is of interest to determine the explanatory power of this inclusive set of constructs for the outcome of evaluative body image when these comprehensive and ecologically valid models are applied to young Irish adolescent girls and boys.

The research consists of two phases. Phase One employs a mixed methods approach which begins with a qualitative investigation to obtain the views and experiences of young Irish adolescents regarding the current appearance culture using focus group methodology. This is followed by the development and initial psychometric evaluation of a refined quantitative scale, informed by the focus group findings, to reflect perceptions of the common processes occurring within the current appearance culture. The use of both qualitative and quantitative approaches is intended to provide a more complete picture of influential sociocultural factors including those not initially anticipated by the investigators, at both the individual and societal level, in order to inform the development of an ecologically valid survey instrument for young adolescents (Beyth-Marom & Fischoff, 1997; Price, 2009).

Phase Two is a cross-sectional quantitative study involving the administration of a survey package to, and the collection of objective height and weight measurements from, a large sample of young adolescents. The survey package consists of the devised measure from Phase One and a number of assessments reflecting the constructs comprising the two integrative model variations. The two competing versions of Keery and colleagus' (2004) model are then tested using SEM, in order to choose the most promising model based on a combination of conceptual and statistical grounds. The present research focuses on attitudinal body image. The

evaluative-affective dimension is assessed using two forms of measurement: a self-report measure that assesses satisfaction with global aspects of overall appearance and site-specific body parts, and a figural drawing scale to assess self-ideal discrepancies. Two measures of evaluative body image and a reflection of both global and site-specific foci can ensure that a comprehensive account is provided and minimise the chances of erroneous interpretations (Thompson, 2004). The cognitive-behavioural dimension is assessed using a measure of appearance schemas to examine the level of thoughts or beliefs about one's body and the extent of appearance orientation.

The incorporation of the devised measure in Phase One into the integrative aetiological models is intended to foster interesting findings regarding the influential processes stemming from the current sociocultural environment, and the effect of the appearance culture on psychological functioning and cognitive processing related to body image. Like the appearance culture constructs, personal characteristic variables reflecting BMI and pubertal development are integrated into the model as exogenous variables. The inclusion of these exogenous variables in the model is based on their previous associations with body dissatisfaction in the literature (e.g., Jones et al., 2004; McCabe & Ricciardelli, 2004b; Paxton et al., 2006) and recommendations for their inclusion in integrative sociocultural models (Keery et al., 2004). Additionally, body image investment is reflected through appearance schemas and positioned alongside the other cognitive mechanisms of appearance comparisons and internalisation that link sociocultural influences to body dissatisfaction, since these patterns of influence have been noted in both girls (Tiggemann, 2006) and boys (Ricciardelli & McCabe, 2003b).

Furthermore, the chosen assessments are broad enough to encompass all types of bodily concerns so that constructs are applicable and comparable regardless of whether concerns relate to weight or muscularity. Due to distinct patterns often emerging for males and females, it may be necessary to conduct a multigroup analysis on the chosen model across gender subgroups and compare the patterns involved. It is hoped that the application of this comprehensive model to the specific developmental stage of early adolescence will increase the specificity of the findings.

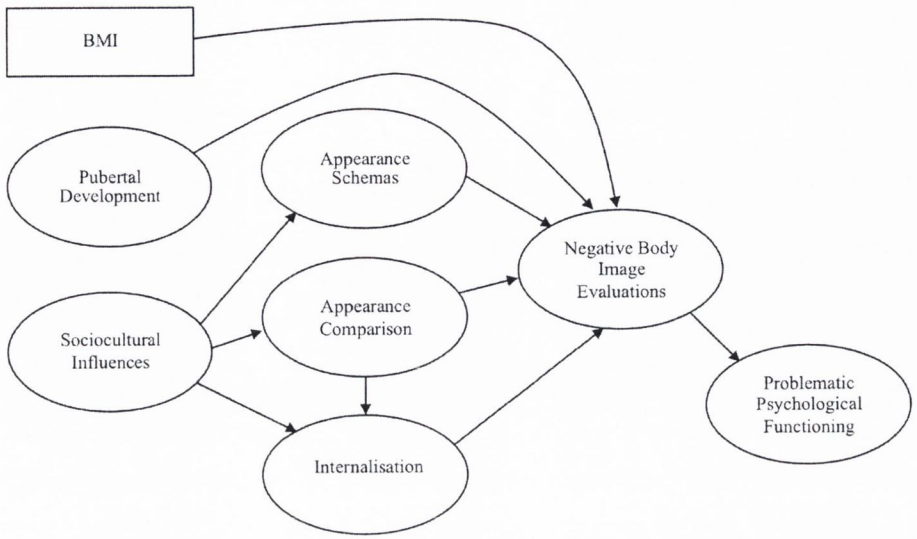

Figure 3.1 Hypothetical Model 1

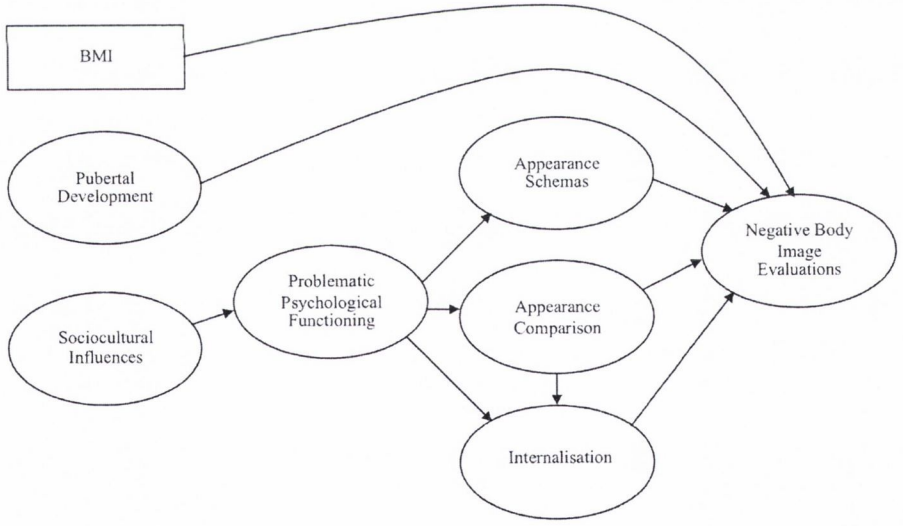

Figure 3.2 Hypothetical Model 2

3.10.1 Aims and Objectives

3.10.1.1 Primary Aim

The primary aim of the present research is to test two integrative aetiological models for predicting the development of negative evaluative body image in a cohort of young Irish adolescents, and to select the best-fitting model. The models progress from Keery and colleagues' (2004) adolescent adaptation of the tripartite influence model by incorporating three variables informed by recent empirical research: BMI, pubertal development, and appearance schemas. Additionally, the sociocultural influence variables are reflected by an ecological account of influencing processes within the current appearance culture. The processes are proposed to reflect how societal appearance standards and messages are typically transmitted through the family, peer group, and the media, influencing body image evaluations. The final model is intended to provide greater explanatory power through its inclusive set of constructs, and to provide important gender comparisons through the unrestricted measures used.

3.10.1.2 Specific Objectives:

- To qualitatively explore young adolescent boys' and girls' perceptions and experiences of the appearance culture.
- To develop and refine a quantitative measure reflecting the current appearance culture and the endorsement of common perceptions and influencing processes, based on the qualitative findings and empirical research.
- To progress the theoretical and empirical literature base by testing two competing integrative aetiological models for the development of negative body image evaluations in young male and female adolescents, and to select the model that best represents the sample data.
- To estimate direct and indirect pathways linking dimensions of the appearance culture and physical characteristics with associated cognitive mechanisms and body image evaluations.
- To determine how much variance in negative evaluative body image can be explained by the constructs included in the models.
- To compare and contrast the structural models and multivariate pathways across gender.

Chapter 4.

Exploring the Appearance Culture in Early Adolescence: The Development of a Measure Using a Mixed Methods Approach (Stage One)

4.1 Aim of the Chapter

This chapter aims to present the first stage of the mixed methods approach to developing the ACS-YA, a survey representing the appearance culture for young adolescents. First, the reasons for undertaking the qualitative exploration will be outlined, followed by a description of the theoretical framework, the rationale for adopting focus group methodology, and aims and objectives of the research. The focus group study will then be described, beginning with the method and process. Subsequently, an overview of the analysis will be provided, including the analytic process, findings, interpretations, and conclusions.

4.2 A Qualitative Exploration of the Appearance Culture in Early Adolescence

4.2.1 Rationale for the Qualitative Study

In reviewing the appearance culture and its association with body image in **Chapter 3**, the literature highlighted numerous forms and levels of influence and the central role the triad of family, peers, and the media play in shaping the young adolescent's attitudes towards appearance and body image issues. Additionally, the differential experience of the appearance culture as a function of individual characteristics such as gender has been evident throughout, such as the higher levels of pressure reported by girls to look physically attractive (O'Connell & Martin, 2012) or the gendered messages that are perceived from the media (McCabe et al., 2006). When various forms of sociocultural influences have been examined, their combined influence generally accounts for more variance in negative body image (e.g., Dunkley et al., 2001) and they are usually moderately correlated (e.g., Clark & Tiggemann, 2007), implying that an appearance culture exists where appearance-related messages from multiple sources are interrelated and reinforced through processes in the adolescent's immediate environment. Nevertheless, the review of the literature has also revealed much variation in research designs and measurement of sociocultural influences, with little research capturing the collective notion of the appearance culture and the often interactive influential processes, such as the diffusion of media messages through the reflected views of significant others in the immediate environment. Thus, there is potential to further explore how these influential processes in the appearance culture can affect young adolescents' appearance and body image concerns.

A number of measurement issues have been evident in the quantitative research base, ranging from the use of vague or very brief assessments (e.g., Paxton et al., 2006) to the measurement of

a limited set of influences (e.g., Jones et al., 2004). Many research studies have focused on a narrow range of indicators and have failed to provide a comprehensive account of direct or indirect forms of influence within the same study (e.g., Bardone-Cone et al., 2008). In addition, many assessments of sociocultural influences are carried out with the underlying assumption that the triad of influence (i.e., parents, peers, and the media) warrants invariant investigation irrespective of the developmental stage in adolescence and the sociocultural contexts in question. Yet, as Bronfenbrenner (2005) stated, the developmental processes taking place in one context can vary substantially as a function of the personal attributes of significant others that are located in that setting. The measurement of sociocultural influences separated into the isolated triad of family, peer, and media sources may be overlooking the multidimensionality and interactive aspects of the sociocultural context. Consequently, the patterns of sociocultural influences identified across studies may reflect differences in measurement rather than the differential impact of influential sources per se. Although this work provides a valuable research base regarding the impact of sociocultural influences on body image outcomes, these measurement issues have limited our ability to make firm conclusions.

Previous work investigating sociocultural influences related to body image with young adolescents has been predominantly quantitative (Grogan & Richards, 2002). Qualitative investigations have also been conducted with adolescent girls (e.g., Mooney et al., 2009) and boys (e.g., Hargreaves & Tiggemann, 2006), but have mostly centered on the meaning of the body and body image concerns per se rather than focusing on interactions that occur in the various contexts within the appearance culture. This qualitative investigation can complement the research base by obtaining more in-depth information on important sociocultural influences young adolescents face in the current appearance culture, and the various processes by which they are transmitted.

In Ireland, there has been little attention given to the perspectives of young adolescents on body image issues. Previous Irish qualitative research has predominantly focused on females (e.g., Mooney et al., 2009), and so comparisons across gender are scarce. Since much of the research has emerged from the USA, Australia, and the UK, findings may not be representative of Irish adolescents. However, prevalence rates and patterns of influence found in young Irish adolescents appear similar to other Westernised regions (e.g., Currie et al., 2012; Lawler & Nixon, 2011), indicating that the processes occurring in the Irish appearance culture deserve attention. Hence, qualitative research on the perspectives, attitudes, and behaviours of young adolescents specific to the cultural domain can inform aetiological models and contribute to a richer research base. Further development of a comprehensive research base in Ireland is

imperative so that policy makers are planning prevention and intervention initiatives that specifically address the factors Irish adolescents consider crucial.

In light of these considerations, it was decided that an ecological account of the contribution of the current sociocultural environment to body image issues was warranted. This qualitative study represents the first stage of a mixed methods approach to the development of a measure reflective of the effects of the appearance culture in early adolescence. Capturing the multidimensional essence of the appearance culture was intended to address the ongoing issue of one-dimensional assessment strategies. Findings can inform the production of a range of indicators that reflect the processes occurring within the appearance culture and, through psychometric refinement in the second stage, influential aspects of the appearance culture for young Irish adolescents can be revealed through a quantitative scale.

4.2.2 Theoretical Framework

The theoretical framework guiding the qualitative study was a partial application of Bronfenbrenner's (2005) bioecological model. The bioecological framework centres on the study of developmental outcomes from the ecological context in which people live, as individuals both affect and are affected by, the range of contexts within the proximal and distal sociocultural environment. In particular, the proximal processes, or combinations of individual and environmental interactions, within ecological contexts and their subsequent effects on developmental outcomes are a dominant focus. The PPCT research design permits the investigation of the differential impact of proximal processes as a function of dynamic relations with person characteristics, contexts, and time periods (Bronfenbrenner, 2005; Bronfenbrenner & Morris, 2006). Moreover, an exploration of the subjective experience of the target population living within the ecological contexts of interest is highlighted as an essential component in the investigation of proximal processes.

The bioecological model is a useful framework for a multidimensional and interactive investigation of sociocultural factors that influence negative body image outcomes in young adolescents, such as the proximal processes that occur within the appearance culture. In adopting this framework, a qualitative investigation of the experience of the appearance culture for young adolescents is an essential element. An insight into the narratives of adolescents' lives, and an understanding of how they navigate through appearance issues in relation to their social positioning and social structures can be gained. In order to progress from traditional epidemiologic approaches of examining separate social factors in isolation, the complexity of the sociocultural environment, and its subjective influence on developmental outcomes must be acknowledged (Williams, 2003). The body image research arena is no exception.

In terms of the PPCT elements, the aim of the qualitative study was to explore the dynamic interactions between the individual and the appearance culture as well as processes within the appearance culture in various contexts (e.g., links between peer and celebrity culture). The proximal processes of interest referred to indicators of the ways in which proximal socialisation agents (i.e., family, peer group) may interact with individual, relational, and environmental contexts to produce particular outcomes (body image evaluations). It was envisioned that the multidimensional aspects of the appearance culture would be uncovered, such as how the transmission of values can depend on the importance of appearance to family members and peers. Due to the cross-sectional nature of this analysis, the developmental effects of the appearance culture over time were not fully examined, but associations can be made between individual and various contextual influences at a particular developmental stage and at the current point of historical time.

4.2.3 Rationale for the Focus Group Approach

In a typical focus group, a small group of participants (usually 6 to 12) discuss topics of interest to researchers, under the guidance of a skilled moderator (Kisker, 1985). Focus groups are intended to loosely emulate a naturalistic discussion among a group of people with an informal atmosphere, and therefore are an ideal means of exploring the viewpoints of children and adolescents (Berg, 2009). Children have often expressed a preference for the focus group method due to the peer context, the enjoyable format, and the impartiality of the approach, as there is increased opportunity to take part but not the same pressure to contribute if one is uncomfortable in doing so (Hill, 2006; Liamputtong, 2011). Within the group context, children and young people may feel more at ease as it closely reflects their everyday school environment in the company of peers with whom they either have previous acquaintances or something in common (Hill, 2006). Additionally, compared to paper-and-pencil surveys, focus groups do not discriminate between youths with varying levels of literacy and comprehension skills, providing increased access and opportunity for young people to express their opinions, knowledge and insight (Kitzinger, 1995). While the power differential between adult and child is not eliminated, it is greatly reduced in the focus group situation as the importance is placed on participants' own construction of meaning rather than the researcher's speculations, shifting the power imbalance towards participants (Grogan & Richards, 2002; Mooney, et al., 2009). Group members generally manage the dynamic of the group and this sense of empowerment encourages active participation, as the pressure experienced in individual interviews to respond to every question is not present.

The informal atmosphere and group interaction encourages a conversational style of narrative with debate, humour, and slang, providing a gateway into how adolescents construct meaning

and share specific experiences within the peer context. As the group generates the development of the discussion, observations are possible of cognitive and affective reactions, and the multiple points of view elicited through the interactive environment (Vaughn, Schumm, & Sinagub, 1996). The creation of such a synergy was considered ideal for discussion of appearance and body-related issues as the groups were likely to vary in the extent to which the topic had previously been articulated (Krueger & Casey, 2000; Tiggemann et al., 2000). In addition, considering the importance of the peer group in adolescence (e.g., Jones, 2011; Wertheim & Paxton, 2011), and the cultural values that are transmitted through the peer environment, a focus group approach was considered an appropriate means of gaining a collective notion of the proximal processes occurring within the appearance culture with the target population (Tiggemann et al., 2000).

Although often used alone, focus groups can supplement other quantitative or qualitative research methods to generate hypotheses or provide a richer understanding of the topic of interest (Vaughn et al., 1996). This is especially useful for research exploring the current appearance culture with young adolescents due to the persistent and rapidly changing sociocultural influences they encounter. The approach can also help to determine how strongly participants feel about appearance and body image issues and narrow the focus to ensure that the most pertinent sociocultural factors and processes are included in a research model (Stevens, 1996; Vaughn et al., 1996).

Advocates of the approach emphasise how focus group findings have implications for the development of high-quality survey instruments as they explore needs, beliefs, and experiences; assisting the inclusion of key questions, responses, and variables using language appropriate to the target population (Betts, Baranowski, & Hoerr, 1996; Mates & Allison, 1992; Neumark-Sztainer, Story, Perry, & Casey, 1999). Children and adolescents often use language that is both culturally- and age-specific (Vaughn et al., 1996). As a result, jargon that is specific to the target population can be uncovered and participants' understanding of concepts and terminology can be ascertained (Vaughn et al., 1996). Since findings were intended to inform a quantitative measure and provide further understanding to the research base, this approach was deemed appropriate for the present study (Liamputtong, 2011).

4.2.4 Aims and Objectives

The purpose of this focus group study was to explore young people's perceptions and experiences of the appearance culture, by investigating the dynamic processes they perceive as influential, and what current appearance ideals mean for them. Specifically, the study aimed to determine the proximal processes occurring in young adolescents' immediate environment and

how they influence their values and goals in relation to body image, such as family discussions of body-change behaviours or witnessing weight-related stigmatisation within the peer context. The nature and power of more distal levels of sociocultural influences were also explored, in particular, the portrayal of cultural appearance norms through the media. It was of interest to investigate the means by which macro-level influences are transmitted within the appearance culture. For example, does it occur indirectly through its impact on significant others or directly through accessing appearance-related media? Is appearance-related media accessed in family or peer contexts? A further goal of the study was to examine the differential experience of the appearance culture across gender.

4.3 Method

4.3.1 Recruitment

To initiate recruitment, schools and youth clubs were approached as they contain large numbers of young people meeting the required sample characteristics. Participants were recruited from pre-existing groups, as it was important that a degree of prior acquaintance was present so that a naturalistic interaction could be emulated as closely as possible. Two mixed community post-primary schools in Co. Clare and five youth clubs in Co. Clare and Dublin City Centre representing a selection of socio-economic locations were invited to participate in the study. The school principals and youth club managers received a letter outlining the purpose of the research and what participation in the study involved (see **Appendix A**), before a follow-up phone call was made a few days later to answer any questions about the study. A total of one post-primary school and two youth clubs (one in Co. Clare and one in Dublin City Centre) agreed to take part. The school and youth clubs catered to a broad range of young adolescent males and females in the local area, although one youth club had a greater number of male members. The youth clubs were open to adolescents aged 10 to 18 years but members generally ranged in age from 11 to 15 years.

4.3.2 Sample

Since the primary goal of the focus groups was to gain insight and understanding, purposive sampling was employed. Adopting Krueger and Casey's (2000) method of creating sampling *screens*, the required participant characteristics were identified. The target population was young adolescents aged between twelve and fourteen years of age living in Ireland. This age group was chosen due to the considerable physical, social and emotional changes that occur increasing vulnerability to body image influences (Jones, 2001). Gender-specific groups were deemed appropriate, as adolescents are likely to feel more comfortable discussing a sensitive issue such as body image with same-sex peers (Liamputtong, 2011). Since males and females

are likely to have different levels of concerns with their bodies and different experiences of the appearance culture, single-sex focus groups also permitted comparisons across gender. In order to adequately compare perceptions of views and experiences of body image influences across gender, it was envisioned that at least three groups of each gender category would be necessary (Krueger & Casey, 2000).

Eight focus groups were conducted in all, with four groups of each gender involving a total of 39 young adolescents (n= 19 males; n= 20 females) aged between 12 and 14 years. Participants were predominantly Caucasian (90%), but also represented Asian, South American, and African backgrounds. SES status was not noted but the group locations were predominantly low to middle class areas. Each group contained four to six participants, which is considered appropriate for focus groups with children and adolescents (Vaughn et al., 1996). A breakdown of the groups is provided in **Table 4.1**.

Table 4.1

Focus Group Configuration

	Gender Composition	No. of Participants	Age Range	Location
Group 1	Boys	5	12 – 14 years	Youth Club, Dublin
Group 2	Boys	4	13 years	Youth Club, Co. Clare
Group 3	Boys	5	12 – 13 years	School, Co. Clare
Group 4	Boys	5	12 – 14 years	School, Co. Clare
Group 5	Girls	5	12 – 14 years	Youth Club, Dublin
Group 6	Girls	4	12 – 13 years	Youth Club, Co. Clare
Group 7	Girls	6	12 – 13 years	School, Co. Clare
Group 8	Girls	5	13 – 14 years	School, Co. Clare

4.3.3 Procedure

Ethical approval to conduct the study was granted by the School of Psychology Research Ethics Committee, Trinity College Dublin (TCD; see **Appendix B**). Upon receiving permission from schools and youth clubs, personnel provided assistance in gaining access to potential participants for the present study. The students in first year from the school and all members of the youth clubs within the specified age range were personally invited to participate. An information pack was also distributed to students, containing an information sheet for participants and an information sheet and consent form for their parents (see **Appendix C**). The information sheets explained the purpose of the study, the value of participation, extent of confidentiality, and the right to withdraw from the study at any time. In considering incentives to participate, compensation of food or payment was considered inappropriate for the age group and research topic but sincere feedback was provided and the value of their participation reiterated (Krueger & Casey, 2000). Written informed consent was obtained from all

participants and their parents or guardians. Non-participation was generally due to failure to return signed parental consent forms, and absenteeism on the day the groups were scheduled.

The focus groups took place during school and youth club hours. To provide maximum group interaction, large rooms were used that were free of distraction and seating was arranged in a circle to avoid any intimidation or possible conflicts within the group (Liamputtong, 2011). An audio recorder was placed on a chair in the middle of the circle to ensure each participant's contributions were recorded. The principal researcher moderated each group in the company of youth club or school personnel. Male youth workers were present for the male groups while female youth workers were present for the female groups. A female library worker was present for the focus groups that took place in the school. The staff members were seated at the back of the rooms away from the circle and did not actively participate in the discussions.

When participants entered the room, they were given the freedom to choose their own seating arrangements to help them feel comfortable and relaxed. Before the audio recorder was switched on, the moderator engaged in an informal conversation with participants on unrelated topics to break the ice. An introduction was provided with a description of the study, reasons why the participation of young adolescents was important, and details on how the findings would be used. The extent of confidentiality was then explained. Participants were informed that after the sessions it was okay to discuss the topics and the group in general, but were asked not to discuss details of what other members of the group disclosed and to respect each participant's privacy. They were also made aware of the possibility of someone disclosing such information. The moderator assured confidentiality on her part with no participant identifiable in any reports from the study, and that information would not be shared with teachers, youth club personnel, or parents except in exceptional circumstances. At this stage the *duty to report* procedure was explained. The duty to report refers to the researcher's obligation to report to an underage participant's parent or guardian if information is disclosed that causes the researcher to be concerned for his or her safety. The participant is informed of this obligation before the parent or guardian is contacted.

The format of the discussion and what participation entailed was then explained to the group, as participants were likely to be unfamiliar with the focus group procedure. The audio recorder was introduced to participants, and reasons for recording the groups and the storage of the data was discussed. It was explained that the role of the moderator was to ask some broad questions and to guide the discussion. The moderator was not there to judge in any way, there were no right or wrong answers, and the goal was to hear participants' thoughts and feelings about the topics of discussion. It was emphasised that it would be great to hear from all participants but

they should not feel pressure to share their views if they were not comfortable in doing so. It was also stressed that all views were welcome, even if one's personal opinions differed from others'. Some terminology was then explained such as *body image* and the *ideal body*[2]. Finally, participants were informed that there would be some activities to help keep the discussion flowing, and, at the end, the moderator would summarise the key points from the discussion and participants would have the opportunity to ask any remaining questions.

The questioning route (**Table 4.2**) was followed for each group to guide the discussion and promote consistency, although participants generally directed the flow of conversation in accordance with the issues raised while the moderator probed for clarification or elaboration. The moderator monitored carefully to keep the flow of discussion relatively close to the topic and to ensure every member of the group felt at ease and had the opportunity to contribute. There were attempts to achieve a balance of contributions by gently directing the conversation to more reticent group members if one or two others were dominating the discussion. Supplementary activities were used to maintain the relaxed tone, and encourage further discussion and richer formulations of the groups' views.

Brief tasks were prepared involving listing, ranking, and picture sorting to aid responses to the key questions. A list of sociocultural influences related to appearance and body image was created on a flip chart to visually display verbally offered ideas throughout the group and to encourage a range of responses. The list also served as a reference point in case the discussion dried up. At a later stage a ranking task was introduced using the list to generate negotiation among the group as to which influences and processes they considered most salient. A picture sort task was also used to help explore the meaning of the ideal body for participants. The task involved presenting participants with a stack of gender-specific pictures from popular magazines and Internet sites, and asking them to sort through the pictures and pick out those they considered had ideal bodies. The stimulus materials were taken from media sources that are popular with the target population and the intention was to loosely simulate normative conversations young people may have when discussing such issues. Following the exercise, questions were asked about the pictures chosen for each category, permitting an exploration of group negotiation and the development of collective viewpoints (Colucci, 2007).

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[2]*Body image*: "The way a person feels about his/her own body, whether good or bad. Often a person may think that others also have this opinion of how his/her own body looks."

The *ideal body*: "Many people are happy with their appearance and many people would ideally like to change some things about their appearance. Consider an ideal body to mean a body that you ideally would like to have and believe is just right, based on gender, age, weight, and muscle tone."

Table 4.2

The Focus Group Questioning Route

Introductory Question

Q1. Can you think of actions or behaviours that young people might engage in to make them look good?

Transition Questions

Q2. Can you remember when you first started to think about these things, how you look or how other people look? (Developmental context – Time)

*OK, now let's talk about influences. When I ask about influences I mean things that might cause you to think or behave in a certain way. For example, if someone saw Brian O' Driscoll (*Irish international rugby player*) drinking Lucozade (*sports drink*) he/she might be influenced to drink it.*

Key Questions

Q3. So what do you think might influence young people to think about the way they look or engage in behaviours to improve their appearance and body shape?

Listing task – list on a flip chart

Can you think of anything that you come across everyday, like people that you meet, things that you see? (Proximal processes)
Are there certain places where these pressures are worse? (Context – the microsystem)
Can you think of anything to do with a person, like the type of person they are? (Person characteristics)
Probes: Could you tell me more about that?
Would you give me an example of what you mean?
Is there anything else?
Does anyone feel differently?

In what ways do these people/things influence young people to engage in behaviours to improve their body image? *Point to chart*
Is it something a person does/tells you to do? (Proximal processes)
Is it something a person/thing may make you think of or how a person/thing may make you feel? (Proximal processes)

How often do you encounter these influences? *Point to chart*
How do you feel when you encounter any of these influences?
Can you describe what it is like? (Proximal processes)

Q4. What kind of message do you think these influences give to young people? *Point to chart* (Proximal processes shaping individual attitudes and values)

OK now let's do a little activity. When I speak about an ideal body, I am referring to a body that you ideally would like to have and believe is just right, based on gender, age, weight, and muscle tone.

Q5. Here is a bundle of pictures from well-known boys'/girls' magazines and the internet. Can you work together and sort them into two categories – boys/girls who you think *have* an ideal body and boys/girls who you think *do not* have an ideal body. (Process – interaction of person characteristics and context, the filtering of distal influences through the proximal environment)

Why did you put these pictures in each category? Personal opinions? Stereotypes?
What were you thinking when you were looking at these pictures?
Probes: How come you picked this one?
Can you tell me more about that?
Does anyone feel differently?
Why are these similar?
Can any pictures go into both piles?

Q6. How important do you think it is for young teenagers today to look good? (Collective viewpoint – interaction of person and context)

Q7. Do you think it is more or less important for girls than boys or do you think it is the same? (Collective viewpoint – interaction of person and context)

When closing the group, a short overview of the discussion was provided to participants reviewing the major themes that emerged, before asking if anything important was left out or if any points that arose were incomplete. Finally, the closing statement reminded participants of how data would be stored and of the confidentiality issues. The recorded discussions lasted approximately 20 to 30 minutes and ended after all questions were addressed and participants had nothing further to say. When the audiotape was switched off, participants were thanked for

their participation, and given the opportunity to ask further questions and voice any concerns or reactions they had from the group. A hand out was provided with information on referral services, for emotional support in case participants had strong feelings upon completion of the study. Furthermore, an alternative activity was organised in advance in case some participants in the classroom setting or youth club were not participating in the research study.

4.4 Analysis

4.4.1 Transcriptions

Focus group discussions were transcribed verbatim from audiotape shortly after each group ended and before the next group was conducted. This allowed the moderator to determine whether questions were being interpreted as intended by participants, or if slight modifications were necessary to increase clarity or to help elicit more meaningful discussion (Krueger, 1998). The transcripts were intended to represent as closely as possible what occurred during the group. To facilitate this, both questions and answers were transcribed, and all verbal expressions were included such as laughing, sighing, and coughing. Pauses were timed and verbal sounds such as 'hmm', 'eh', and 'em' included. In addition, it was noted when an individual's conversation trailed off or was cut off by another's overlapping speech, and when an individual was paraphrasing what another person had said. All of these elements are considered important in order to capture the essence of the focus group environment (Liamputtong, 2011). The transcriptions were produced in both electronic and print forms.

4.4.2 Analytic Approach

Thematic analysis was employed to obtain a rich account of the complexity of the focus group data (Braun & Clarke, 2006). The intention was to explore the social contexts in which young adolescents discussed issues presented to them based on research aims that were driven by the literature base and theoretical assumptions. Data were coded based on the predetermined research objectives and, using a deductive approach, latent themes were defined and interpreted with the identified theoretical framework in mind (Braun & Clarke, 2006). This involved exploring, interpreting and reporting themes within the data that reflected the young adolescents' collective perspectives of reality as well as attempting to acknowledge how individuals within the group negotiated their views and experiences within this social context (Braun & Clarke, 2006; Liamputtong, 2011).

The interactional contexts produced through focus groups allow for an exploration of the participants' world through their shared experiences. Indeed, examination of the interaction between participants is a crucial aspect of analysis situated within an ecological framework.

Individual attitudes and beliefs are viewed as fluid in nature, both shaping and being shaped by the dynamic processes that occur through interaction with others in a particular social context (Bronfenbrenner, 2005; Hollander, 2004). Focus group data and the opinions and experiences that emerge are a product of group interaction despite many reports in the literature producing findings as a sequence of individual contributions (Colucci, 2007). Accordingly, Hollander's (2004) sociological approach calls for a report that produces segments of the discussion to illustrate how individuals' responses are shaped by the context, the group composition and the facilitation skills of the moderator. In Hollander's view, the goal of focus group research is "to obtain a window of face-to-face interaction and discourse, which is always contextual" (Hollander, 2004, p. 628). Thus, segments of the discussion have been included in the report of the findings when the dynamic negotiation was considered key to understanding the collective experience of the appearance culture.

4.4.3 Analytic Process

4.4.3.1 Data Reduction – Reducing and Transforming the Data

Each transcript and accompanying field notes were initially read and re-read several times with preliminary annotation of similarities, differences, connections and contradictions that emerged both within and between the groups. The initial coding phase involved a label being attached to all elements of interest in the text and these codes were then organised within a master-coding template of broad themes based on the questioning route. At this stage the transcripts were reviewed to ensure no data relevant to the research questions had been overlooked. All meaningful data from each focus group were then highlighted and a synopsis of each group was created (Berg, 2009). Codes that represented similar meanings were grouped together resulting in the emergence of sub-categories within particular themes. For example, codes emerged reflecting 'pressure to appear favourably to potential romantic partners' and 'conforming to popular peer trends' to create the *peer acceptance* subtheme. Following this, an expert reviewer who was not involved in the focus groups reviewed transcriptions to corroborate the master-coding template from an objective perspective. Revisions in the coding system were then carried out collaboratively until a satisfactorily high level of agreement was reached. At this point, all words used to describe the body either positively or negatively, specific terminology used when constructing experiences, and all factors listed as influencing thoughts and behaviours related to one's body weight and shape were noted.

4.4.3.2 Data Display: Tables, Themes, and Summaries

Since all of the focus groups covered the topics in the same sequence, an overall grid was created allowing for the examination of the codes and themes across and within groups and comparisons across gender (Wisdom & Green, 2004). The next step involved the allocation of

text to the categories. The *long table* approach described by Krueger (1998) was adopted. This technique involved the use of large A2 size boards, each headed with one of the identified themes. Each code was labelled on a piece of paper with a brief description and assigned to the relevant board. The transcripts were colour-coded for easy identification of groups and sections of text that represented each code were cut from them. The sections of text were then grouped together to represent each code, which was, in turn, categorised and pasted on one of the boards representing the emerging themes. All relevant material for a particular theme was then presented together on a board and the groups were easily distinguishable by colour. Some pieces of text fit into more than one category and so copies were made and pasted on each appropriate board to inform a broader analysis. Every part of the transcripts that illustrated a category was included on the boards at this stage (Berg, 2009).

The second round of coding was intended to refine the themes further and to create a *thematic map* (Braun & Clarke, 2006) to increase the specificity of the dataset. The codes and data extracts were examined for each theme and rearranged; some were collated together and others were removed. For the most part, extracts considered to be extensive, based on experiences, and/or emotionally charged were retained. The discarded extracts were collated on a 'miscellaneous' board in case they would prove useful at a later stage. The thematic map allowed for inspection of all the themes and their associated codes at one glance. From this perspective it was clear to see that some codes could be merged. Similarly, conceptually related themes could be combined and renamed to represent a refined theme that encompassed a broad but specific pattern in the data. Eight themes emerged at this level of analysis and a descriptive summary for each was drafted.

4.4.3.3 Moving From a Descriptive to an Interpretive Level

The descriptive summary of initial themes was reread and considered in relation to the theoretical approach and initial research questions. Some themes were merged while others were discarded or assigned to other encompassing themes if there were not enough data or if data were too diverse. The whole dataset was read again to validate the refined themes across the groups and to ensure that the themes provided understanding and reflected the meanings produced. When the data within themes were coherent and themes were easily distinguishable from one another, the interpretive process ceased. Detailed analyses were then produced for each theme taking account of subthemes, the assumptions underpinning the themes, implications, and how each theme contributed to the overall story (Braun & Clarke, 2006). A number of extracts from the data were selected to illustrate the detailed findings and the group interaction, and to enhance understanding of the final themes. The moderator's notes on nonverbal behaviours and the atmosphere within groups were also incorporated to provide a rich

account of the data produced through interactions between participants. Following each level of analysis, there were verification checks with the expert reviewer. A narrative was then produced describing the key findings followed by an interpretation of the findings in relation to the research questions, theoretical assumptions, and previous research. The findings and conclusions were again verified by independent review as a validity check.

4.4.4 Validity Strategies

In accordance with Creswell's (2007) recommendation to employ "validation strategies" in attempting to assess the "accuracy" of the findings, a number of strategies were employed, including (i) triangulation, (ii) peer review, (iii) reflexive practice, and (iv) thickly contextualised descriptions. Triangulation was employed through the use of multiple sources of data from the eight groups and through multiple methods to support findings. Evidence for codes and themes were built from several sources that provided either confirming or disconfirming evidence, reflecting the reality of divergent views and experiences among participants. The identified themes from the qualitative phase informed the quantitative phase (**Chapter 5**), which also served the purpose of examining the validity of the findings in larger samples (Creswell & Plano-Clark, 2007). Peer review procedures were conducted to provide external checks of the research process. The questioning route was reviewed by a colleague in the area of child and youth research and pretested with two young adolescents to ensure it was comprehensive and appropriate. Moreover, an Assistant Professor specialising in developmental psychology with expertise in qualitative research methods provided an expert review of the transcriptions and the master-coding template, and critiqued the methods, meanings and interpretations derived from the analysis.

Reflexive practice is integral to high-quality qualitative research. As the researcher predominantly made the decisions regarding the process and what was salient in the study, it was important to engage in critical subjectivity. Moreover, it was necessary to clarify the researcher's position in order to appropriately serve the purposes of the study and ensure the multiple voices were heard in the report of the findings. A written account of the researcher's exploration of subjectivity is provided in **Appendix D**. Finally, in order to transfer the findings from the focus groups to the reader, a thickly contextualised and naturalistic description was attempted. The research objectives were continually referenced throughout the analytic process and it was important to describe the interactive processes that occurred within the groups. From these processes, speculative conclusions could be drawn from the experience.

4.5 Findings

The three central themes that captured the essence of participants' attitudes and experiences of sociocultural influences related to body image were *the proximal appearance environment*, *the distal appearance environment*, and *personal attributes*. The findings will be presented under these three theme headings, each of which is divided into subthemes (see **Table 4.3**). The participants and individuals mentioned during the groups are referenced by pseudonyms to maintain confidentiality, and a number is provided referring to the respective groups. The male groups are numbered from one to four and the female groups are numbered from five to eight.

Table 4.3

Overview of the Themes and Subthemes that Emerged from the Analysis

The Proximal Appearance Environment
1. Peer acceptance
2. Peer rejection
3. Family and peer modelling
The Distal Appearance Environment
1. Role models in the media
2. Distal appearance norms validating the ideal
Personal Attributes
1. Resilience
2. Gender-typed traits

4.5.1 The Proximal Appearance Environment

This theme encapsulated the strong influence of significant others in the proximal environment, and perceptions of the appearance culture clearly suggested the importance of appearance and body image for social success. These young adolescents perceived peer acceptance and avoidance of peer rejection to be a high priority for young people, and that these social incentives were, ultimately, the driving force behind appearance-related attitudes and behaviours. The values and behaviours of significant others were highly influential, especially those of peers.

4.5.1.1 Peer Acceptance

When discussing behavioural strategies to improve body image and general feelings about appearance, the groups collectively interpreted peer acceptance as the dominant motivation. The

majority of groups remarked on the importance of keeping up with the trends set by the peer group. The trends referred to most often involved the attainment of clothing, the use of make-up, and hairstyles. A link between consumerism and group identification was apparent, as participants described the persistent pressure to keep up with fashion trends. In addition, dieting, fasting, and exercising to change the body for peer acceptance was also cited. Scenarios were constructed collectively within groups to illustrate their common ground – the importance of social acceptance.

Enda: Or she could hang around with people that are really anorexic and that aren't really healthy and she might think that she wants to be anorexic now as well because everyone else is
Researcher: OK. And how about exercise? (*referring to the flipchart)*
Jack: They like could be fat and everybody's mocking them so they like exercise because exercise makes you thin

(Boys 2)

A strong indirect form of influence that emerged was the modelling of a desired image or body shape by peers with popularity or prestige. Social acceptance was perceived to be achievable through conforming to trends modelled by popular peers, or through engagement in body-change behaviours in order to achieve a similar appearance. Examples were provided of personal experiences and the experiences of others in the peer appearance culture. A male and female group similarly constructed an example of a clothing trend that many girls were following at the time. Both groups agreed that everyone started to follow the trend after an older group of popular girls modelled it.

Luke: Like that t-shirt that all the girls wear and all
Karl: What t-shirt?
Luke: You know when they put…
Andy: Oh yeah like they wear a t-shirt under this one…
James: They wear like four t-shirts
Andy: Everyone did it after that one person did
James: They wear like two tops and then they wear their school uniform
Luke: Yeah one (*group of*) girls starts wearing 'em and everyone wears 'em now

(Boys 4)

Peer crowd affiliations such as *goths* and *popular people* were discussed in terms of power and social inclusion rather than based on an individual's own choice. One group of boys discuss how "*these people are not goths and like she's like trying to be one of them*" for acceptance into a social group (Jack, Boys 2). When asked to rank the most salient influences, the groups often

cited keeping up with trends. Indeed, some felt that many were unaware that they were changing to conform to the peer group.

Katie: And sometimes people, they might not see themselves changing
Maria: But they actually are
Katie: They are changing yeah
Emily: Yeah, someone said that before you don't realise that people are changing just to look like- to get on with the crowd- with them like
Katie: It's not good to change your person and to copy people and stuff

(Girls 7)

Participants generally thought that the desire to fit in or have the ideal body dominated over personal feelings and that this was not a good thing. Many inconsistencies emerged when participants discussed how people felt and how people behaved: "*They- they might want to dress the way they want to dress but they dress like the way the popular people dress*" (James, Boys 4). The participants' negotiation of the persistent societal endorsement of the ideal body often included contradictory views as many claimed that despite the importance of establishing one's own identity, all young adolescents aspired to attain the ideal because of the positive social consequences. Examples were provided of people engaging in behaviours against their judgment to conform to the peer group, and the negative consequences of everybody attempting to look the same. One group of girls were asked what messages they perceived from sociocultural influences:

Hayley: Bad
Louise: Cos they want them to change themselves
Hayley: And everybody would be like the same
Danielle: And it's very like, everybody saying you have to look this way and stuff
Alannah: And you be copying everyone else

(Girls 8)

This ambivalence was also evident at an experiential level. Although the adverse effects of sociocultural influences on young adolescents were acknowledged, the conflicting pressures were also evident from their personal attitudes and practices. As Andy described, "*I don't know, like it sounds wrong... a lot of people aren't looking different these days, like you rarely come across people that are different from anybody else*" (Boys 4). Overall, peer acceptance was a central concern in all of the focus groups and was decidedly schooled through one's appearance.

Brian: Some people, it (*poor body image*) affects them…

Colm: And then people would go around looking at others and stuff 'cos they've got no friends

Researcher: OK, so it's not everybody it's just certain people who might be conscious of what others…

Lee: Yeah certain people might just try to fit in…

Colm: And they want to be really popular and stuff like that

(Boys 3)

Appearance comparison emerged as a common process experienced by both boys and girls in the proximal environment. Visual displays of consumerism were thought to promote acceptance into desired peer groups, while exclusion from important groups was generally thought to be due to the inability to produce the necessary style, body shape or size. These comparisons appeared to motivate engagement in behaviours to attain the ideal and improve social standing within the peer group. For the most part, girls recollected experiences of engaging in comparisons regarding clothes and body shape, while boys mentioned comparisons based on clothing trends and hairstyles.

Debbie: When you walk past someone that's really pretty and you're like 'Oh look at them I want to look like them'

Vera: And you're really jealous *(whispers)*

All girls laugh; pause - 12 seconds

Vera: It's the pretty people that do it to you *(whispers)*

Chelsea: That's it

(Girls 5)

Concern with appearing attractive to opposite sex peers was evident throughout the groups. Similar to peer popularity, romantic interests were often cited as initial triggers for concerns to appear favourably, and participants often stated that the time they became interested in romantic partners was also the time they began to consider how they looked. It was felt that the pursuit of romantic partners was primarily based on physical attractiveness. The girls explicitly stated that boys are more interested in their looks than their personality, placing increased pressure on them. However, the boys also appear to experience this source of pressure, as they claimed that they rarely considered their appearance with the exception of being in the company of girls.

Chelsea: Eh, I'd say when you are about like eight or something

Vera: No, when you're older

Debbie: When you start to think about boys *(all giggle)*

Chelsea: When you start hanging around with boys and people like that...

Debbie: That judge you

Chelsea: And then you see people that are quite pretty and you want to be them... So you start putting on make-up and all

(Girls 5)

The girls reported that the boys they knew readily discussed female attributes and celebrities they found attractive and overhearing these discussions triggered their own appearance concerns. Here is an example of how the distal appearance environment can play an indirect role as the celebrities discussed by opposite sex peers provide standards to aspire to.

Katie: In school mostly because a lot of the boys talk about what celebrities they like and then the girls would look up that celebrity and how they look, what they wear and everything and might copy them.

Maria: Yeah, they talk about the girls

Katie: And, just to get the boys attention and stuff

(Girls 7)

4.5.1.2 Peer Rejection

Coinciding with the significance of peer acceptance in driving the pursuit of appearance ideals, both direct and indirect forms of appearance-related peer rejection were considered to detrimentally impact body image across the groups. The direct forms that encompassed the essence of their perceptions and experiences included critical discussion, teasing, and bullying, while rejection was also considered an indirect influence through perceptions of being judged by others.

Both boys and girls discussed teasing and bullying over appearance extensively and the majority of groups ranked them among the most salient influences. It was largely felt that hurtful comments about one's appearance triggered related concerns and behaviours. Examples could readily be provided that included both personal and vicarious experiences of appearance teasing. Individuals who deviated from the societal ideal were most vulnerable.

Lee: And with the eating, it's the same. People actually like, well they like starve themselves. Say if there was a girl and a girl or a boy and she was very, and she was kind of big and people started calling her 'fatty' or something, she'd like starve herself. Some people do that like

Researcher: So that would be a pretty big influence?

Lee: Yeah

(Boys 3)

Another example involved a female group who discussed a peer who was thought to be engaging in unhealthy eating behaviours as a consequence of being teased over her appearance. As one of the participants defends her, the others appear unconvinced due to the change in her body shape.

Katie: Is Mary still starving herself?

Maria: No, no don't be saying that, she did not. She's not. People were making fun of her, she's not actually

Melanie: She's really, really, skinny now though

Maria: Yeah but she eats, she actually does

Melanie: Does she?

Maria: She was eating a burger on her Confirmation, she actually had loads of stuff, she actually does eat

(Girls 7)

In discussing whether these pressures were commonplace among young adolescents, contradictory views emerged. When participants claimed that it should not matter if someone differs from the norm, the discussions proceeded to describe the negative consequences of appearance-related stigmatisation. Many felt that these influences from the peer group affected all young adolescents, and the general perception was that exclusion or victimisation stemmed from nonconformity to sociocultural appearance norms.

Eva: It's typical in some schools like

Charlene: Yeah, at times

Kim: It's not like, it's typical like for most people, just like say some people…

Researcher: OK... So what kind of message then do you think these influences give to young people?

Charlene: Look good or get bullied

(Girls 6)

The adverse consequences had also been observed from reality television shows and social media involving adolescents who were teased over their appearance, further indicating the indirect effect of the distal appearance environment.

Lee: Like even boys take it sometimes like, even some boys like if they get bullied too much (*about their appearance*), it causes death like I've seen it on TV, like sometimes it causes death, people bullying them about it *(how they look)* all their lives…

Colm: And they can't take it anymore

(Boys 3)

Facebook was discussed as a platform for peer rejection. Its popularity was highlighted and those that did not have parental permission to become a member voiced their desire to join. Although participants generally discussed their membership to SNSs positively, when discussing appearance-related teasing, comments regarding appearances in photographs on these sites were discussed. Melanie cited this as a negative source of influence while the other group members believed this would not happen as long as one was not "obsessed" with looks: "*Oh I have one more thing to write down on that thing (*flipchart*) – Facebook. There are pictures on that and it (*appearance teasing*) can be quite bad like*" (Girls 7). This indicates that combined influences from the peer group and the media are explicably apparent in young adolescents' lives through this virtual realm involving significant others.

The perception of one's appearance being judged negatively by peers also triggered negative thoughts and emotions and was considered a force for feelings of rejection.

Debbie: Some people judge you

Researcher: Yeah? And where would you see that more?

Debbie: In school

Researcher: In school?

Sarah: In school

Chelsea: In school, they always judge you, like the way you look

Researcher: OK, and what, which people are you talking about? Are you talking about like your other...

Debbie: Say someone walks past you and they're like real pretty and they're all like, they think they're all hot and all and then they'll walk past someone and then, they're not as pretty as them and they'll just walk past you and make you (*feel*) rotten

(Girls 5)

Gender differences were noted, both in how peers criticised others and in one's responses to rejection over appearance within the peer appearance culture. For example, one male group thought that overt appearance teasing occurred more commonly amongst boys while girls teased more covertly about appearance. Conor's reference to this was that, "*girls are more back-boilers than boys*" (Boys 1).

Conor: Yeah, you walk around the road and it's like, 'oh do you see her there now oh and look at the state of her'. Do you ever see girls like that?

Dave: And 'what would the girls think?'

(Boys 1)

Although gender-based social expectancies were indicated as participants felt that teasing would affect girls more, both boys and girls produced discourses where such rejection was feared and ultimately avoided.

Debbie: Girls kind of have more personal...

Vera: More girls because the girls...

Debbie: Like worry about what the boys think

Chelsea: Girls are more like eh they are more sensitive than boys. Like if someone said something about a boy, they wouldn't... like say if a boy was fat, like they wouldn't really take it seriously but if you said it to a girl like they would like start crying or something like that. Girls are sensitive that way

(Girls 5)

4.5.1.3 Family and Peer Modelling

Both girls and boys cited influential processes within the proximal appearance environment, including the modelling and discussion of body-change behaviours by family and peers. The girls did not discuss family modelling extensively but there was some evidence of influential processes within the home environment. For instance in one female group, an example was provided of a shared activity with one's mother where influences from media sources may be further reinforced.

Katie: And maybe if your mom, like my mom gets magazines and we would look through them

Emily: In some magazines they have these things like how to copy a celebrity's look, style secrets and that

Katie: Yeah like some people just wouldn't be like that. We don't do that we just look and if we like it I'd do something like and copy (*them*)

(Girls 7)

Knowledge of dieting and exercise habits of family and peers was noted among the boys. Dieting was discussed positively when the motivation was for sporting success or if a family member was currently dieting. These references were spontaneous and lengthy when centred on sporting success. Despite the boys generally claiming that they did not discuss body image issues or body-change behaviours, detailed information had been shared with them previously by significant others.

Luke: No like my mom said that you have to have like a bit of fat like every week, like you have to have a KitKat or something like that every week. My mom's on this diet like and she has like everything and all like healthy low-fat food and then on a Tuesday night she'll have like a KitKat

(Boys 4)

Luke: One of my friends em do you know Shane? Yeah he does kickboxing and yeah did you see him jogging yesterday? He says that because he does kickboxing he has to lose some weight and now he's going off jogging all around Shannon yesterday

Researcher: So you think that sports people do kind of control it (*their weight*) then?

Luke: Well he does kickboxing, soccer and everything, he's not a bit fat, but now you see him, he jogs all around Shannon trying to lose weight

(Boys 4)

4.5.2 The Distal Appearance Environment

The influence from the distal appearance environment was apparent, as was the interactive nature of its transmission. Through discussing the messages transmitted by role models in the media, it was clear that an aspirational appearance standard had been set, and that the social consequences of emulating celebrity looks and deviating from the ideal was further substantiated from this macro-level influence. The validation of the ideal body resonated with wider sociocultural prototypes, while the degree of muscularity and thinness for males and females respectively, was negotiated within the group context.

4.5.2.1 Role Models in the Media

Much of the norms that were communicated at a proximal level stemmed from the mass media, most notably the ideal promoted by celebrities. Participants were greatly influenced by the flawless images of celebrities portrayed in the media. Girls cited celebrities that boys they knew thought were attractive, and boys cited the top rugby and football players as most influential. One group of girls considered any attractive famous people to be influential.

Danielle: TV stars

Roisin: TV stars yeah

Researcher: ... And when you say TV stars who are you including in that? Is that kind of...

Hayley: Like famous people

Roisin: That's in like, on TV

Researcher: Celebrities in general? OK, so would that include people in TV programmes or is it more...

Roisin: Singers and famous people

Alannah: Pretty people

Danielle: Anyone who's famous

(Girls 8)

One group of girls discussed a celebrity they thought was too thin but said that all the boys they knew found her attractive. Consequently, this body shape may be aspirational in order to be desired by romantic interests. They co-constructed the narrative indicating that they had all overheard such discussions among boys.

Katie: Yeah and if it was Megan Fox probably… like everyone to be as skinny…
Emily: Yeah she's pretty skinny
Katie: Oh my God she's after starving herself. She's down to children's sizes
Emily: Oh my God
Maria: But she's very tall like
Zara: Baby sizes!
Girls laugh
Katie: Seriously, seven and eight-year olds, that's how skinny she is
Emily: She looks really ugly now. Because she got all like her nose sorted and things like that
Maria: Yeah but everyone likes her so
Melanie: Her and Kristin Thomas
Zara: Yeah John, John…
Emily: All the lads do

(Girls 7)

Many of the girls spoke of an ambition to follow these celebrity looks predominantly to attain a strong social standing and appear attractive to potential romantic partners. Again, the interconnectedness of sociocultural influences is evidenced, where the distal influences of celebrities in the media are transmitted through family and peer environments, and whereby the dominant motivation for emulating these ideal figures is social approval.

Debbie: It's like when you see all the pictures of famous people like and they're all skinny and size zero and all. You're like and you're like 'aw everybody wants to be like that.' So I don't want to be left out
Researcher: Oh OK so it is kind of the celebrities and...
Chelsea: They're the pretty people and loads of people don't want to be different
Debbie: Yeah

(Girls 5)

Despite the persistent pressures faced by the girls and the common desire among peers to look like celebrities, they also showed a degree of resistance as they cited some of the popular celebrities as too thin and unrealistic. However, although these girls did not accept the societal ideal passively, their legitimisation of an extreme diet if the associated celebrity did not appear too thin highlights how unhealthy behaviours can be promoted through negotiation within the peer context.

Katie: Yeah she's comfortable with what she does and she's not going on any crazy diets like do you (*know*) the vinegar diet that Fergie goes on and stuff like that

Melanie: What vinegar diet?

Katie: She does she drinks vinegar and…

Maria: Yeah but she's not…

Katie: You know the vinegar, she drinks that and it kind of stops her from eating and it actually just makes her stomach feel full

Maria: Yeah but she looks…

Emily: She's not going on any diets

Maria: She looks OK, like she's not really skinny

Emily: Well any crazy diets

Katie: That is a crazy diet like drinking vinegar

Melanie: She's not too skinny though

Maria: It's just like she's not too skinny

Caroline: She's normal size

Maria: She's just the way she wants to be comfortable with

(Girls 7)

When discussing celebrities pictured in magazines, the boys also mentioned how female models have become increasingly thinner.

Enda: Yeah and they be getting skinnier than that *(Enda makes a circle with the thumb and forefinger of each hand to demonstrate the size).* Seriously you can put-, you can like just put a circle around their arms like that and shwoop...

Ronan: That's how thin it is

Alan: And it's the same with Cheryl Cole

Enda: And with Cheryl Cole like you can just go like that *(Enda makes a smaller circle with the thumb and forefinger of both hands)* and just one, you know like her arms and that

(Boys 2)

The boys did not initially cite celebrities as an influence but discussed the fashion and sports products promoted by the most talented sports stars and the body shape required for sporting success.

Karl: Yeah like Messi is the best soccer player in the world like he does it for Adidas

James: Advertises them and then everybody buys them then

(Boys 4)

The collective view brought this source of influence into their awareness as the discussions progressed and allowed the boys to reflect on the emerging discourse. They spoke about the need for sports stars to attain the aesthetic-athletic body shape to be successful. These sports stars were also considered to influence healthy eating behaviours, while they thought models would influence unhealthy eating among girls.

Andy: I don't know like if an actor, no say if a sports person yeah
Researcher: OK, so you think sports people?
Andy: For maybe eating
Researcher: ... Sports people for eating?
Andy: And for appearance as well
Researcher: And do you know what sports people eat or?
James: They all eat healthy
Karl: They eat healthy foods...
Andy: ...Well eating, say if someone has like, say if one model has like a great figure and then when say some girl like twelve years old wants that figure, they might like, eat like one thing for breakfast every morning and...
James: That's all like
Andy: Yeah and starve so definitely eating and appearance, both of them

(Boys 4)

Information on how to accomplish celebrity looks was sourced from television, mothers' magazines, and also from peer appearance discussions. The girls discussed how television programmes and magazines mainly contained young people with ideal bodies and how this triggered a drive for thinness. The type of television programmes the participants watched also appeared to have an effect, such as soap operas portraying ideal body shapes, and reality television programmes illustrating the social consequences of being different. The information received appears to interact with personal attitudes and proximal influences impacting their body-related concerns, further highlighting the multidimensionality of media influences.

Chelsea: It's not nice to be different
Researcher: OK, what about the telly? (*referring to the previous mention of soap operas)*
Debbie: I think it's the same as (*celebrities*) and all the girls look like real, like really lovely and small like and... like in a programme, and the girls like the girls our age are real pretty and everything and all and, and I'm always like 'Aw I want to be able to look like them'

(Girls 5)

When asked whether one's appearance is more important for boys or girls, television shows and characters were cited to illustrate their points…

Melanie: Girls

Katie: Girls

Zara: It depends

Melanie: On what?

Katie: Like sometimes the boys would…

Maria: Sometimes the boys, now they're, some boys are kind of, they think about their appearance over everything. I was watching this programme, he was so obsessed with his appearance he used to wear foundation and everything

Zara: Him?

Maria: Yeah and they were trying to stop him because they were trying to teach him that looks aren't everything but (*for*) some people looks are. They might, they might want to just look good and they might think or be self-centred I think…

Melanie: Like Kurt from Glee (*television programme*) he just has a crazy obsession

Maria: Yeah, they mightn't think that… they might have a crazy obsession with it and wanting to look good all the time. They might just want to look good

(Girls 7)

4.5.2.2 Distal Appearance Norms Validating the Ideal

Cultural norms were evident in the validation of the ideal body, with a dominant focus on aesthetics for girls and on both aesthetics and athleticism for boys. In addition to peer acceptance, a further motivation for thinking about and engaging in body-change behaviours was to succeed in sport or for a specific career, such as modelling. In these cases such behaviours were acceptable and deemed necessary. Participants provided examples by referring to both professional sporting figures and similar others in the proximal environment, thus assigning these bodily requirements to all.

James: In rugby like you have to be big, you couldn't be, well unless you were out of the scrum

Luke: Yeah but that's muscle, that's not fat

Karl: You have to be, you have to be built

Andy: You have to be built and you can't be slow

Luke: Like my brother

Andy: Even Peter Stringer (*rugby player*), even Peter Stringer, like he's tiny but well- he's still built

Luke: My brother, he's only fifteen, his team the under 17s, they are, they have to start working in the gym now and they have to be on this diet, and my brother's friend plays for Munster and they have to be on this proper diet like they can't eat chocolate bars…

(Boys 4)

The pile sort task was carried out as a supplementary activity to encourage discussion of the meaning of the ideal body within groups. Participants could pose their thoughts while completing the task and then discuss how they felt about completing the task together. The task demonstrated how distal appearance norms might be transmitted through proximal processes, such as appearance-related discussions within peer contexts. Negotiation involved discussing a number of factors – size, weight, and clothes. Boundaries were set on the degree of thinness and muscularity considered most attractive for the girls and boys respectively. A general consensus was often achieved through repeating responses of others or offering various descriptors to describe the same image. Knowledge of the person in the image allowed common attitudes towards this person to be expressed and as a result it became an additional factor to consider.

Chelsea: I don't think you'd want to be like that. She's too muscly looking
Debbie: Or that *(other girls laugh)*
Sarah: Or these
Vera: She's really skinny *(whispers)*
The girls whisper to each other as they go through the pictures...5 seconds
Chelsea: She's really skinny, is it the dress she's wearing?
Vera: Jesus
Debbie: You'd want to be like her because she's like really pretty
Vera: Hmmm
Chelsea: Or you'd like to be like her?
(Chelsea holds the picture up; facial expressions indicate that the girls don't agree)
Chelsea: Oh yeah she is a bit too skinny. Oh I like that one from Girls Aloud
Debbie: I'd like to kind of look like her
Brenda and Chelsea shake their heads
Chelsea: No, she's too skinny
Debbie: Yeah

(Girls 5)

The girls spent more time negotiating when classifying images and their views varied on what they considered deficient body shapes compared to the boys. This gender difference may be due to females processing such appearance-related information more often, resulting in stronger individual attitudes on what they consider ideal. It was interesting to see how different some initial views of the images were between group members before agreement was reached. Although grounded in societal norms, the collective interaction allowed participants to consider the images from alternative perspectives, generating new insights into perceptions of the ideal body.

4.5.3 Personal Attributes

The experience of the appearance culture was dependent on a number of personal attributes. In particular, the young adolescents discussed how preoccupation with appearance and body shape depended upon one's degree of resilience to external pressures, largely determined by weight status, confidence, self-esteem, and age. Additionally, gender-typed traits were evident, particularly among the boys' discourses, despite the general notion that the gender gap in preoccupation was narrowing. As a result, the boys appear to face the task of negotiating their way around gendered boundaries regarding appearance- and body-related issues.

4.5.3.1 Resilience

The importance of attaining the ideal body varied among participants; some felt it was not very important to them but acknowledged that it was for other young adolescents, while others disclosed that they regularly considered their appearance. Although many voiced that it should not matter, there was an equally strong feeling that it did matter, as those that deviated from the ideal would be subjected to criticism from peers, providing further indications of the centrality of pervasive peer influences for participants. There was also a sense that having little or no concerns could have negative consequences, as you could become overweight. In one instance, the group interaction showed how an initial response was challenged until some degree of consensus was reached.

Roisin: Em, it's no big deal but it's good for you so you don't go overweight like if you keep eating bad stuff...
Danielle: I think because of other people it's a big deal
Hayley: Yeah if, if people were just like... didn't really care it wouldn't be
Roisin: Yeah if people...
Hayley: But then you'd be, like you'd get overweight
Roisin: Yeah if you didn't care about super skinny or overweight or... If you did care but not that much
Researcher: Yeah, so you think like to care a little bit is good but...
Louise: Yeah but not to be cos you have to do...
Roisin: Not to be looking in every mirror
Louise: It's good to take care of yourself

(Girls 8)

The levels of resilience to sociocultural pressures varied among the groups. Despite knowing that striving for the societal ideal is unrealistic for many, the female groups predominantly felt that it was widespread among girls these days. When asked about typical experiences that influence one to think about their appearance, such as people they meet and things that they see, they described daily encounters and triggering events.

Chelsea: It's the pretty people that do it to you

Researcher: ... How often does that happen do you think?

Pause - 5 seconds

Debbie: Everyday you have to think about yourself when you walk past people like and that

Chelsea: And when you look in the mirror

Debbie: Yeah

(Girls 5)

Personality traits and age were also thought to moderate the effects of inescapable sociocultural influences, and were considered partly responsible for the variability in preoccupation. The personality traits discussed were confidence and self-esteem, providing a glimpse into the reasons why it was felt that some, but not all, young adolescents were highly preoccupied with their bodies.

Hayley: Some people it could happen to and others it would never

Roisin: Like if the person is confident

Researcher: OK, so you think that helps them not be affected by it?

Roisin: Yeah 'cos if they are really shy and all they would probably be affected but if they were confident they wouldn't

(Girls 8)

Both girls and boys felt that the pressures discussed would affect them more as they got older. Generally, they felt that they were too young to be concerned with their weight although they did feel that being overweight would lead to social exclusion. Concerns about clothing and grooming were more common across the groups but it is noteworthy that they expected these behaviours to progress to more drastic body-change behaviours in later years.

Enda: I'd say as you get older... I'd say, yeah as you get older it becomes more and more important...

Jack: Yeah, you get more self-conscious about yourself, like...

(Boys 2)

Roisin: Yeah well I don't think people would go on diets yet really 'cos we're a bit young, maybe later...

Researcher: Yeah so you don't think that is really an issue at this stage?

Hayley: Unless you were like, for something like that you felt that you wouldn't be able to fit into a dress or something, then yeah

Girls: Yeah

(Girls 8)

4.5.3.2 Gender-Typed Traits

Gender-typed traits were particularly apparent through the role of appearance in upholding a gendered identity and the discourses produced by the male groups. Appearance was viewed as a means of affirming a masculine or feminine identity for these young adolescents, particularly in the pursuit of romantic partners. For boys, looking tough was thought to impress girls, while for girls, looking slim and attractive was thought to impress boys.

Colm: And sometimes like if you're out with all your friends sometimes some girls come and then they start showing off in front of them and hitting people and stuff
Lee: Yeah to show their hardness (Boys 3)

Roisin: Like if they (*boys*) are, if they don't really... like I don't know *(laughs).* You know they play wrestling and all that so unless you're weak and small
Alannah: Yeah
Researcher: Yeah, OK, so like having muscles and things like that kind of come into it
Girls: Yeah
Researcher: Yeah OK, and then for girls what do you think it's more about?
Roisin: It's just more like...
Hayley: Having like nice hair and looks and figures
Alannah: Figures
Hayley: Yeah and the way you dress
(Girls 8)

The boys' discourses were infused with many gendered references. When discussing concerns and behaviours, weight-related issues were described from a female perspective, while physical activity and fitness issues were generally referred to males. Dieting was typically perceived as a feminine behaviour except when the boys readily discussed the importance of dieting for sporting success. Physical mastery and sporting achievements were highly desirable aspects of identity for these boys, possibly due to popularity and prestige often concurring.

Lee: They might become anorexic or she might start eating really healthy. Sometimes they might start... is it girls or boys we're talking about?
Researcher: Well anybody really like- both I suppose
Lee: Well boys could start like doing weights
Killian: To build their muscles and to just kind of show off or something
(Boys 3)

According to the boys, girls were more susceptible to external influences, and some male group members expressed a desire to maintain their autonomy and resist sociocultural standards.

Jack: I don't think it is really important

Michael: I think it is for girls

Jack: I just think it's like, I walk tall and I don't care what anyone says

Michael: I think the girls really care about their appearance. I don't think lads do that much

Jack: No

Ronan: No

Jack: Just for the girls

(Boys 2)

Gendered discourses emerged in how levels of preoccupation were described. The boys presented a much more relaxed attitude towards pressures for a particular body shape, claiming that it was predominantly clothing trends that guided their consumer behaviour.

Andy: I'd say they (*girls*) have low self-confidence, they don't like the way they, they don't like the way they look at all

Karl: Say if like a new pair of shoes came out and everything and everybody else had 'em, you'd feel like you'd need to have 'em as well like

(Boys 4)

The boys also engaged in a stereotypical 'not bothered' discourse at times when expressing their personal views, likely to be influenced by perceived gendered norms.

Andy: I never burn I just tan really really dark

Researcher: So do you think it is good to have a tan then?

Andy: To be darker yeah

Karl: Yeah, but I'm not really bothered

(Boys 4)

The girls however, felt that concerns were increasing for boys in recent years. After one female participant proposed this premise, the other girls began to expand on the original idea to socially produce a shared meaning. The girls felt that boys' concerns were moving further from athletic function and more towards aesthetics, attributing this to a changing culture and increased influence from the media. Although the boys did not express this for themselves, they reported that this was the case with some of their peers. It is also interesting to note that this was not expressed when asked about media influences directly, further indicating the transmission of distal influences through the proximal appearance environment and perhaps at a largely subconscious level.

Roisin: Yeah like, when like, about fifty years ago or something eh, boys you'd never see them with highlights or gel or anything like that. And they wouldn't be going around in tracksuits either

Hayley: Yeah, 'cos now it's like you hang out in like a big group of boys and girls and it used to be just like eh…

Roisin: They'd be playing sports or something

Alannah: Things have changed

Girls: Yeah

Roisin: It used to just be all like play sports and stuff but now it's all about looks…

Alannah: Probably 'cos there's more celebrities…

Roisin: Like eh people started dyeing their hair, and…

Alannah: Because there used to be like, em none of that before TV

(Girls 8)

The discourses suggested that the boys felt that bodily concerns relating to fitness and athleticism were socially acceptable and the norm but could also provide examples of peers whose concerns predominantly regarded aesthetics. Boundaries were set within the context of one male group between behaviours considered acceptable and those deemed inappropriate for males. One participant was referred to as "soft" because of his appearance concerns. He then insisted that he does not put too much effort into his appearance perhaps to protect his social positioning within the group.

Conor: Yeah, they worry about it too much *(girls)* and they're like 'Wow look at me I'm so cute woooo'

Leo: Ah you worry about it too now you big soft boy

Dave: And you see boys just work out and sometimes they spike their hair and sometimes they just put water on it. But Conor...

Conor: I don't, just water on it- I wash me hair. Some guys like back comb it and…

Alex: Yeah all the faggots

Conor: And straighten their hair and all, I don't

(Boys 1)

Furthermore, during the pile sort task, there was concern among some male participants as they considered participation to be "gay". The first male group found the pile sort task difficult for this reason and they were reluctant to participate. When one of the participants rephrased the task, the group co-created a third pile, which they labelled the "gay" pile. Following this they appeared more comfortable and actively participated.

4.6 Discussion

4.6.1 Interpretation of Findings

One of the aims of this study was to explore young adolescents perceptions and experiences of the appearance culture, and the proximal processes that commonly occur in young adolescents' immediate sociocultural environment. This was largely reflected in the first theme, *the proximal appearance environment*. Acceptance within the peer group was a pertinent issue and attainment of the ideal body was considered advantageous in this endeavour. Thus, motivations for attaining the ideal were predominantly for social reasons, supporting previous work that has highlighted the importance of perceived peer relations for body image outcomes (Byely et al., 2000; Westerberg-Jacobson et al., 2010). Conforming to peer standards appeared to override personal feelings with the general message expressed similar to those found in previous qualitative works with young people, where presentation of the self "is a sense not of free choice, but conform or else" (Frost, 2003, p. 59). The peer context also triggered appearance comparisons, particularly amongst popular peers displaying desirable traits, coinciding with Wood's (1989) progression of social comparison theory, where the social context is proposed to impose such processes. Examples were evident of narratives that contextualised the impact of appearance on social positioning, such as perceptions of social exclusion from a failure to conform to trends or display preferred physical attributes.

Desired social positions were perceived to be dependent on a number of appearance-related factors, such as the attainment of products reflecting the latest trends and physical attractiveness. The male groups in particular appeared to perceive a link between visual displays of consumption and social status, showing the interacting effects of distal (consumerism) and proximal (social position) appearance contexts. The importance of appearance and body shape for increasing heterosexual popularity was also highlighted. This further supports the normative social shifts that occur in early adolescence, and partly reflects the element of time in the bioecological model. The timing of social and biological events, such as the emergence of romantic desires and romantically oriented relationships, in combination with cultural norms, are shaping appearance-related views and concerns (Bronfenbrenner, 1995). Indeed, attracting attention from potential romantic partners has been cited as a strong influence in other qualitative research for both males (Hargreaves & Tiggemann, 2006) and females (Mooney et al., 2009), despite quantitative research suggesting that these influences may not yet have materialised in early adolescence (McCabe & Ricciardelli, 2005).

Nearly all participants in this study, regardless of gender or location produced discourses indicative of a strong fear of peer rejection regarding their appearance. Indeed, fears of being excluded from important peer groups due to the inability to produce the necessary body shape

or style is a typical finding among young adolescents (Frost, 2003). Teasing and other forms of peer rejection appeared to be prevalent processes in these young people's proximal environment as all were aware of the unpleasant nature of appearance-related stigmatisation. Teasing has been considered to affect girls more than boys since teasing is often considered part of the male peer experience (Jones et al., 2005), and one group of females also stated this. However in this study, concerns about teasing were evident for both boys and girls, as inferred from the extent of its discussion across groups.

The use of social networking sites in relation to body image is relatively unexplored but associations have been found, for example, with higher levels of body image disturbance for girls (Slater & Tiggemann, 2012). Although references to Facebook were brief, they were cited in relation to appearance-related criticism, indicating that adolescents were aware that the visual displays of the self through this online context could expose one to adverse proximal processes. This small study did not provide sufficient data on the role of social networking sites, but its unprompted acknowledgement by the participants indicates the importance of including this new appearance context in measures reflecting the modern-day appearance culture. It also further supports research highlighting the need for increased emphasis on social media as a platform for bullying behaviour among Irish teens (Callaghan & the HBSC Ireland Team, 2012). The perceived scrutiny from peers in the form of 'judgments' was also cited, supporting previous findings highlighting the prominent role of these subtle gestures in the peer environment (e.g., Jones & Crawford, 2006), particularly for girls (e.g., Paxton et al., 1999). The strength of this perceived influence might be due to girls feeling that their bodies are ultimately being validated within the peer context (McSharry, 2009).

Interestingly, parental influences were not widely discussed among the groups with one or two brief references regarding the reading of magazines with one's mother, and parental body-change behaviours. This pattern is in line with the normative social changes that occur in early adolescence, such as the increased influence of peers regarding appearance-related issues (Jones, 2011). These findings also support research indicating the greater influence of peers and the media at this time when all sources of sociocultural influences are considered (e.g., Papp et al., 2013; Smolak et al., 2005). However, the references made to family members' and peers' dieting practices are noteworthy and in line with Stevenson and colleagues' (2007) focus group work with adolescents on barriers to healthy eating in Ireland, where the dieting behaviour of significant others encouraged a 'diet-supportive' culture (Stevenson, Doherty, Barnett, Muldoon, & Trew, 2007). The transmission of information and the modelling of behaviours by such significant others can instigate and maintain reciprocal interaction with the appearance culture, and their performances did appear to legitimise these behaviours for the participants.

The numerous processes that emerged from the proximal appearance environment, including critical gestures and the modelling of trends and body-change behaviours, are of special conceptual interest as they were extensively discussed across groups with the peer group playing a central role.

The second theme that emerged, *the distal appearance environment*, highlights the prevailing influence of figures in the media and how norms stemming from distal contexts interact with more immediate contexts to shape appearance- and body-related attitudes. The pervasive promotion of the ideal body through the media was often intertwined with issues regarding one's social standing. Participants were highly influenced by celebrities and desired the products, body shapes and body-change behaviours they promoted. The discourses produced suggested that they perceived these celebrity looks to lead to many social rewards, paralleling the expectancies widely promoted in the media (Levine & Chapman, 2011). The girls perceived that the emulation of celebrity bodies would improve their social standing and contribute towards the pursuit of romantic relationships. This was highlighted when one group of females discussed celebrities they felt were too thin but highly desired by the boys. The degree of resistance displayed by the girls to ultra-thin celebrities was also challenged in the focus group context when they collectively legitimised an unhealthy celebrity diet. If these discourses loosely reflect everyday peer appearance norms and discussions, it suggests that proximal processes such as appearance-related discussions may challenge personal views regarding media influences, contesting findings of such resistance that have been noted elsewhere (e.g., Dixey et al., 2001; Kuther & McDonald, 2004). These examples are indicative of the distal appearance environment filtering through proximal processes and appearance norms, reinforcing the ideal body that role models in the media promote. This supports research where the association between media exposure and body dissatisfaction was mediated by appearance-related discussions (e.g., Jones et al., 2004).

Gender differences were evident in admired celebrities, with boys focusing on sports stars and girls on actresses and models, indicating how person characteristics influence the information that is attended to from the distal environment. The products promoted by elite sports stars were the most highly sought after by the boys, with the underlying expectancy of their attainment being improved physical competence; linking consumerism and branding in part, with identity construction (Frost, 2003). They did not feel that they compared themselves with, or desired the body shape promoted by, figures in the media. However at a later stage, eating behaviours and body shapes percieved necessary for the success of sporting professionals were discussed. This is consistent with previous research where boys have not directly discussed the link between the media and bodily issues (Hargreaves & Tiggemann, 2006), but may possibly reflect a social

inhibition to reveal such body-related thoughts or lack of awareness of the media as a potential source of influence.

Influences were also apparent through the discussion of the use of mediums transmitting appearance-related messages such as television, magazines, and the Internet, suggesting that processes are occurring within home and peer contexts. Media content appeared to interact with personal values, impacting these adolescents' interpretations of reality. According to the girls, most young people on television had ideal bodies and all girls were considered to desire a similar body shape. Believing that others in one's immediate environment are similarly affected by exposure to these media portrayals may resonate with the third-person hypothesis (Davison, 1983), and elicit similar processes in the individual (Milkie, 1999). Additionally, television shows or characters were used to illustrate points regarding body-related preoccupation amongst young people, and reality television programmes and digital representations of young people through social networking sites were mentioned when discussing the adverse social consequences of appearing different.

The meaning of the ideal body for these young adolescents largely reflected cultural norms, and while aesthetics were important to all, the function of the body dominated for the boys. Ideal appearance norms were similar to the prototypes presented in previous research: the male ideal was toned, muscular and athletically fit while the female ideal was thin and toned (Jones, 2001; McSharry, 2009; Murnen, 2011). The greatest similarity across gender was with the key function of attaining the ideal body – to improve one's social standing and avoid peer rejection. This is consistent with previous claims of comparable environmental influences despite highly gendered body image ideals (Helfert & Warschburger, 2011; Smolak & Stein, 2006). The pile sort task was an interesting activity as the discussions regarding the styles and body shapes in the images implied that participants' views of the ideal body had clearly been shaped by societal portrayals. Moreover, it showed how stereotypes for desirable physical attributes can be reinforced and negotiated through proximal peer contexts (Cash, 2011; Jones & Crawford, 2005).

References made regarding the media in the focus groups were often indirect, as a means of gaining information about celebrities or when illustrating the effects of peer influences. Consequently, young adolescents may be largely unaware of its influencing role in transmitting appearance norms. Indeed, adolescents (particularly males) have previously regarded media influences to pose little or no impact on body image issues (e.g., McCabe et al., 2002). However, with the media conceptualised as part of the everyday experience of the appearance culture, a greater reflection of its impact can be obtained. Distal appearance norms are pervasive

and can be intensified when reinforced within the proximal appearance culture, and with such indirect forms of transmission, one can be largely unaware of its impression. Consequently the extent of its influence may not be uncovered by the direct questioning that is typical in many self-report measures of sociocultural influences (e.g., the Sociocultural Influences on Body Image and Body Change Questionnaire, McCabe & Ricciardelli, 2001).

The final theme that emerged, *personal attributes*, attended to the ways in which person characteristics shape participants' experiences of the appearance culture. These young adolescents appeared to be overrun by messages from both the proximal and distal appearance environments and actively negotiated their way around them. Consequently, levels of resilience appeared to be quite subjective and varied. Being overweight was highly undesirable, evidenced through descriptions of social exclusion and victimisation. In fact, a small degree of bodily concerns was considered adaptive to avoid such outcomes. These motives parallel those found by Dixey and colleagues (2001) in their investigation of perceptions of fatness and thinness in adolescents, and indicate that participants believed that one's weight status would negatively shape the processes occurring in the appearance culture. The girls acknowledged how portrayals of the ideal body were unrealistic for many to achieve, but felt that they were commonly pursued. Again, the third-person effect is implied, impacting through the perceived values of significant others in the proximal environment (Milkie, 1999). Low self-esteem and confidence issues were linked with lower social standing and body image concerns, further signifying the interacting relationship between person characteristics and the peer context, and in line with quantitative research highlighting this relationship (Ricciardelli & McCabe, 2003b). The expectation across groups that bodily concerns would progress as they got older was also seen throughout the groups in Dixey and colleagues' research (2001), and resonates with the literature evidencing the progression of bodily pressures in middle adolescence (Helfert & Warschburger, 2011).

Gender-typed traits were prevalent within the discourses. Appearance was discussed as a means of attracting romantic interests in accordance with socially constructed gender roles. Gendered references were particularly apparent among the male groups, with body image issues being portrayed as predominantly 'female' concerns. Their discourses produced an implicit classification of male- and female-appropriate body-change behaviours through the pronouns used, indicative of cultural norms and the intensification of gender roles in early adolescence where masculinity and femininity become increasingly polarised (Calzo et al., 2012; Galambos et al., 1990). Girls were portrayed as more vulnerable to sociocultural messages while the boys described their use of internal dialogue as a protective factor against sociocultural pressures.

This further supports self-serving biases that are commonly associated with males (Ricciardelli & McCabe, 2011), and indicates that the boys were cognizant of them.

The boys spoke readily about upholding hair and clothing trends to enhance their appearance. However, there was also an effort to produce a discourse reflecting Grogan and Richard's (2002) notion of "not being bothered", and to position themselves as putting little time and energy into their looks. The girls perceived the gender gap in appearance concerns to be narrowing and, although the boys did not express this for themselves, they reported that this was the case with some of their peers, also similar to patterns found by Grogan and Richards (2002). This change coincides with the proposal of a cultural shift in attention towards the aesthetic male body in recent years (McKinley, 2006; Leit et al., 2001). Overall, the boys' discourses reflected the impact of both the proximal and distal appearance environments where males are expected to attain the ideal despite being positioned as displaying low levels of body image investment (e.g., Bardone-Cone et al., 2008). It was also clearly evident that boys were much more comfortable discussing bodily issues when the focus was on sport as such issues were considered a worthwhile focus for sporting pursuits, paralleling previous qualitative and quantitative findings (Ricciardelli & McCabe, 2009; McCabe et al., 2006).

One of the key characteristics of focus groups is the group interaction, permitting access to the processes by which meaning is constructed and how participants share and negotiate their viewpoints and experiences within a particular social context (Liamputtong, 2011). The group interaction was particularly useful for exploring perceptions of body image as the influencing factors appear to centre around, or are transmitted through, the peer group. The complex transmission of such influences appear to be quite established in these young adolescents but may have previously received little conscious processing, particularly among the boys. By attempting to create a context that loosely reflected a normative conversation addressing the appearance culture in depth, an indication of the dynamic processes that may occur within the group context was obtained (Gibbs, 1997; Vaughn et al., 1996). There were indications of sharing information, and when participants differed in their opinions they often negotiated a common ground, possibly signifying the strong role of the peer group in the development of attitudes and norms in everyday life. The various forms of communication used to construct narratives and recapture common experiences such as laughter, mockery, and role-playing, added extra meaning to participants' disclosures, providing a greater insight into how the appearance culture can shape appearance and body image issues. Although the groups did not fully emulate natural processes that occur within the peer appearance culture, access to these forms of interaction and the insight gained could not have been captured through quantitative methods or individual interviews.

In summary, new insights were gained on the multidimensionality of sociocultural influences and the various patterns by which they are transmitted, including the filtering of distal appearance messages through peer values and discussions, and boys' experience of the appearance culture involving the task of negotiating messages from the sociocultural environment whilst trying to uphold a gendered identity. These findings are inconsistent with the original tripartite influence framework, where the triad of parents, peers, and the media have been postulated to exert their influence independently. Furthermore, the complexity of these influential processes and perceptions may have been overlooked in research utilising assessments that are oriented toward asking about each source of influence separately (e.g., the Perceived Sociocultural Pressure Scale, Stice & Agras, 1998). This ecological reflection of sociocultural influences, highlighting the intricacy of the appearance culture experience for these young adolescents and the interactive nature of influential processes, can provide more representative information if encompassed within a quantitative measure. These findings, in combination with previous research, formed the basis upon which items for the multidimensional survey instrument were chosen, and helped to ensure that the language used was age-appropriate and culturally relevant. This input from young adolescents also contributed towards the validity of the measure. The development of the measure is fully described in **Chapter 5**.

4.6.2 Researcher's Reflection of the Process

Attempting to convey a representation of the participants' experience, the overall essence of the focus group process, and the context within which it occurred was a challenging but worthwhile undertaking. The practices of qualitative work contrasted greatly with the quantitative methods I am more accustomed to but I adopted a number of strategies to enhance the quality of the research. Directly after each group, I took notes on aspects of the sessions that were not captured on the audiotape such as body language, the emotional climate, and reactions to others' views. I engaged in reflexive thought and acknowledged my social positioning and its possible impact within the group context. My aim was to engage with the variety of standpoints that emerged within each group, acknowledge the shifting contexts, and how my own presence and that of the staff member contributed to the construction of meaning.

Since I, as an adult female, and the staff member were present, the responses of participants were certainly situated within this power dynamic and status context. Upon reflection, I do feel that I may have interrupted participants by adhering too rigidly to the questioning route. I feel that my trepidation to explore or probe certain bodily issues reflected the tremendous sense of responsibility I felt for the participants' welfare and my fear of evoking bodily concerns within them, which may not have been present prior to the research. I was highly aware of my need to

approach the task with care and sensitivity, possibly to a degree that impacted the quality of data that emerged. I also have to acknowledge that my interpretation of these young adolescents' experiences is just that, a version of events from my perspective as a 'non-young adolescent'. Therefore, the written report of the findings should only be seen as a discourse in itself with speculative conclusions stained with my biases, values, and assumptions (Creswell, 2007). Upon acceptance of this interpretation, I felt that the use of focus groups to explore these issues with this population was an invaluable learning experience that enhanced my understanding of the experiences of young adolescents within the appearance culture.

4.6.3 Strengths and Limitations of the Study

The strengths of this study include: (i) gaining an insight into young adolescents' shared understandings of the appearance culture and appearance-related issues, (ii) acknowledgment of the ways in which the social context influenced the construction of meaning, and (iii) the systematic analysis procedures employed. The multiple contexts and processes occurring within the appearance culture have not been widely accounted for in previous focus group studies on body image issues, despite the noted value of such ecological approaches in research addressing other forms of adverse health outcomes (e.g., Frohlich et al., 2001). In addition, this method of data collection appeared to be an impartial and appealing means of exploring a potentially sensitive issue with young adolescents. Interest was maintained through the brief but engaging questioning route supplemented by activities, participants were not placed under undue pressure to contribute, and every effort was made to maintain a comfortable environment. Furthermore, the data collection and analysis process was carefully planned and executed to ensure high-quality research was undertaken.

However, there are also limitations to be noted. First, in applying focus group methodology, data can only be interpreted from a group level. Second, some issues may have been too personal or sensitive to discuss in such a group setting, and others were not probed at length. For example, the exploration of how newer forms of media such as reality television and social networking sites impact young people's views on ideal body types was limited in this study, and, in retrospect, delving deeper into these forms of influence could have provided fruitful information. Future research that examines these processes is clearly warranted. Additionally, although the pre-existing groups may have loosely emulated everyday interactions among peers, honest disclosure could not be guaranteed, as underlying thoughts and feelings may have been shaped by the power of peer pressure or the presence of the researcher and staff member. Thus, disclosures must be considered from the context in which they were discussed. Furthermore, the sample was made up of young adolescents, predominantly middle or lower-middle class, from two geographical areas in Ireland, and therefore findings cannot generalise to the wider

population. Finally, although a number of validation strategies were adopted, member checking was not conducted due to time constraints. However, it was conducted through initial piloting of the quantitative scale that was developed from these focus group findings (see **Chapter 5, Section 5.4.4**). Indeed, the use of a mixed methods approach in this phase of the research can offset other weaknesses that have been noted, such as the subjective interpretation involved, researcher bias, and the limitations regarding generalisation (Creswell & Plano-Clark, 2007).

4.6.4 Conclusion

This research addressed the need to gain insight into the lived experience of young adolescents within the current appearance culture, and provided an account of the differential experience across gender. The interconnecting themes that emerged from this study further support the need to acknowledge the interactive nature of sociocultural influences rather than assessing the triad of sources in isolation, and subsequently provided the foundation for developing a measure of the appearance culture in early adolescence. The wide-ranging perceptions and processes that emerged from the multidimensional contexts have not been encompassed within a single study previously. However, similar influences and motivations for pursuing the ideal body have also been noted in other qualitative work on adolescents, both in Ireland and internationally (e.g., Mooney et al., 2009, Polce Lynch et al., 1998), further highlighting the need for these issues to be addressed.

Chapter 5.

The Appearance Culture Scale for Young Adolescents: The Development of a Measure Using a Mixed Methods Approach (Stage Two)

5.1 Aim of the Chapter

The aim of this chapter is to document Stage Two of the mixed methods approach to the development of the Appearance Culture Scale for Young Adolescents (ACS-YA). The process involved several stages, each of which is outlined in **Table 5.1** below. The chapter will first describe the development of the ACS-YA, including stages of refinement and the first pilot test to assess various aspects of the response process. Second, the chapter will describe the administration of the scale to young adolescents in a further pilot study to explore the measure's factor structure. Finally, the administration of the scale in the main study, verification of the factor structure, and initial accounts of psychometric properties will be detailed.

Table 5.1

The Scale Development Process for the ACS-YA

Stage	Description of Process
Stage 1	A thorough review of the relevant literature and existing measures assessing sociocultural influences appropriate for the target population
Stage 2	An overview of findings from the focus group research highlighting the key messages to be incorporated into the scale
Stage 3	Identification of where current measures are lacking for the particular purpose of the present study and determination of the aims and objectives of the measure
Stage 4	Determination of the modes of data collection and sampling strategy
Stage 5	Development of a table of specifications to guide content selection and the construction of the measure
Stage 6	The creation of the initial pool of items with consideration afforded to key factors relevant when creating a scale for young adolescents
Stage 7	First pilot test to evaluate and obtain feedback from the target population on aspects of the response process before refinement
Stage 8	Second pilot test with data subjected to exploratory factor analysis to explore the factor structure and refine the scale
Stage 9	Administration of the ACS-YA in the main study with data split into a calibration sample and validation sample and subjected to confirmatory factor analysis (CFA) • CFA to provide additional information about the dimensionality of the scale and test possible variations of the factor structure in order to retain the model with the best fit • Incorporation of the validation sample into a multigroup invariance testing procedure using CFA to cross-validate the final version of the ACS-YA
Stage 10	Tests to provide initial evidence of reliability and validity • Reliability: internal consistency and item analysis • Content validity: input sought from a round of expert reviews with professionals, specialising in researching children and young people • Construct validity: tests of convergent and discriminative validity

5.2 Rationale for Developing the ACS-YA

5.2.1 Overview of Focus Group Findings

A number of key messages from the qualitative investigation were considered to inform the content of the scale. From observations within the proximal appearance culture, the young adolescents perceived the main driving force behind the pursuit of appearance ideals to be the ensuing social rewards. Peer acceptance and avoidance of peer rejection emerged as central concerns, considered largely dependent upon one's appearance. Popular peers were cited as trendsetters and targets for upward comparisons, motivating engagement in behaviours to attain similar standards and, in effect, improve one's social standing. Interest in romantic relationships appeared to coincide with the development of appearance-related concerns. The indirect role of the distal appearance environment was also evident in the pursuit of romantic partners for the girls, as the celebrities discussed by the boys provided standards to aspire to. Criticism, teasing and bullying about one's appearance were cited as triggers for appearance-related concerns and behaviours, and the targets identified were those who deviated most from the societal ideal. Indirect appearance-related judgments were also considered, and were predominantly attributed to girls. Moreover, SNSs emerged as an additional context where visual displays of the self increase vulnerability to forms of appearance-related peer criticism. On the whole, the appearance-related values and behaviours of significant others were highly influential, especially those of peers.

The influence of the distal appearance environment was clear from the focus groups, with the media transmitting messages about the societal ideal and behaviours that help to attain it, from clothing trends to dieting and exercise. Celebrities played an important role in this transmission as participants were greatly influenced by celebrity bodies that are validated in the media, and emulation was perceived to lead to social rewards in the proximal environment. These young adolescents were active consumers of the media, and the information received appeared to shape appearance-related attitudes, such as the adverse consequences of appearing different. Furthermore, cultural norms were evident in the young adolescents' conceptions of the ideal body, and these may be further negotiated and reinforced in proximal contexts.

Preoccupation with one's appearance and body shape was considered dependent upon one's degree of resistance to sociocultural influences. Traits that were perceived to determine resilience to, and shape experiences within the appearance culture included weight status, confidence, self-esteem, and age. Gender-typed references were also evident, particularly from the boys' discourses, with specific concerns and behaviours attributed to either males or females. Appearance was viewed as a means of enhancing social positioning and impressing

opposite-sex peers, with a focus on physical competence among boys and aesthetics for girls, in line with socially constructed masculine and feminine gender roles.

The collective interaction in the focus group discussions allowed alternative perspectives to be considered and generated new insights and perceptions. The outcomes highlighted the need to place greater emphasis on the interactive nature of sociocultural influences and the multiple processes by which appearance-related messages are transmitted. The synthesis of these key findings with the theoretical foundation and literature base can contribute to the development of a measure representative of the means by which sociocultural influences are currently experienced by young adolescents.

5.2.2 Review of Existing Measures

In reviewing existing measures reflecting sociocultural factors that influence body image, it was of interest to evaluate measures that have been appropriately used with young adolescents, not only in their content, but also in their administration. The review was also limited to include measures that are relatively easy to administer to a large group with indications of good response compliance. Existing measures of family influences related to body image that have been applied with young adolescents include measures of the quality of relationships, and pressures from the family such as the modelling of appearance-related values and body-change behaviours. Measures reflecting the quality of relationships have assessed an individual's general feelings of parental acceptance and approval, without specifying any association to one's body image (e.g., the Self Description Questionnaire II – Parent Relations Scale; Marsh, 1990). The assessment of appearance-related messages from the family have included very short scales, or a small number of items within a scale assessing participants' perceptions of pressure from family members to lose weight. The vagueness of the term 'pressure' likely invokes numerous connotations depending on the respondent, the study, and the context, causing problems if no specific definition is provided. In addition, these measures were often created for use with females and generally focus on weight concerns, particularly the desire to be thinner (e.g., the Perceived Sociocultural Pressure Scale – Family subscale; Stice, Ziemba, Margolis, & Flick, 1996). Other measures have addressed limited forms of influence, such as maternal modelling and values (e.g., the Mother Influence Scale; Levine, Smolak, & Hayden, 1994), or feedback in the form of comments or encouragement (e.g., Feedback on Physical Appearance Scale; Tantleff-Dunn, Thompson, & Dunn, 1995). Although some comprehensive scales assessing a number of direct and indirect forms of influence exist, these generally focus exclusively on weight concerns and dieting (e.g., the Perceived Family Preoccupation with Weight and Dieting Scale; Schutz, Paxton, & Wertheim, 2002).

Measures of peer influences employed in the body image literature with the target population predominantly focus on particular aspects of peer influence, such as the quality of relationships (e.g., the Self-Image Questionnaire for Young Adolescents – Peer Relationships scale; Peterson, Schulenberg, Abramowitz, Offer, & Jarcho, 1984), perceived pressure (e.g., the Social Pressure to Diet Scale; Pike, 1995), or peer appearance discussions (e.g., devised measure of appearance conversations with friends; Jones et al., 2004). Although a number of these measures provide a comprehensive reflection of the form of influence (e.g., the Physical Appearance Related Teasing Scale; Thompson, Fabian, Moulton, Dunn, & Altabe, 1991), the inclusion of lengthy scales for each element of the various sociocultural influence constructs within one study is rarely feasible. On the other hand, some measures are quite short and lack depth for a thorough investigation of the concept under study (e.g., the Peer Dieting Scale; Levine et al., 1994). Furthermore, many assessments specifically refer to weight-related outcomes, which do not encompass appropriate indicators across gender (Wang et al., 2006).

The review of measures assessing media influences related to body image appropriate for the target population indicated that the focus has varied from study to study. Assessment has reflected the frequency of exposure (e.g., devised measure of appearance media exposure; Clark & Tiggemann, 2007), interest in media with appearance-related content (devised measure of selective exposure based on interest; Harrison, 2000), or the use of specific mediums to source appearance-related information (Magazines as a Source of Information; Levine et al., 1994). The Sociocultural Attitudes Towards Appearance Questionnaire (Heinberg, Thompson, & Stormer, 1995) and its revisions are widely used, comprehensive assessments. However, many of the items tap the cognitive processing of information from the sociocultural environment, largely confounding media influences with internalisation of the societal ideal body (Smolak et al., 2005). Measures addressing the role of celebrities in promoting the ideal body are scarce and often include narrow indicators or female-oriented concerns (e.g., the Model Emulation Scale; Levine et al., 1994). The Celebrity Attitudes Scale (McCutcheon, Lange, & Houron, 2002) assesses para-social relationships with celebrities and can be applied in appearance-related research with specific instructions (Maltby et al., 2005). However, it is quite a lengthy measure to include in a comprehensive assessment of sociocultural influences (34 items). Recent measures have been devised for assessment of influences from the Internet and social networking sites. Tiggemann and Miller (2010) devised a measure of Internet appearance exposure assessing frequency of time spent online and on various appearance-related websites. Additionally, Valkenburg, Peter, and Schouten (2006) devised a measure reflecting social networking, although this was specific to one site and was not explicitly linked to appearance.

A number of comprehensive and multidimensional measures of sociocultural influences were also reviewed. Some measures were wide-ranging but contained culturally inappropriate terminology for an Irish population (e.g., the McKnight Risk Factor Survey; Shisslak et al., 1999). Keery and colleagues (2004) created a multidimensional measure of sociocultural influences from factor analysing an inclusive set of items from a comprehensive range of measures assessing both direct and indirect forms of influences. However, the measure was created for a female population, items exclusively assessed influences associated with weight concerns and dieting, and the media items only reflected the mediums of television and magazines. The Perceived Sociocultural Influences on Body Image and Body Change Questionnaire (McCabe & Ricciardelli, 2001) assesses various forms of influence from a number of socialisation agents and encompasses both weight and muscularity concerns. However, it is quite a lengthy measure (57 items) and does not include specific processes that emerged from the literature review and the focus groups, such as the interactive nature of the appearance culture and online activities.

Overall, particular aspects of sociocultural influences that are assessed with young adolescents often vary from study to study, resulting in a lack of clarity in what is being measured and the meanings that can be derived from the relationships between sociocultural influences and body image. Due to the sporadic use of short assessments, narrow stimulus sampling, and items reflecting a limited range of bodily concerns, it is difficult to make comparisons across studies and samples, or determine the specificity of the various forms of influence (Kazdin, 2003; Keery et al., 2004). Moreover, the focus group findings clearly portrayed the distinctive effect of various sociocultural influences and both the direct and indirect means by which many sociocultural messages are communicated. The centrality of the peer group for these young adolescents cannot be undermined and wider societal influences are often dispersed and legitimised within the peer context. The processes occurring within the proximal environment and the differential impact they have across gender need to be reflected in quantitative assessments. Furthermore, both the literature and the focus groups findings indicate the increasing impact of newer forms of media, and the highly influential role celebrities are playing in the lives of young adolescents, highlighting the importance of including these factors in present-day assessments. Thus, in order to provide a comprehensive and gender-appropriate account of sociocultural influences experienced by the contemporary adolescent, an approach similar to Keery and colleagues' (2004) is required, where sociocultural influences are conceptualised as a multidimensional construct, a comprehensive set of indicators is devised, and the measure is produced from conceptual and statistical refinement. Hence, indicators that reflect commonly occurring influential processes can be retained to provide an ecological reflection of sociocultural influences for young adolescent boys and girls.

5.2.3 Aims and Objectives of the Scale

In reviewing the relevant literature conceptualising influences from the sociocultural environment (**Chapter 3**), qualitatively exploring young adolescents' experiences, and evaluating the assessment of the various constructs, it appears clear that a culturally valid and comprehensive measure reflecting the processes occurring within the current appearance culture is warranted. For the specific purposes of this research, no scale currently exists that assesses the modern day appearance culture and an individual's endorsement of its tenets. Therefore, the intent of Stage Two was to capture the effect of the appearance culture in the lives of many young people within a self-report scale. By adopting a quantitative model, individuals can be differentiated with respect to their endorsement of common perceptions and processes regarding the appearance culture. The processes were intended to reflect the complex means by which the larger concepts of societal ideals and standards related to body image and appearance are transmitted in everyday life through the family, peer group, and the media. With the consideration of the target population in mind, the measure was developed containing items general enough to reflect all types of bodily concerns, whether they relate to body shape, weight, or muscularity, permitting gender comparisons across patterns of outcomes. A further aim of this stage of the research was to provide a preliminary account of psychometric properties in order to render the scale appropriate for inclusion in the testing of a multivariate aetiological model.

5.3 The Development of the Scale

In accordance with the *process perspective* outlined by Groves and colleagues (2004), the scale development process began with the determination of the sampling frame and consideration of the recruitment strategy. Preliminary specifications were then developed and the pool of items was created (Comrey, 1988). A deductive method of scale development was adopted where content was formulated based on relevant theory, the literature base, and qualitative findings, followed by validation studies (Clark & Watson, 1995).

5.3.1 Sampling and Recruitment Strategies

The target population intended for the measure was young Irish adolescents, in their first and second years of post-primary school, approximately aged between 12 and 14 years. The goal was to recruit approximately 600 participants throughout the pilot and main studies, providing adequate sample size to perform both exploratory and confirmatory factor analyses. The sampling frame was stratified in the sense that the sample recruited was intended to contain approximately equal numbers of males and females. Consistent with multi-stage sampling, the population was first categorised into a primary sampling unit (i.e., post-primary schools). The

intention was to approach schools on the Department of Education and Skills list of post-primary schools in Munster. A systematic sampling technique was adopted and every *k*th school was approached to begin with. However, due to the participation rate from schools, a more purposeful approach was adopted in order to recruit participants from schools representing a range of compositions, SESs, and geographic locations.

5.3.2 Mode of Data Collection

There are advantages and disadvantages for each mode of data collection. It was important to choose the most appropriate mode to address the research objectives that would be cost efficient and have the least impact on errors (Groves et al., 2004). It appears to be generally agreed that self-administration modes are most appropriate when topics are of a potentially sensitive nature (Groves et al., 2004; Tourangeau, Rips & Rasinski, 2000). To this end, a self-administration mode was considered most appropriate for this project due to the subject matter and the intention to administer the survey to large numbers of young adolescents in the main quantitative phase. Factors such as the degree of privacy offered to potential respondents were also considered. The presence of the researcher and of others (e.g., in a classroom) can reduce the level of privacy. However, despite the increased level of privacy when administering a measure in a private setting, the classroom setting was deemed appropriate for large-scale administration, and the familiar environment can provide a sense of comfort for participants.

5.3.3 Preliminary Specifications

Early in the process it is important to clearly define the purpose of the scale and possible future applications to guide the development process including item content, response formats, and the length of the measure (Noar, 2003). The intent of the measure was to assess the patterns of transmission of sociocultural norms regarding the cultural ideal of physical attractiveness, both directly and indirectly through the family, peers, and the media. It differs from existing measures through its attempt of a more representative assessment of the common processes through which sociocultural influences related to body image and appearance are transmitted in everyday life. The scale aims to assess the endorsement of the appearance culture from a proximal and distal level, evidenced through levels of agreement or disagreement with a number of statements.

5.3.4 Creation of the Item Pool

In accordance with the aims of the survey and Clark and Watson's (1995) recommendations for developing an item pool, an extensive pool of items (58) was created to reflect five initial constructs: family influences, the peer appearance environment, peer acceptance, peer rejection, and media influences (see **Appendix E**). This initial item pool was broader and more

comprehensive than expected for the measure to ensure adequate representation of the target constructs. Multidimensional scales will clearly be lengthier than a unidimensional scale but it was hoped that the number of items would be reduced by at least 60% when the final version was produced. On the basis of face validity, items were created that were reflective of the measure's objectives, and appropriate for administration to the target population. Although the focus groups involved a small subset of the target population and findings cannot be generalised, qualitative input from the target population can be highly beneficial at the initial stage of scale development. In combination with the reviewed literature, relevant items that are consistently understood by the target population can be produced (Vaughn et al., 1996). The number of items created for each construct reflected the level of impact evidenced from theoretical conceptualisations, the literature base, and the focus groups. Statistical refinement can then determine the relevant items for the final scale.

5.3.4.1 The Item-Writing Process

The item-writing process involved developing each item with the objectives of the measure in mind (Clark & Watson, 1995). Particular attention was afforded to the design, item stems, response formats, and instructions, in order to construct a measure appropriate for the target population. Steps were also taken to increase participants' motivation to respond. This involved consideration of how the items could possibly relate to young adolescents' attitudes and behaviour, whether items were appropriately phrased for their cognitive level, and possible contextual influences during administration (Tourangeau et al., 2000). The survey consisted of items largely reflecting unobserved mental states, such as attitudes and beliefs of a potentially sensitive nature. Therefore, providing the responses as part of the item appeared to be the most appropriate way to increase understanding of the items and the expected responses. Since cognitive systems related to language, literacy, and memory are continually developing throughout childhood and adolescence, the level of adaptation required for the young adolescent to successfully respond to the survey items was continually considered throughout the writing process (Bell, 2007). These issues would also be considered after the first pilot test, where the initial pool of items and the administration process were evaluated with the target population, ensuring that respondents recalled the information sought from the survey, and were motivated to respond. Additionally, adolescents can be context-sensitive, and individual differences in respondent desires for social approval can affect quality of data (Borgers, DeLeeuw, & Hox, 2000). This is especially important to consider when the measure is designed for administration in the school context.

5.3.4.1.1 Item Stems

In developing items for scales designed for use with children and adolescents, it is recommended to avoid any possibility of ambiguity and to explain and define terms exactly

(Greig, Taylor & McKay, 2007). Closed questions can enhance clarity and reduce grammatical ambiguity since the response options relate to the main point of the item. Items assessing attitudes generally follow a closed format, with response options involving a scale of predetermined alternatives, from which the most appropriate is selected (Couper, 2008). These formats are highly objective, easy to respond to, and easier to record, code, and analyse. Nevertheless, additional care is needed to ensure responses will not be biased and that all potentially important response options are included (Bonder, 1989). Considering the purpose of the measure and the desired outcomes, a closed format was chosen. Efficient responses will depend on the fit between the retrieved information from item encoding and the response categories provided (Groves et al., 2004). Thus, care was taken to write items unambiguously in order to avoid multiple interpretations, which can increase error variance and decrease reliability (Kerlinger & Lee, 2000). Terminology used by the young adolescents in the focus groups was also incorporated when necessary to facilitate the response process, although trendy expressions and slang were avoided as these can date quickly (Comrey, 1988).

Items were phrased to help respondents readily retrieve the necessary information through: i) attempts to avoid grammatical ambiguity, excessive complexity, and faulty presuppositions; ii) avoidance of ambiguous and negative terms; iii) use of good, clear examples when necessary; and iv) attempts to 'load' sensitive items by including indicators that invite the unconventional response (Couper, 2008). All items were consistently structured, and contained concise syntax. Refraining from the use of negative questions is generally recommended in developing measures for children and young adolescents, despite an equal balance often encouraged for questionnaires with adults to improve data quality (Borgers et al., 2000). Nevertheless, three reverse-scored items were included at this stage to encourage use of both sides of the scales (Couper, 2008).

5.3.4.1.2 Response Formats

To establish an appropriate response scale and format, a broad range of quantifier formats was initially reviewed when the item stems were composed, taken from a number of measures in the literature. When response categories have numerical labels, they can affect how responses are made. For example, negative numbers in scales can have a stronger meaning than scales from zero and above, and respondents' interpretation of scales can vary widely (Dillman, 2000; Groves et al., 2004). Too few categories may cause difficulty in adequately discriminating responses, while too many may cause difficulty in distinguishing among categories, leading to cognitive overload (Bell, 2007; Groves et al., 2004). With closed questions, four to five completely labelled responses are most effective for use with older children as they generally have the cognitive ability to understand all the information in the item (Borgers, Hox, & Sikkel,

2003). Statistically, a five-point scale was also deemed most appropriate as a reasonably continuous distribution with a greater response variance can be generated, producing more stable outcomes (Comrey, 1988; Kerlinger & Lee, 2000). For the purpose of the measure, a five-point response scale was chosen reflecting the degree of agreement with the item statements. This response option corresponded to all items and permitted slight degrees of variation in respondent endorsement (Noar, 2003). Other preparations included: i) balancing the scales to include a middle option to account for an absence of opinion; ii) labelling each quantifier in every item; iii) and positioning items so that more conventional responses were positioned in the less memorable part of the scale (right-hand side).

5.3.4.1.3 Design

At this stage, the layout of the survey was considered. Since, the design and layout of the survey facilitates the task of responding (Couper, 2008; Dillman, 2000), it was essential that the survey appeared interesting, easy to complete, and important to respondents. Additionally, to reduce error variance, instructions need to be coherent and provided throughout to ease adherence to the navigational path (Dillman, 2000; Kerlinger & Lee, 2000). A cover sheet was created with instructions to set the stage for the items to follow and describe the structure of the survey, followed by general guidelines clearly presented in a bullet-point format. Additionally, a glossary of some common terms found in the items was provided to avoid multiple interpretations, such as a definition of the term *ideal body*. At the top of the first page, brief guidelines and examples of how to respond to the items were presented. The question sequence was consistent and logical with conceptually related items grouped together, and each page began with general items before proceeding to more personal items.

To increase accurate comprehension of items, Dillman (2000) recommends a number of visual elements such as increasing font size to attract attention, and a consistent layout to ease responding and adherence to the navigational path. Accordingly, the items, responses, and instructions were generally presented in different fonts or styles, and special instructions for particular items were highlighted and easily distinguishable. Couper, Traugott, and Lamias (2001) found that the use of grids to separate items reduced levels of missing data and completion time. Thus, a grid was inserted to separate items appropriately, response options were equally spaced, and respondents were instructed to put an *'X'* in response boxes to ease the coding process. Items were written using short lines to ensure words would not be skipped, and responses were placed on the right-hand side of the items. Dillman (2000) prefers responses to be placed on the right-hand side so that the majority of respondents' hands will not cover the items as they read through them. Additionally, both item and response scale can be continually referred to when responding. Moreover, it was important to choose a font that was clear, easy to

comprehend, and appropriate for the target population. The chosen font was Comic Sans MS size 11 as this was identified as the most preferred by children in a study of online reading (Bernard, Mills, Frank, & McKown, 2001).

5.3.4.2 Initial Constructs

Constructs in social psychological research are often unobservable and so they must be represented by the careful selection of a number of indicators. These indicators become a set of manifest observations reflective of the unobservable or latent construct (Noar, 2003). Items were created reflecting an initial set of latent constructs reflecting everyday experiences of the appearance culture. The process was deductive in that the items and constructs represented key findings from the literature and focus groups. Due to the increased emphasis placed on peer relationships during adolescence, the strong evidence-base for the effects of peer influences, and the centrality of the peer group in the focus group discussions, it was felt a more thorough account was necessary. Therefore, three initial constructs reflected influences stemming from peer contexts: *peer appearance environment, peer acceptance*, and *peer rejection*. There were also two further constructs: *family influences* and *media influences*. Each is detailed below with operational definitions and indicators of their properties.

The construct of *family influences* reflected the appearance culture within the proximal family context and its effect on the individual. The items tap the importance of an ideal body to the family, appearance-related discussions, family teasing, and family engagement in body-change strategies. The construct did not reflect the quality of relationships within a family, or focus on particular family members since several family members were cited as sources of influence in the focus groups. The number of items within this construct was quite small compared to the other constructs, reflecting the extent of its discussion in the focus groups, the social changes that coincide with adolescence, and the larger impact of peer and media influences shown in past research (e.g., Shroff & Thompson, 2006). The inclusion of a set of items reflecting processes involving family members in the initial pool of items can determine the relevance of this source of influence in relation to others.

The items reflecting the *peer appearance environment* construct reflected belief systems of peers, the peer appearance culture shaping personal attitudes, and processes such as appearance-related discussions occurring within the peer context. It was not wished to address forms of influence with an explicitly negative valence in the construct as this was addressed in the *peer rejection* construct. Items reflecting perceptions in relation to social acceptance were also avoided since this was addressed in the *peer acceptance* construct. The intent was to reflect peer appearance contexts and their impact on the individual. One of the items was gender specific to

tap the physical attributes that are desirable for males (i.e., muscularity) and females (i.e., thinness). Some items reflect one's general perception of the peer appearance culture while another item reflects perceptions of the narrowing gender gap regarding body image importance, based on the focus group discussions. In assessing motivations to attain an ideal body, items reflected the differential impact of gender with a focus on aesthetics for girls and on functional benefits for boys. Additionally, since differences were noted in the literature, particularly for boys, between discussions related to weight and shape and discussions related to muscularity and body-change strategies (e.g., Jones & Crawford, 2005, 2006), there are separate items addressing these.

The construct of *peer acceptance* included items assessing: the belief and expectation that attaining an ideal body will result in increased likeability among the peer group; peer acceptance as a motivation to change one's body shape or weight; and the importance of physical attractiveness in the pursuit of romantic partners. These items reflected the dominant sub-theme that emerged from the focus group data and research evidencing the importance of peer likeability during this developmental stage (e.g., Lyu & Gill, 2012; Paxton et al., 2005). As items were not intended to assume one's sexual orientation, gender-neutral language was applied. Items assessing negative forms of peer processes were not included as they were addressed in the *peer rejection* construct. Since previous measures of peer likeability have been brief, selective, or sociometric in nature, and mostly applied in research with girls, it was envisioned that this inclusive construct would provide more information on the extent of this influence.

The *peer rejection* construct encompassed perceptions of being judged negatively by peers, the frequency and impact of teasing within peer contexts, and the pursuit of the ideal body to avoid appearance-related stigmatisation. This construct includes both verbal and nonverbal forms of peer appearance criticisms. Negative feedback communicated both directly and indirectly, was highlighted in the focus groups as a strong influence on body image appraisals. Many measures have exclusively addressed more direct forms of intimidation, in the form of overt teasing and critical comments. Both forms were included in the construct in order to determine the differential effects. Items reflective of vicarious teasing were also included, since the focus group research indicated that although many adolescents had not been teased, they had witnessed teasing taking place within the peer context.

The construct of *media influences* can be further divided into subcomponents reflecting the endorsement of celebrity bodies, the role of celebrities within proximal appearance contexts, sourcing information on attaining the ideal body from the media, and proximal processes among

the peer group through the context of social networking sites (SNS). A number of items in this construct assess the interconnectedness of influences from both the proximal and distal environment. Celebrity influences were represented in the construct as they were widely discussed in the focus groups. The young adolescents were highly knowledgeable of the lifestyles and behaviours of admired celebrities, and mentioned them often as aspirational figures for appearance, body shape and weight. Celebrities were also highly influential in the formation of norms and expectations within the peer group. This was considered important as the more interest significant others have in celebrities, the bigger their impact (Giles, 2002). An item was also included to assess the perception that emulation of celebrity body shapes is unrealistic for many but remains a commonly pursued goal. The use of the media to source information on celebrities' appearances and means of emulation was also included. It was felt from the focus group discussions that items should also focus on these processes to provide more information on the extent of celebrity influences. Furthermore, since existing measures have predominantly assessed the mediums of magazines and television, examination of the Internet's rapidly increasing popularity in relation to body image and appearance was of interest. Items addressing SNSs were included, in particular Facebook, as this site appears to be a strong influence for the modern-day adolescent. Facebook is currently the most popular SNS in the world with staggering estimates of 750,000,000 unique monthly visitors each month (eBizMBA Inc., 2013). In addition, many of the focus group participants were members of Facebook and those that were not expressed strong desires to join. Although SNSs were discussed in reference to peer stigmatisation in the focus group, various means by which SNSs can influence body image evaluations were reflected in the construct, to determine whether other common proximal processes also occur through this virtual peer context.

Following the creation of the initial item pool reflecting the five constructs, items were continually revised and subjected to conceptual analyses to ensure adequate representation of the most demanding issues. The number of items in each construct ranged from 8 to 18 and it was hoped that the pool of items was wide-ranging to permit an adequate representation of key processes for the final scale. In accordance with the tripartite influence framework, the triad of socialisation agents separated the initial formation of constructs, with each construct predominantly containing items reflecting processes stemming from the family, peers, or the media respectively. However, the final constructs were expected to be multidimensional in that each source of influence was not expected to group together neatly as has been the case in previous measures. Since the patterns of transmission are complex and distal influences can be diffused through proximal means, particularly within the peer group, this interconnectedness was envisioned for the constructs produced from the refinement process. Final constructs were expected to correlate moderately with one another despite being qualitatively different.

5.3.4.3 Expert Review

The involvement of a review panel throughout the survey development process is recommended to ensure face and content validity (Bonder, 1989; Noar, 2003). The researcher's supervisor and a university faculty member were approached due to their comprehensive knowledge in the area of child and youth research, and in designing survey instruments for similar purposes. In consultation with the researcher, each item was conceptually analysed in terms of its differential contribution to the constructs and objectives of the measure. Items were then examined further for content, vocabulary, and phrasing; often based on the phrasing used in the focus groups to add to the ecological validity of the measure. Any items considered biased were reworded or excluded. For example, an item was identified that made the faulty presupposition that the respondent's immediate peer group was concerned with their appearance ("When I began to hang around with people my age that are into their looks, I started to think about how I looked"), and so this was modified to reflect times when one is in the company of peers who are concerned with their appearance ("When I hang around with other people my age that are into their looks, I start to think about how I look").

5.4 Pilot Study 1

Piloting the survey helps to ascertain quality and effectiveness, and determines useful indicators of problematic questions, such as high levels of non-response, unexpected findings, or inconsistencies in response patterns (Gwyer, 1989). Pilot testing was particularly important in this case due to the shortage of measures assessing the appearance culture designed specifically for the target population (Bell, 2007). The first pilot was carried out to examine the general appropriateness of items for young adolescents, and to refine the layout, administration, and scoring procedures. It was key to determine whether the survey design appealed to the respondents, items were consistently understood, and the navigational path was followed with ease. An evaluation sheet was also provided to obtain respondents' views of the content and structure of the survey, and to gather suggestions for improvement. In particular, information was sought on the comprehension of items, quality of the item content, level of sensitivity, and cognitive standards (e.g., motivation to respond).

5.4.1 Participants

For the purpose of Pilot Study 1, it was decided that a small group of participants from first and second year of post-primary school was sufficient. The participants were 23 students (11 male, 12 female) aged from 12 to 14 years (M= 13.09, SD= 0.79) attending one post-primary school in Co. Clare.

5.4.2 Materials

Sociocultural influences: Sociocultural influences were assessed with Draft 1 of the measure (see **Appendix E**). This assessed sociocultural influences, consisting of 58 items representing five constructs. Items were rated on a five-point scale from *strongly agree* to *strongly disagree*. Examples of items include "Nowadays how you look is important for both boys and girls", "People my age judge me about my appearance", and "Images of celebrities in magazines make me want an ideal body". Two supplementary items consisted of one closed question to determine Facebook membership, and an open-ended question to list membership to any additional SNSs.

Demographic information: A demographic data sheet containing questions regarding gender, age, year in school, height, weight, and ethnic background.

Evaluation sheet: An evaluation sheet was included with open-ended questions asking respondents for their views on the design, instructions, content, and length of the survey, as well as any additional comments.

5.4.3 Procedure

Ethical approval to conduct the study was granted by the School of Psychology Research Ethics Committee, TCD (see **Appendix B**). The principals of two mixed post-primary schools were initially contacted by post, receiving a letter outlining the purpose of the research and what participation in the pilot study involved for the school and participants (**Appendix F**). The principals were contacted a few days later by phone as a follow-up to answer any questions about the study. Upon agreement to conduct the pilot study in one of the schools, students from a first year and a second year class were personally invited to participate (n= 61). Students received an information pack providing a written overview of the research and what participation involved. A letter for students' parents, containing information about the research, participation in the pilot study, and consent forms were also included. Twenty-eight signed consent forms were returned (response rate= 45.9%). Twenty-three of the students were present on the day of data collection. All of these students provided written consent to participate.

Data collection took place during school hours in a classroom setting. The session began with a brief description of the study before the administration procedure was described. Participants were ensured of anonymity and were asked not to write their name on the scale. It was explained that the scale contained a code number that could be matched with their consent form but that surveys and consent forms would be stored separately in locked filing boxes in TCD. The researcher introduced the measure and read aloud the instructions, glossary, and item

examples. It was explained that participation was voluntary and that there were no right or wrong answers. After all participants indicated that they understood the response process, they were asked to begin. The researcher encouraged participants to ask questions at any time during the session if they were unsure of an item. Completion of the measure took approximately 25 minutes. When participants were finished, the researcher prompted them to check that they responded to all of the items they wished to answer. Once all participants had completed and checked the scale, they received a debriefing sheet to take with them and were thanked for their participation. Copies of information packs and consent forms for the pilot studies and the main study can be seen in **Appendix C**.

5.4.4 Findings

The level of non-response to the survey items was very low, indicating that the instructions provided with the scale were adequate and motivation to respond was maintained throughout. In the demographics section, non-response for self-reported height and weight was over 90% indicating that participants either did not know or did not wish to provide a response. However, since these participants consented to future objective measures of height and weight, the former is more likely.

Feedback from the evaluation sheets was predominantly positive. A small number of respondents did report that they found some of the items personal and thought that items repeated themselves at times. The cognitive standard of the measure appeared to be appropriate as no difficulty was reported for item comprehension. The general layout and sequencing of items was retained as the survey was described as easy to understand and well sequenced. It was stated that instructions at the top of each section were helpful while filling out the survey. The length of the survey did not appear to be a problem for any respondent in the pilot. A small number said it was drawn-out but enjoyable to complete. This feedback was considered during subsequent redrafting of items.

5.4.5 Redrafting the Scale

Following the pattern of findings from Pilot Study 1, some items that were essentially tapping similar concepts were grouped together to avoid overlap. For example, four items reflecting how images of celebrities trigger motivations to attain the ideal body when sourced from magazines, television, posters, and the Internet, were grouped into one item ["Images of celebrities in the media (e.g., magazines, TV, posters, the Internet) make me want to have an ideal body"]. Revisions were made to a small number of items so that wording was appropriate for the sensitive nature of the content. For example, an item that originally tapped into personal experiences of appearance-related teasing ("Being teased about my appearance makes me want

to change my body e.g., through dieting, exercise") was modified so that it was worded in the conditional tense. Thus, the response reflects one's thoughts about what they would do if such a situation occurred ["If I were teased about my appearance, it would make me want to change my body (e.g., through diet/exercise)"]. Some items were also modified so that participants knew that they were specifically tapping the peer context. Efforts were made to ground the questions in the specific whenever possible, whilst keeping them broad enough to encompass a variety of perspectives and situations. The existing cues and examples provided in the items appeared to work well as participants in Pilot Study 1 had little difficulty in providing responses. Finally, the administration procedure and scoring rules were worked out and documented.

Following this process, 52 multiple-choice items remained in the survey for the second piloting phase. The items required a response from five quantifiers reflecting the degree of agreement, listed horizontally, while two additional items required *yes/no* responses to determine Facebook membership and an open-ended item to list any additional SNS memberships. The 52 multiple-choice items can be seen in **Table 5.2**. The measure is scored as a summated rating scale; where all of the multiple-choice items are considered to be of approximately equal value, and, in order to obtain a total score, the 52 items in the scale are summed (Kerlinger & Lee, 2000). Participants can then be placed at various points on a continuum reflecting endorsement of the appearance culture. Although representation of such a scale is difficult to verify in the social sciences, if the measure follows a normal distribution it will yield desirable psychometric properties (Kerlinger & Lee, 2000; Tabachnik & Fidell, 2001).

Table 5.2

The Five Constructs and their Respective Items for Pilot Study 2

Family Influences	It is important to be a certain weight and shape in my family *[Item 21]*
	I wouldn't care about my body weight and shape if my family didn't care *[Item 22]*
	It is common for members of my family to discuss what they think is an ideal body *[Item 41]*
	It is common for members of my family to discuss what they can do to have an ideal body (e.g., diet, exercise) *[Item 42]*
	It is common for members of my family to tease me about my body weight or shape *[Item 43]*
	If members of my family were doing things (e.g., dieting, exercising) to change how they look, I would too *[Item 44]*
Peer Appearance Environment	Nowadays how you look is important for both boys and girls my age *[Item 1]*

Peer Appearance Environment	When I hang around with other people my age that are into their looks, I start to think about how I look *[Item 2]*
	Having an ideal body and looking good is a big deal for my friends *[Item 4]*
	Whenever I meet other people my age with ideal bodies it makes me think about how my body compares *[Item 6]*
	I wouldn't care about my body weight and shape if other people my age didn't care *[Item 7]*
	It is important for me to be a certain weight and shape to play sports with my friends *[Item 11]*
	If my friends were doing things (e.g. dieting/exercising) to change how they look I would too *[Item 12]*
	I feel pressure from my friends to change my body shape to get an ideal body *[Item 30]*
	When boys/girls my age exercise and lift weights/diet and exercise, it is mostly to improve how they look *[Item 31]*
	It is common for me and my friends to discuss what we think is an ideal body *[Item 33]*
	It is common for me and my friends to talk about how to get an ideal body (e.g., through dieting/exercise) *[Item 34]*
	Most people my age who follow a special diet and exercise plan do so to be fit and do well in sport *[Item 35]*
Peer Acceptance	It is important to follow the trends of popular people in school to fit in *[Item 32]*
	I want to have an ideal body to fit in with the popular people in my class *[Item 10]*
	My body weight and shape has nothing to do with whether people my age will like me *[Item 8]*
	If I had no friends I would try to improve my appearance *[Item 9]*
	I would like to be muscular/skinny because that is the look that everybody my age likes *[Item 3]*
	Most girls/boys only fancy boys/girls because of how they look *[Item 19]*
	It is important for the boys/girls I know to look tough/slim and attractive to impress the people they fancy *[Item 20]*
	If I had an ideal body, I think people I fancied would like me more *[Item 16]*
	I want to change my appearance to get attention from people I fancy *[Item 17]*
	If someone I fancied wanted me to change my appearance I would not listen, it is my decision *[Item 18]*
Peer Rejection	People my age judge me about my appearance *[Item 29]*
	I often think about how I look because others my age are so judgmental *[Item 5]*

Peer Rejection	Bullying over appearance can have a serious effect on teenagers *[Item 14]*
	I commonly see people my age being teased about their bodies and how they look *[Item 37]*
	It is common for my friends to tease me about my body weight or shape *[Item 36]*
	Girls/boys commonly tease boys/girls about their body size or shape *[Item 40]*
	If I were teased about my appearance it would make me want to change my body (e.g., through dieting, exercise etc.) *[Item 13]*
	I am motivated to have an ideal body so I won't get teased or bullied *[Item 15]*
Media Influences	Everyone my age thinks that celebrities have ideal bodies *[Item 25]*
	If I looked like a celebrity, I would fit in with other people my age *[Item 24]*
	If someone I fancied liked a male/female celebrity, I would try and copy how that celebrity looks *[Item 38]*
	If a celebrity starts a fashion trend, everyone will want to follow it whether they like it or not *[Item 28]*
	If a celebrity starts a diet/fitness trend, everyone will want to follow it whether they like it or not *[Item 39]*
	I want to change my body so I will look more like celebrities *[Item 23]*
	It is unrealistic for me to have a body like a celebrity – they have ideal bodies because of their jobs (e.g., models, sports stars) *[Item 26]*
	If I try really hard I can look like a celebrity *[Item 27]*
	Images of celebrities in the media (e.g., magazines, TV, posters, the Internet) make me want to have an ideal body *[Item 45]*
	Articles in magazines (e.g., articles on how to get a celebrity's body) make me want to change my body *[Item 46]*
	I often look up websites related to appearance (e.g., videos on YouTube, fashion websites) *[Item 47]*
	When my friends put messages on Facebook about the latest fashion trends, it makes me want to follow them too *[Item 48]*
	It is common for people to leave comments on Facebook about your appearance *[Item 49]*
	If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body *[Item 50]*
	When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too *[Item 51]*
	If people left unpleasant comments about pictures of me on Facebook I would do things to make myself look better (e.g., diet/exercise) *[Item 52]*

5.5 Pilot Study 2

A second pilot study was conducted to further evaluate the proposed administration and scoring procedures, and provide preliminary psychometric information (Clark & Watson, 1995; Gwyer, 1989). At this stage, the pool of items remained significantly larger than what was intended for the final version of the scale. This proposed format was administered to a sample of moderate size to explore the measure's factor structure, and gain information on the utility of items and response distributions.

5.5.1 Participants

The second pilot test involved administration of the second draft of the measure to 283 young male and female adolescents attending one of four mixed community post-primary schools (two rural and two urban locations) in Co. Clare and Co. Limerick. Their ages ranged from 12 to 15 years (M= 13.51, SD= 0.74). Forty-two percent of participants were in first year and 58% were in second year. Participants predominantly identified themselves as Caucasian (96%), with 1% identified as African, and 2% as Asian (non-response= 1%).

5.5.2 Materials

Sociocultural influences: The refined yet preparatory scale assessed sociocultural influences. The scale consisted of 52 items representing the five constructs. Items were rated on a five-point scale from *strongly agree* to *strongly disagree*. Examples of items are "Nowadays how you look is important for both boys and girls my age", "I often think about how I look because others my age are so judgmental", and "I often look up websites related to appearance (e.g., videos on YouTube, fashion websites)". Two supplementary items consisted of one closed question to determine Facebook membership, and an open-ended question to list membership to any additional SNSs.

Demographic information: A demographic data sheet containing questions regarding gender, age, year in school, and ethnic background.

5.5.3 Procedure

Ethical approval to conduct the study was granted by the School of Psychology Research Ethics Committee, TCD. The principals of eight post-primary schools were initially contacted by post, as per Pilot Study 1, receiving a letter outlining the purpose of the research and what participation involved for the school and participants. The principals were contacted a few days later by phone as a follow-up to answer any questions about the study. Four of the principles granted permission for the study to take place and to invite students from first and second years to participate. The researcher personally invited students to participate in the study. Letters were

distributed for the students and their parents to read, providing a written overview of the research, the participation process, and consent forms. A suitable date was set in the following weeks to conduct the study in each school. Levels of nonresponse within the schools ranged from 27% to 66%.

As per Pilot Study 1, adolescents who consented to participate in the study were asked to complete the measure during school hours in a classroom setting. The survey was administered as per Pilot Study 1 (see **Section 5.4.3**). Completion of the survey package took approximately 25 minutes. When participants were finished, the researcher prompted them to check that they responded to all of the items they wished to answer. Once all of the survey packages were completed and checked, participants received a debriefing sheet to take with them and were thanked for their participation.

5.6 Exploring the Structure of the Scale

The target construct reflected by this measure has been conceptualised both theoretically and empirically as multidimensional. Thus, subscales are warranted (Clark & Watson, 1995). Factor analytic procedures are best applied in such situations where a number of relatively independent constructs represented by several variables are envisioned, as testable hypotheses can be formed regarding which items best reflect the generated constructs (Clark & Watson, 1995; Comrey, 1988). Therefore, in order to discover the number and nature of latent variables reflecting the scale and to provide evidence of construct validity, the responses to the 52 Likert-scale items were subjected to an exploratory factor analysis (EFA) with maximum likelihood (ML) extraction. ML is the most established form of true factor analysis and is recommended for most contexts (Fabrigar, Wegener, MacCallum & Strahan, 1999). The scale contains a number of gender-specific items but for illustration purposes, only the female version of the scale will be presented with the output. A codebook was created to ease data input and analysis, and to provide a consistent format of codes to represent the data with all terminology, abbreviations, and meanings provided. When data were scored and entered into the computer for analysis, they were examined for missing cases. Data were subsequently screened for normality, independence, and outliers, to determine suitability for EFA.

5.6.1 Missing Data

Of the initial sample of 283, those who were missing ≥ 5% of the items (n= 13, 4.44%) were not included in the analyses. Therefore, the number of participants was reduced to 270. There was a nominal amount of item non-response (< 1% overall) and, using Little's (1988) χ^2 test, the data were considered missing completely at random (MCAR). Missing values were imputed using

the expectation maximisation (EM) algorithm. EM is a statistical technique for imputing missing data and is considered more advantageous than single imputation techniques such as listwise and pairwise deletion (Byrne, 2009; Kline, 2010). Values are imputed based on the distribution of the existing data to assume a distribution for the partially missing data, and inferences are based on the use of ML estimation under that distribution. Since it takes the structure of the data into account, it produces more precise estimates (Kline, 2010).

5.6.2 Suitability of the Data for Analysis

Descriptive statistics for each item in the scale can be seen in **Table 5.3**. Response scores ranged from 1 to 5, with higher scores indicating greater endorsement of the item. Mean item scores ranged from 1.53 to 4.71.

5.6.2.1 Normality

The Kolmogorov-Smirnov statistical test of normality was nonsignificant indicating that the distribution of total scores was relatively normal. Skewness was close to zero and kurtosis was also low indicating that the distribution was quite flat with a number of cases in the extremes. Inspection of histograms and scatterplots further indicated normality. The distributions of the 52 variables representing each item were also examined for skewness and kurtosis. Many of the variables were positively and negatively skewed with few that appeared relatively normally distributed. Items 1 and 14 had large negative skewness values and positive kurtosis values (-1.34, 3.25 and -2.80, 9.50 respectively), indicating that scores on these items clustered towards the higher end of a peaked distribution. Since many of the individual variables appear to fail in normality, intercorrelations will be reduced. Tabachnick and Fidell (2001) suggest that if a normal distribution is not expected among variables in the population, an estimation method can be selected to address the non-normality. With the scale items following a Likert-type response format, EFA was conducted using ML estimation that is robust to non-normality.

5.6.2.2 Multicollinearity and Singularity

The initial non-rotated EFA runs revealed very high squared multiple correlations (SMC) for two variables (SMC= 0.99) indicating the risk of multicollinearily. These variables (Q28, Q42) were removed and the analysis was repeated. The second analysis revealed one further variable with an exceptionally high SMC and so this variable was also removed (Q7). The third analysis showed the highest SMC value to be 0.82. The lowest eigenvalue was 0.17, not inordinately close to zero. Therefore, multicollinearity and singularity were no longer a threat to the dataset.

Table 5.3

Descriptive Statistics for the Scale Items

Item Content	N	Mean	St. Dev	Skewness	Kurtosis
1. Nowadays how you look is important for both boys and girls my age	270	4.40	0.70	-1.34	3.25
2. When I hang around with other people my age that are into their looks, I start to think about how I look	270	3.84	1.02	-0.81	0.14
3. I would like to be skinny because that is what everybody my age likes	270	3.70	1.14	-0.75	-0.20
4. Having an ideal body and looking good is a big deal for my friends	270	3.41	1.23	-0.49	-0.67
5. I often think about how I look because others my age are so judgmental	270	3.42	1.27	-0.48	-0.85
6. Whenever I meet other people my age with ideal bodies it makes me think about how my body compares	270	3.44	1.29	-0.50	-0.81
7. I wouldn't care about my body weight or shape if other people my age didn't care	270	3.02	1.41	-0.05	-1.26
8. My body weight and shape has nothing to do with whether people my age will like me	270	2.29	1.20	0.48	-0.87
9. If I had no friends I would try to improve my appearance	270	3.54	1.31	-0.60	-0.73
10. I want to have an ideal body to fit in with the popular people in my class	270	2.84	1.18	-0.03	-0.89
11. It is important for me to be a certain weight and shape to play sports with my friends	270	3.36	1.37	-0.42	-1.04
12. If my friends were doing things (e.g., dieting/exercise) to change how they look I would too	270	2.59	1.33	0.24	-1.25
13. If I were teased about my appearance it would make me want to change my body (e.g., through dieting/exercise etc.)	270	3.77	1.25	-0.90	-0.18
14. Bullying over appearance can have a serious effect on teenagers	270	4.71	0.65	-2.80	9.50
15. I am motivated to have an ideal body so I won't get teased or bullied	270	3.11	1.24	-0.20	-0.95
16. If I had an ideal body, I think people I fancied would like me more	270	3.76	1.10	-0.91	0.34
17. I want to change my appearance to get attention from people I fancy	270	3.01	1.26	-0.14	-0.87
18. If someone I fancied wanted me to change my appearance I would not listen, it is my decision	270	1.98	1.19	1.17	0.47

Item Content	N	Mean	St. Dev	Skewness	Kurtosis
19. Most boys only fancy girls because of how they look	270	4.19	0.95	-1.16	0.91
20. It is important for the girls I know to look slim and attractive to impress the people they fancy	270	3.34	1.26	-0.45	-0.79
21. It is important to be a certain weight and shape in my family	270	2.23	1.31	0.65	-0.76
22. I wouldn't care about my body weight and shape if my family didn't care	270	2.49	1.34	0.51	-0.85
23. I want to change my body so I will look more like celebrities	270	2.47	1.25	0.31	-1.03
24. If I looked like a celebrity, I would fit in with other people my age	270	2.66	1.27	0.28	-0.98
25. Everyone my age thinks that celebrities have ideal bodies	270	3.84	1.17	-0.77	-0.35
26. It is unrealistic for me to have a body like a celebrity – they have ideal bodies because of their jobs (e.g., models, sport stars)	270	2.39	1.24	0.60	-0.62
27. If I try really hard I can look like a celebrity	270	3.07	1.29	-0.05	-1.06
28. If a celebrity starts a fashion trend, everyone will want to follow it whether they like it or not	270	3.26	1.36	-0.34	-1.10
29. People my age judge me about my appearance	270	2.80	1.37	0.05	-1.30
30. I feel pressure from my friends to change my body shape to get an ideal body	270	2.00	1.23	0.98	-0.20
31. When girls my age diet and exercise, it is mostly to improve how they look	270	4.05	1.01	-1.13	0.90
32. It is important to follow the trends of popular people in school to fit in	270	2.47	1.26	0.46	-0.83
33. It is common for me and my friends to discuss what we think is an ideal body	270	2.60	1.34	0.27	-1.23
34. It is common for me and my friends to talk about how to get an ideal body (e.g., through dieting/exercise)	270	2.62	1.36	0.23	-1.25
35. Most people my age who follow a special diet and exercise plan do so to be fit and do well in sport	270	3.68	1.18	-0.71	-0.30
36. It is common for my friends to tease me about my body weight or shape	270	1.56	0.98	1.77	2.23
37. I commonly see people my age being teased about their bodies and how they look	270	3.06	1.45	-0.16	-1.38

Item Content	N	Mean	St. Dev	Skewness	Kurtosis
38. If someone I fancied liked a female celebrity, I would try and copy how that celebrity looks	270	2.07	1.20	0.90	-0.23
39. If a celebrity starts a diet/fitness trend, everyone will want to follow it whether they like it or not	270	2.60	1.29	0.28	-1.08
40. Boys commonly tease girls about their body size or shape	270	2.90	1.35	0.06	-1.22
41. It is common for members of my family to discuss what they think is an ideal body	270	2.08	1.28	0.90	-0.44
42. It is common for members of my family to discuss what they can do to have an ideal body (e.g., diet/exercise)	270	2.67	1.34	0.15	-1.27
43. It is common for members of my family to tease me about my body weight or shape	270	1.53	1.01	1.94	2.91
44. If members of my family were doing things (e.g., dieting/exercising) to change how they look, I would too	270	2.70	1.37	0.11	-1.32
45. Images of celebrities in the media (e.g., magazines, TV, posters, the Internet) make me want to have an ideal body	270	2.85	1.40	0.01	-1.30
46. Articles in magazines (e.g., articles on how to get a celebrity's body) make me want to change my body	270	2.61	1.33	0.27	-1.14
47. I often look up websites related to appearance (e.g., videos on YouTube, fashion websites)	270	2.14	1.43	0.86	-0.76
48. When my friends put messages on Facebook about the latest fashion trends, it makes me want to follow them too	270	2.26	1.19	0.54	-0.74
49. It is common for people to leave comments on Facebook about your appearance	270	2.62	1.40	0.25	-1.26
50. If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body	270	3.49	1.35	-0.60	-0.80
51. When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too	270	2.11	1.15	0.72	-0.46
52. If people left unpleasant comments about pictures of me on Facebook, I would do things to make myself look better (e.g., diet/exercise)	270	2.96	1.30	-0.08	-1.07

5.6.2.3 Factorability of R

Inspection of the correlation matrix revealed a number of coefficients of 0.30 and above. The Kaiser-Meyer-Oklin (KMO) value was 0.86, an expedient value exceeding the recommended value of 0.60 (Kaiser, 1970, 1974). Barlett's Test of sphericity (Bartlett, 1954) reached statistical significance ($p< 0.001$), supporting the factorability of the correlation matrix.

5.6.2.4 Outliers

The lowest SMC among variables was 0.17 and therefore it was decided to retain all remaining variables (49) at this stage even though many were highly unrelated to others in the set.

5.6.3 Exploratory Factor Analysis

The data from the 49-item measure was subjected to maximum likelihood exploratory factor analysis with direct oblimin rotation to estimate the number of latent factors. The EFA revealed the presence of 13 components with eigenvalues exceeding 1.0. Since retaining this amount of factors would be inappropriate, a convergence of criteria was employed in order to determine the number of factors to extract.

Further examination of eigenvalues showed that values for the first four factors were larger than two, and after the fifth factor changes in the successive eigenvalues were small, indicating that a four-factor solution may be appropriate. Examination of the scree plot revealed breaks in the data after the second, third, and fourth components. Additionally, based on the requirement of identification, the maximum number of factors to extract will depend on the number of variables per factor. It is generally advised to have at least three items per factor (Tabachnick & Fidell, 2001). When solutions were examined with a range of suggested factors (2, 3, 4, 5), all solutions contained at least three items per factor and did not suggest overfactoring. Finally, when using ML parameter estimation in EFA, a number of measures of fit are associated with the null hypothesis that the common factor model with a number of factors holds *exactly* for the population (Preacher & MacCallum, 2003). One absolute fit index is the root mean square error of approximation (RMSEA; Steiger & Lind, 1980, cf. Kline, 2010). The RMSEA accounts for error of approximation in the population providing an index grounded in *the hypothesis of close fit*, with values < 0.08 indicative of close fit (Hoyle, 2011). A number of analyses were carried out using hand calculations of the RMSEA algorithm with a range of factors extracted (2, 3, 4, 5). Examination of the resulting RMSEAs suggested that a three or four factor solution indicated a fair fit (RMSEA< 0.08; Browne & Cudeck, 1993).

Since these strategies predominantly pointed towards a three- or four-factor solution, it was decided to examine both solutions and to then select the one with the greatest practical utility

and which appeared most consistent with theory. The final decision depended on the interpretability of the rotated solutions. Following the comparison of simple structures for the two solutions, the three-factor solution was chosen as it showed more favourable inter-subscale correlations, communality values, and factor interpretability.

Oblique rotation was chosen for the analysis as factors were expected to correlate with one another to some extent. Although the nature of the correlations was unknown, it was reasonable to assume that factors were not completely independent of each other (Preacher & MacCallum, 2003). Oblique rotation provides estimates of the correlations between the factors so that the nature of their relationships can be determined. The loading matrix becomes the pattern matrix, and the values represent the unique contribution of each factor to the variance of each variable, excluding the shared variance between correlated factors (Tabachnick & Fidell, 2001).

Preacher and MacCallum (2003) suggested that following strict criteria of an arbitrary threshold for the retention of factor loadings is unwise in EFA. Instead, the complete pattern of loadings should be considered when exploring the latent structure of observed variables. Loadings in factor solutions from EFAs are consistently smaller than loadings that would appear in component solutions, so the focus lies in the simplest structure and most complete definition of factors per se. Accordingly, all factor loadings are reported below. In retaining indicators to represent factors, a loose set of criteria was used as it was felt a guideline was needed for the decisions. Items with primary loadings $\geq \pm 0.40$ and cross-loadings $\leq \pm 0.30$ were retained in accordance with a rule of thumb suggested by Tabachnick and Fidell (2001). Depending on the nature of the study, such loadings can be considered large (Preacher & MacCallum, 2003). It was hoped that a factor solution characterised by high loadings for distinct groups of items on one factor and low loadings on others would result in the simplest structure. Variables with low SMCs and low correlations with the key latent factors were considered outliers among the variables.

5.6.3.1 The Three-Factor Solution

The three-factor solution explained 31.58% of the total variance with the factors explaining 21.70%, 5.07%, and 4.81% of the variance respectively. However, the factors' success in this case was not determined by the amount of variance it explained because the model was not intended to explain optimal amounts of variance. The success of the factor structure was determined by how well it contributed to the understanding of the sources of common variation within the data (Preacher & MacCallum, 2003). Following oblique rotation, a number of items loaded on the three extracted factors with the majority loading strongly on the first factor. Factor loadings of the items for each of the factors can be seen in **Table 5.4**. The factor

correlation matrix (**Table 5.5**) produced moderate correlations between the factors further supporting the decision to use oblique rotation for this analysis (Preacher & MacCallum, 2003).

Table 5.4

Pattern Matrix of Factor Loadings for the Three-Factor Solution

Item Content [Item Number]	**Factor 1**	**Factor 2**	**Factor 3**
Articles in magazines (e.g., articles on how to get a celebrity's body) make me want to change my body [46]	**0.72**	-0.24	-0.13
Images of celebrities in the media (e.g., magazines, TV, posters, the Internet) make me want to have an ideal body [45]	0.65	-0.31	0.00
When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too [51]	**0.65**	0.01	0.05
If someone I fancied liked a female celebrity, I would try and copy how that celebrity looks [38]	**0.54**	0.15	0.15
When my friends put messages on Facebook about the latest fashion trends, it makes me want to follow them too [48]	**0.54**	-0.12	-0.06
If members of my family were doing things (e.g., dieting/exercising) to change how they look, I would too [44]	**0.54**	-0.13	-0.05
I want to change my body so I will look more like celebrities [23]	**0.53**	-0.05	0.20
If my friends were doing things (e.g., dieting/exercise) to change how they look I would too [12]	**0.46**	0.08	0.24
I often look up websites related to appearance (e.g., videos on YouTube, fashion websites) [47]	**0.46**	-0.30	-0.16
It is common for me and my friends to talk about how to get an ideal body (e.g., through dieting/exercise) [34]	**0.43**	-0.16	0.09
If I looked like a celebrity, I would fit in with other people my age [24]	0.42	-0.04	0.36
It is common for members of my family to discuss what they think is an ideal body [41]	**0.40**	-0.09	0.02
It is common for me and my friends to discuss what we think is an ideal body [33]	0.37	-0.21	0.08
If a celebrity starts a diet/fitness trend, everyone will want to follow it whether they like it or not [39]	0.36	0.01	0.01
I often think about how I look because others my age are so judgmental [5]	-0.12	**-0.77**	0.20
Whenever I meet other people my age with ideal bodies it makes me think about how my body compares [6]	0.01	**-0.64**	0.19
People my age judge me about my appearance [29]	-0.01	**-0.61**	0.03

Item Content [Item Number]	Factor 1	Factor 2	Factor 3
Boys commonly tease girls about their body size or shape [40]	0.14	**-0.51**	-0.16
When I hang around with other people my age that are into their looks, I start to think about how I look [2]	0.04	**-0.48**	0.21
If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body [50]	0.12	**-0.45**	0.00
If I were teased about my appearance it would make me want to change my body (e.g., through dieting/exercise etc.) [13]	0.05	-0.36	0.35
It is common for people to leave comments on Facebook about your appearance [49]	0.25	-0.34	-0.26
I want to have an ideal body to fit in with the popular people in my class [10]	0.09	-0.10	**0.62**
I want to change my appearance to get attention from people I fancy [17]	0.21	-0.14	**0.50**
If I had an ideal body, I think people I fancied would like me more [16]	0.12	-0.16	**0.49**
I would like to be skinny because that is what everybody my age likes [3]	0.16	-0.05	**0.48**
It is important to follow the trends of popular people in school to fit in [32]	0.24	-0.02	**0.46**
I am motivated to have an ideal body so I won't get teased or bullied [15]	0.14	-0.25	**0.44**
If I had no friends I would try to improve my appearance [9]	0.08	-0.12	**0.41**

Note: Factor loadings in boldface represent items satisfying the criteria for retention

Table 5.5

Factor Correlation Matrix for the Three-Factor Solution

Factor	1	2	3
1	1.00	-0.37	0.34
2	-0.37	1.00	-0.18
3	0.34	-0.18	1.00

5.6.3.2 Communality Values

Specific communality values for the 49 items included in the extraction analysis are presented in **Table 5.6**. Twenty of the 49 items had communality values greater than 0.50 indicating that at least 50% of the variance in these items was accounted for by the three-factor solution. Twenty items had moderate communality values ranging from 0.30 to 0.47, while a further nine items had low communality values with less than 30% of the variance accounted for by the

factors. The items from the rotated extracted factors (23, highlighted in bold) contained 13 items with high communalities above 0.50, and the remaining 10 items had moderate communalities ranging from 0.31 to 0.50.

Table 5.6

Item Communality Values for the Three-Factor Solution

Item Content	Communality
1. Nowadays how you look is important for both boys and girls my age	0.20
2. When I hang around with other people my age that are into their looks, I start to think about how I look	**0.55**
3. I would like to be skinny because that is what everybody my age likes	**0.44**
4. Having an ideal body and looking good is a big deal for my friends	0.38
5. I often think about how I look because others my age are so judgmental	**0.68**
6. Whenever I meet other people my age with ideal bodies it makes me think about how my body compares	**0.61**
8. My body weight and shape has nothing to do with whether people my age will like me	0.22
9. If I had no friends I would try to improve my appearance	**0.46**
10. I want to have an ideal body to fit in with the popular people in my class	**0.54**
11. It is important for me to be a certain weight and shape to play sports with my friends	0.49
12. If my friends were doing things (e.g., dieting/exercise) to change how they look I would too	**0.60**
13. If I were teased about my appearance it would make me want to change my body (e.g., through dieting/exercise etc.)	0.57
14. Bullying over appearance can have a serious effect on teenagers	0.24
15. I am motivated to have an ideal body so I won't get teased or bullied	**0.42**
16. If I had an ideal body, I think people I fancied would like me more	**0.50**
17. I want to change my appearance to get attention from people I fancy	**0.70**
18. If someone I fancied wanted me to change my appearance I would not listen, it is my decision	0.24
19. Most boys only fancy girls because of how they look	0.33
20. It is important for the girls I know to look slim and attractive to impress the people they fancy	0.28

Item Content	Communality
21. It is important to be a certain weight and shape in my family	0.36
22. I wouldn't care about my body weight and shape if my family didn't care	0.16
23. I want to change my body so I will look more like celebrities	**0.51**
24. If I looked like a celebrity, I would fit in with other people my age	0.53
25. Everyone my age thinks that celebrities have ideal bodies	0.34
26. It is unrealistic for me to have a body like a celebrity – they have ideal bodies because of their jobs (e.g., models, sport stars)	0.18
27. If I try really hard I can look like a celebrity	0.25
29. People my age judge me about my appearance	**0.59**
30. I feel pressure from my friends to change my body shape to get an ideal body	0.57
31. When girls my age diet and exercise, it is mostly to improve how they look	0.36
32. It is important to follow the trends of popular people in school to fit in	**0.42**
33. It is common for me and my friends to discuss what we think is an ideal body	0.79
34. It is common for me and my friends to talk about how to get an ideal body (e.g., through dieting/exercise)	**0.70**
35. Most people my age who follow a special diet and exercise plan do so to be fit and do well in sport	0.25
36. It is common for my friends to tease me about my body weight or shape	0.38
37. I commonly see people my age being teased about their bodies and how they look	0.46
38. If someone I fancied liked a female celebrity, I would try and copy how that celebrity looks	**0.54**
39. If a celebrity starts a diet/fitness trend, everyone will want to follow it whether they like it or not	0.32
40. Boys commonly tease girls about their body size or shape	**0.49**
41. It is common for members of my family to discuss what they think is an ideal body	**0.31**
43. It is common for members of my family to tease me about my body weight or shape	0.45
44. If members of my family were doing things (e.g., dieting/exercising) to change how they look, I would too	**0.48**
45. Images of celebrities in the media (e.g., magazines, TV, posters, the Internet) make me want to have an ideal body	0.77

Item Content	Communality
46. Articles in magazines (e.g., articles on how to get a celebrity's body) make me want to change my body	**0.48**
47. I often look up websites related to appearance (e.g., videos on YouTube, fashion websites)	**0.62**
48. When my friends put messages on Facebook about the latest fashion trends, it makes me want to follow them too	**0.35**
49. It is common for people to leave comments on Facebook about your appearance	0.82
50. If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body	**0.63**
51. When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too	**0.65**
52. If people left unpleasant comments about pictures of me on Facebook, I would do things to make myself look better (e.g., diet/exercise)	0.63

Note: Communality values in boldface represent items satisfying the criteria for retention for the three-factor solution

5.6.3.3 Conceptual Analysis of the Factor Solution

The first factor contained 10 items with the majority loading highly on this factor alone. Items 48 and 51 were considered to be very similar conceptually, so it was decided to exclude Item 48 from the analysis since the focus was less on one's body weight and shape. The remaining nine items grouped together nicely and referred to the *promotion of the ideal body*. Factor loadings for these items ranged from 0.40 to 0.72. High scores reflect: the endorsement of the appearance culture promoted by significant others through the modelling of behaviours and appearance-related discussions; aspirations for body shapes promoted by celebrities; and promotion of the body ideal through the media.

The second factor contained six items all loading above 0.40 and not loading above 0.30 on the other two factors. These six items fit well together conceptually and the factor was labelled *peer pressure*. Loadings ranged from -0.45 to -0.77. High scores on this factor reflect a high level of perceived pressure from peers related to one's body, perceptions of appearance-related judgments from peers, and appearance-related feedback and teasing.

The third factor contained seven items all loading above 0.40 and not loading above 0.30 on the other factors. When conceptually analysed, Item 15 "I am motivated to have an ideal body so I won't get teased or bullied" was considered conceptually similar to items in another factor (*peer pressure*) and was excluded from the solution. The item loadings for the remaining six items

ranged from 0.41 to 0.62 and were conceptually meaningful, reflecting *peer likeability*. Higher scores reflect endorsement of the expectancy that attaining the ideal body will result in greater social acceptance and likeability from the peer group.

5.6.3.4 Working Version of the 21-Item Sociocultural Measure

An EFA with direct oblimin rotation was carried out on the 21 items from the final solution of the sociocultural measure. The KMO measure of sampling adequacy (0.86) and Bartlett's test of sphericity ($p< 0.01$) indicated that the dataset was acceptable for factor analysis. The first five factors showed eigenvalues over 1.0 while the scree test displayed a levelling off after three data points, indicating a three-factor solution. The three-factor solution was decided upon as the RMSEA value showed a good fit to the data (RMSEA= 0.03). This solution accounted for 45.97% of the total variance, with the factors explaining 29.01%, 9.08%, and 7.88% of the variance respectively. The items and loadings for each of the factors can be seen in **Table 5.7**. The first factor, termed *promotion of the ideal body,* contained nine items with factor loadings for these items ranging from 0.41 to 0.71. The second factor, termed *peer pressure,* contained six items with loadings ranging from -0.40 to -0.75. The third factor, termed *peer likeability,* contained six items with factor loadings ranging from 0.45 to 0.66. The measure developed through these exploratory methods was termed the Appearance Culture Scale for Young Adolescents (ACS-YA) and comprised three latent factors consisting of nine, six, and six items respectively.

Table 5.7

Item Loadings for the Final Three-Factor EFA on the 21-Factor Solution

Item Content [Item Number]	**Factor 1**	**Factor 2**	**Factor 3**
When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too [51]	**0.71**	0.07	0.05
Articles in magazines (e.g. articles on how to get a celebrity's body) make me want to change my body [46]	**0.67**	-0.18	-0.03
If members of my family were doing things (e.g. dieting/exercising) to change how they look, I would too [44]	**0.62**	-0.09	-0.09
If my friends were doing things (e.g. dieting/exercise) to change how they look I would too [12]	**0.52**	0.12	0.18
I want to change my body so I will look more like celebrities [23]	**0.47**	0.02	0.28
It is common for members of my family to discuss what they think is an ideal body [41]	**0.44**	-0.08	0.00
I often look up websites related to appearance (e.g. videos on YouTube, fashion websites) [47]	**0.43**	-0.29	-0.08

Item Content [Item Number]	Factor 1	Factor 2	Factor 3
If someone I fancied liked a female celebrity, I would try and copy how that celebrity looks [38]	**0.42**	0.20	0.27
It is common for me and my friends to talk about how to get an ideal body (e.g. through dieting/exercise) [34]	**0.41**	-0.14	0.08
I often think about how I look because others my age are so judgmental [5]	-0.08	**-0.75**	0.21
People my age judge me about my appearance [29]	0.00	**-0.61**	0.04
Whenever I meet other people my age with ideal bodies it makes me think about how my body compares [6]	0.03	**-0.60**	0.23
Boys commonly tease girls about their body size or shape [40]	0.15	**-0.49**	-0.11
When I hang around with other people my age that are into their looks, I start to think about how I look [2]	0.02	**-0.42**	0.27
If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body [50]	0.18	**-0.40**	0.02
I want to change my appearance to get attention from people I fancy [17]	0.02	-0.08	**0.66**
If I had an ideal body, I think people I fancied would like me more [16]	-0.05	-0.09	**0.64**
I want to have an ideal body to fit in with the popular people in my class [10]	-0.01	-0.06	**0.64**
It is important to follow the trends of popular people in school to fit in [32]	0.13	0.01	**0.50**
I would like to be skinny because that is what everybody my age likes [3]	0.09	0.01	**0.50**
If I had no friends I would try to improve my appearance [9]	0.03	-0.06	**0.45**

5.7 Administration of the ACS-YA in the Main Study

The 21-item ACS-YA was administered as part of a comprehensive survey package in the main study. The aim of the main study was primarily twofold. First, the intention was to conduct confirmatory factor analysis (CFA) in order to further refine the structure of the ACS-YA and provide an initial account of the scale's psychometric properties. The outcomes of this objective are detailed below. Second, the data from the refined version of the ACS-YA and the remaining measures from the survey package were used in the testing of the aetiological model to meet the objectives of Phase Two of the research. The analysis of the data for Phase Two is fully described in **Chapter 6**.

5.7.1 Recruitment

All participants were recruited from first and second year classes in post-primary schools from four counties in Munster. From the list of post-primary schools published by the Department of Education and Skills, 36 schools were approached. A total of 16 schools agreed to take part in the study representing a range of compositions, SESs, and geographic locations. The average percentage of participants recruited per school was 6.24% (*SD*= 2.31). Levels of nonresponse within schools ranged from 23% to 81%. A breakdown of the school characteristics can be seen in **Table 5.8**.

Table 5.8

Characteristics of the Schools from which Participants were recruited for the Main Study

		SES		
		DEIS	**Community**	**Fee-Paying**
Geographic Location	**Rural**	2 mixed gender (*n*= 33, *n*= 59)	1 girls (*n*= 53)	1 boys (*n*= 35)
	Town	3 mixed gender (*n*= 28, *n*= 43, *n*= 33)	2 mixed gender (*n*= 77, *n*= 68) 1 girls (*n*= 59)	
	City	1 boys (*n*= 41)	1 mixed gender (*n*= 89) 2 boys (*n*= 53, *n*= 45) 1 girls (*n*= 60)	1 mixed gender (*n*= 22)

5.7.2 Participants

The main testing phase involved administration of the survey package to 798 young male and female adolescents. Of the initial sample, those who were missing ≥ 5% of the items (*n*= 10, 1.25%) were not included in the analyses. Two outliers were also found and omitted from further analysis (missing data is further detailed in **Chapter 6, Section 6.6.2**). Therefore the final sample consisted of 786 participants (403 males, 383 females). Their ages ranged from 12 to 15 years (*M*= 13.36, *SD*= 0.64). Fifty-five percent of participants were in first year and 45% were in second year. The majority of participants identified themselves as Caucasian (92%), 3% as African, and 2% as Asian (non-response= 3%).

5.7.3 Materials

The survey package used in the main study was entitled *Body Image Influences on Irish Teens* and can be seen in **Appendix G**. The survey package consisted of a number of assessments reflecting the constructs included in the proposed expanded aetiological model for Phase Two of the study. Two versions of the survey package exist, depending on whether the participant was male or female. The content of these two survey packages was essentially the same but some

gender-specific items existed in scales assessing sociocultural influences, pubertal development, body dissatisfaction, and self-ideal discrepancies. Assessments were considered for inclusion in the survey package based on their: (i) psychometric properties; (ii) developmental, gender, and cultural appropriateness; (iii) question characteristics; and (iv) length. Permission was granted from the principal authors of all measures used.

Sociocultural influences: Sociocultural influences were assessed with the ACS-YA. The scale consisted of 21 items representing the three subscales. The three subscales reflected *promotion of the ideal body* [e.g., "If my friends were doing things (e.g., dieting/exercise) to change how they look I would too"], *peer pressure* (e.g., "I often think about how I look because others my age are so judgmental"), and *peer likeability* (e.g., "I want to have an ideal body to fit in with the popular people in my class"). Items were rated on a five-point scale from *strongly disagree* to *strongly agree*. Based on the data from Pilot 2, the scale has acceptable reliability (α= 0.87), as have each of the subscales (α= 0.81, 0.76, & 0.77 respectively). Two supplementary questions were also included to determine SNS membership.

Internalisation: The Internalisation-General and Internalisation-Athlete subscales from the third revision of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004) were used to assess internalisation of the societal ideal. The SATAQ-3 contains 30 items, divided into two internalisation subscales (General= 9 items, Athlete= 5 items), a pressure subscale (7 items), and an information subscale (9 items). The Internalisation-General subscale assesses an individual's desire to look like models and stars on television, in movies and in magazines, while the Internalisation-Athlete subscale assesses an individual's desire to look like sport's athletes and people in good shape. Items are rated on a five-point scale of agreement and both subscale scores were summed to produce a total. The measure has shown good indications of reliability, and although this assessment was standardised with college females, it has also been used with adolescents (e.g., Chen & Jackson, 2012).

Appearance comparison: Appearance comparison was assessed using a revision of the Physical Appearance Comparison Scale (PACS; Thompson, Heinberg, & Tantleff, 1991), a widely used scale that assesses tendencies to compare one's appearance to that of others. Response options range from *1= Never* to *5= Always*. A slight revision from the five-item version of the scale was used where the reversed-scored item was dropped. The item was problematic for younger participants, leading to an overall drop in alpha levels (Vander Wal & Thelen, 2000), and applications with adolescents have also used this revised version (e.g., Shroff & Thompson, 2006). With the deleted item, the PACS produced an internal consistency of 0.80 and test-retest

reliability of 0.64 (Vander Wal & Thelen, 2000), and has been reliably associated with body dissatisfaction and disordered eating (e.g., Shroff & Thompson, 2006; Thompson, Heinberg, et al., 1999).

Appearance schemas: Investment in appearance was assessed with the Children's Appearance Schemas measure (CAS; Clark & Tiggemann, 2007), an eight-item scale appropriate for children and young adolescents adapted from the Appearance Schemas Inventory–Revised (Cash, Melnyk, et al., 2004). Items represent both self-evaluative (e.g., "What I look like is an important part of me") and motivational (e.g., "I never think about how I look") dimensions of appearance schematic processing, and response options are *yes*, *sometimes*, and *no*. Higher scores indicate higher levels of appearance schemas and the measure has shown good reliability (α= 0.78 – 0.80; Clark & Tiggemann, 2007, 2008).

Pubertal development: To assess pubertal development, Peterson and colleagues' (1988) Pubertal Development Scale (PDS; Peterson, Crockett, Richards, & Boxer, 1988) was used. The scale consists of five items, two of which are gender-specific. The first three items assess changes in height, and the development of pimples and pubic hair. The remaining two items reflect the growth of facial hair and change of voice for boys, and breast development and the onset of menstruation for girls. Responses are made on a four-point scale ranging from *has not yet begun* to *is completed.* An overall pubertal development score is computed by summing across the five items. The scale has shown good psychometric properties and is increasingly used due to its non-intrusive format (Tremblay & Larivierre, 2009).

Self-esteem: The Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1979) is a widely used 10-item measure assessing general feelings of self-esteem. Responses are scored on a four-point scale from *strongly disagree* to *strongly agree*, with scores ranging from 0–30. It has been widely used with adolescent males and females and has excellent psychometric properties (e.g., Brunet et al., 2010; Shroff & Thompson, 2006).

Negative affect: The Children's Depression Inventory: Self-Report Short Form (CDI-S; Kovacs, 1992) is a short form of the Children's Depression Inventory (CDI), assessing the presence of depressive symptoms in children and adolescents. The CDI-S contains 10 multiple-choice items that are scored on a three-point scale, with scores ranging from 0–20. It takes less than half the time to administer than the full version of the CDI and has produced excellent psychometric properties with child and adolescent cohorts.

Self-ideal discrepancies: The Ideal Body Subscale (IBS; Cogan, Bhalla, Sefa-Dedeh, & Rothblum, 1996) was used to assess perceived and ideal body size. There is a male and female version where twelve silhouettes ranging in size from extremely thin to extremely obese (for females), and extremely thin, muscular, and extremely obese (for males) are presented, and participants are asked to indicate which silhouette best represents their perceived actual and ideal body size. A discrepancy score is then computed by subtracting one's perceived ideal size from their perceived actual size. This discrepancy has been used as an index of body dissatisfaction with higher discrepancies indicating higher levels of dissatisfaction. These scales have been both salient and discriminating (e.g., Cogan et al., 1996), with three levels of weight category (normal, underweight, and overweight) and four levels of waist-to-hip ratio (0.7, 0.8, 0.9, and 1.0).

Body dissatisfaction: The Body Satisfaction subscale of the Body Image and Body Change Inventory (BIBCI-BS; Ricciardelli & McCabe, 2002) was used to assess body dissatisfaction. The subscale asks participants to rate their attitudes on seven aspects of the body. There are slightly different versions for boys and girls. The first three items are common to both and address satisfaction with aspects of overall appearance (e.g., "weight", "body shape", and "muscle size"). The discrete body parts assessed are those previous studies have demonstrated to be highly regarded for boys (e.g., "shoulders" and "chest") and those deemed highly important for girls (e.g., "hips" and "thighs"), as well as body parts expected to be important to both boys and girls (e.g., "abdominal region/stomach"). As higher scores indicate greater satisfaction with one's body, items were reverse-scored in this study so that higher scores reflected greater body dissatisfaction. The subscale showed high internal reliability (α>0.80) and satisfactory test-retest reliability (α>0.70), internal validity has been demonstrated using EFA and CFA, and discriminant and concurrent validity has been evidenced, all with adolescent males and females (Ricciardelli & McCabe, 2002; McCabe & Ricciardelli, 2006).

Demographic information: A demographic data sheet containing questions regarding gender, age, year in school, and ethnic background.

5.7.4 Procedure

The principals of 36 post-primary schools were initially contacted by post, as in Pilot Study 2, receiving a letter outlining the purpose of the research and what participation involved for the school and participants (see **Appendix F**). A follow-up phone call was made to principals a few days later to answer any questions about the study. Sixteen of the principles granted permission for the study to take place and permitted the researcher to invite students from first and second years to participate in the study. Several of the principals referred the researcher to the SPHE

teachers in their schools for further correspondence. The researcher visited each school and personally invited students to participate in the study. All students received an information pack (see **Appendix C**), containing a letter with a written overview of the research for students and a similar letter for parents. There was also a consent form for parents to complete and students were required to return the signed form before or on the day of data collection for participation in the research. A suitable date was set in the following weeks to conduct the study in each school.

On the day of data collection, the study was again described to participants and they received a consent form to sign if they agreed to participate. Adolescents who consented to participate in the study were asked to complete a survey package during school hours in a classroom setting. The survey was administered as per Pilot Study 1 (see **Section 5.4.3**). Completion of the survey package took approximately 30-35 minutes. When participants were finished, the researcher prompted them to check that they responded to all of the items they wished to answer.

Following completion of the survey, the researcher obtained objective measures of height and weight in order to calculate participants' BMI. If parental consent had been received and participants consented to height and weight measurements, recordings took place in a private setting within the school (generally an empty classroom, the library, or a sports hall). Participants came in groups of four to quicken the process, and as each individual came into the room for the measurements, the other three waited outside. Participants were asked to remove their shoes and, using the portable Leicester height rod, their height was recorded to the nearest 0.1cm. Participants were weighed without shoes using the Seca 899 (Wardworth Ltd., Bradshaw, Bolton), a medically approved portable digital scale with a detached remote display screen, and recordings were taken to the nearest 0.1kg. The protocol followed for measuring height and weight is detailed in **Appendix H**. Once height and weight were recorded, participants received a debriefing sheet to take with them and were thanked for their participation.

5.7.5 Confirmatory Factor Analysis

The benefits of using CFA as a tool in the development of a new scale have been increasingly recognised in recent years (Byrne, 2009; Noar, 2003). In addition to verifying a factor structure, testing various structures against one another can produce additional information about relations between the constructs and the items, possibly indicating appropriate uses or alternative versions of a scale (Noar, 2003). CFA can also provide information on the strength of a measure's psychometric properties if the structure can be validated on a new sample from the target population.

The data from the administration of the 21-item version of the ACS-YA in the main study were subjected to CFA to further examine the structure of the measure and cross-validate the final version. The approach involved randomly splitting the full sample into two equal halves, with one serving as the calibration sample (n= 393), and the other as the validation sample (n= 393). The structure of the ACS-YA and slight variations of the 21-item three-factor model were tested against each other with the calibration sample if conceptually and statistically justified. This approach provided additional information about the dimensionality of the scale and permitted a test of a variety of conceptualisations in order to retain the structure of best fit (Noar, 2003). A multigroup CFA analysis was then performed incorporating the validation sample to verify the structure found with the calibration sample.

5.7.5.1 Fit Indices

In assessing the fit between the sample covariance matrix and the estimated covariance matrix produced by the model, the "χ^2" goodness-of-fit summary statistic is often consulted (Hu & Bentler, 1999). However, this statistic is grounded in the test of exact fit and is highly sensitive to sample size. In social psychology research, particularly with large sample sizes, the test of exact fit is unrealistic and a statistically significant chi-square is likely even if a model fits the data well (Hoyle, 2011). Furthermore, large sample sizes are required in CFA to produce estimates with greater precision; hence, a significant result is likely even with slight amounts of measurement error (MacCallum, Browne, & Sugawara, 1996).

The chi-square statistic derived from ML estimation assumes multivariate normality but when violation of this assumption is likely, a scaling correction can be applied. The Satorra-Bentler χ^2 (S-Bχ^2 or MLMχ^2; Satorra & Bentler, 1988) incorporates a scaling correction for the χ^2 statistic if normality assumptions are violated by taking the model, estimation method, and kurtosis of the sample data into account (Byrne, 2012). In comparing nested models, the chi-square difference test (i.e., $\Delta\chi^2$) can be used to help determine the model of best fit. When the S-Bχ^2 is used, a correction formula must be applied since the statistic follows an alternative distribution (i.e., ΔMLMχ^2). The Akaike Information Criterion (AIC; Akaike, 1974) is also a useful fit index to consult when comparing models, as it takes model fit and parsimony into account with the smallest value indicating the model with the best reproducibility (Kline, 2010).

Two types of fit indices are often reported to supplement the interpretation of the chi-square test of exact fit. Incremental fit indices provide an index of fit through comparison of the hypothesised model with a baseline model, and include the Comparative Fit Index (CFI; Bentler, 1990), and the Tucker-Lewis Index (TLI; Tucker & Lewis, 1973). Absolute fit indices indicate how well a model fits the data through measuring the extent to which the hypothesised

model can reproduce the sample data. Examples of absolute fit indices include the RMSEA and the standardised version of Jöreskog and Sörbom's (1981) root mean squared residual (SRMR; Bentler, 1995). Indices of fit are further described in **Chapter 6, Section 6.4.3**.

5.7.5.2 Findings

The three-factor 21-item solution of the ACS-YA derived from the EFA in the second pilot study was subjected to CFA on a randomly split half of the data from the main testing phase (n= 393). The CFA model was specified and estimated using Mplus Version 6.12 (Muthén & Muthén, 2011). Following the guidelines set by Hu and Bentler (1999), model fit was evaluated using the S-Bχ^2, the CFI, TLI, RMSEA, and SRMR. A nonsignificant chi-square, values $\geq$ 0.95 for the incremental fit indices and values $\leq$ 0.08 for absolute fit indices are indicative of a well-fitting model (Hu & Bentler, 1999). Findings are presented in **Table 5.9**.

Table 5.9

Fit Indices of Alternative CFA Models for the Structure of the ACS-YA

	MLMχ2(*df*), *p-value*	**CFI**	**TLI**	**AIC**	**RMSEA (90% CI)**	**SRMR**
ACS-YA 3-factor (21 Item)	514.88 (186), p< 0.001	0.83	0.81	25779.64	0.07 (0.06,0.07)	0.06
ACS-YA 3-factor (17 Item)	198.88 (116), p< 0.001	0.94	0.93	20820.28	0.04 (0.03,0.05)	0.04
ACS-YA 3-factor (16 Item)	172.87 (101), p< 0.001	0.95	0.94	19520.52	0.04 (0.03,0.05)	0.04
ACS-YA 2-factor (16 Item)	177.24 (103), p< 0.001	0.94	0.93	19521.01	0.04 (0.03,0.05)	0.04

Note: CFI= Comparative Fit Index; TLI= Tucker Lewis Index;
AIC= Akaike Information Criterion; RMSEA= Root Mean Square Error of Approximation;
CI= Confidence Interval; SRMR= Standardised Root Mean Square Residual.

The CFA for the initial three-factor model did not produce satisfactory incremental fit indices for the sample data whilst absolute fit indices were adequate. Examination of the localised problematic areas revealed correlated residuals between following items: 9 and 16 [modification index (MI) = 37.48], 1 and 9 (MI= 35.18), 1 and 15 (MI= 27.65), 8 and 16 (MI= 23.79), and 16 and 19 (MI= 22.27). These MIs were substantially higher than other MI values. Consideration of these outcomes suggested cross-loadings between these items, likely due to methodological effects and high similarity in item content. Some items contained content that could potentially reflect an alternative factor (e.g., Item 1: "It is important to follow the trends of popular people in school to fit in" could potentially reflect *promotion of the ideal body* as well as *peer likeability*), while others contained content that was very similar to another item (e.g., Item 16: "When I hang around with other people my age that are into their looks, I start to think about

how I look" is highly similar to Item 8: "Whenever I meet other people my age with ideal bodies, it makes me think about how my body compares"). Since the aim of this analysis was to gain additional information about the structure of the scale and associations between items and constructs, further refinement of the ACS-YA was deemed appropriate as the final structure would be subjected to cross-validation with an independent sample. Hence, it was decided to omit Items 1, 9, 15, and 16 to eliminate the cross-loadings rather than incorporate them into the model.

The revised model produced a more acceptable fit to the data, and was a significant improvement from the initial three-factor model [$\Delta MLM\chi^2(70) = 279.64$, $p< 0.001$]. A review of the item-total statistics indicated that the internal consistency of the *peer rejection* factor would improve if Item 14 was removed. Since Item 14 was the only remaining item in the scale that reflected peer teasing and did not fit well conceptually with the remaining items in the factor, it was decided to eliminate this item from the scale. This modification did not significantly impair model fit with improvements in incremental fit indexes [$\Delta MLM\chi^2(15) = 23.97$, $p >0.05$].

Removal of these items, however, resulted in a high correlation between *peer likeability* and *peer pressure* factors ($r= 0.91$). Since these factors reflected conceptually similar forms of influence stemming from the peer group, it was decided to combine them to produce a composite *peer acceptance* factor. Therefore, the ACS-YA was remodelled as a two-factor scale. Goodness-of-fit was satisfactory and the two-factor solution did not significantly impact model fit from the revised three-factor solution [$\Delta MLM\chi^2(2) = 4.28$, $p> 0.05$], highlighting the trivial impact of this change in factor structure for the fit of the measure. Conceptually, these modifications resulted in a more refined model and items were considered to appropriately reflect their respective factors.

Descriptive statistics for the revised ACS-YA are presented in **Table 5.10** for both the calibration sample ($n= 393$) and the exploratory sample from Pilot Study 2 ($n= 270$). The means and internal consistencies were quite similar across the two samples with the exploratory sample scoring slightly higher on the total scale and both subscales. In addition, the descriptive statistics are presented separately for boys ($n= 201$) and girls ($n= 192$) in the calibration sample (see **Table 5.11**). The female sample produced higher scores and internal consistencies for the total scale and its subscales. For the overall sample, the two factors were relatively strongly correlated ($r= 0.78$); items had standardised loadings on the *promotion of the ideal body* factor ranging from 0.48 to 0.67, and on the *peer acceptance* factor ranging from 0.39 to 0.64.

Composite reliability (CR) scores were calculated for each of the factors as it can provide a more useful indication of reliability for a set of latent construct indicators derived from SEM approaches (Peterson & Kim, 2013), and high reliability was indicated (*promotion of the ideal body*: CR= 0.97; *peer acceptance*: CR= 0.98). Further indications of reliability are reported in **Section 5.9**.

Table 5.10

Descriptive Statistics and Internal Consistency Estimates for the ACS-YA, and each of its Subscales

	Exploratory Sample (n= 270)			Calibration Sample (n= 393)			Possible
	Mean	SD	α	Mean	SD	α	Range
ACS-YA total scale	46.91	11.20	0.84	45.46	11.50	0.86	16–80
Promotion of the ideal body	16.86	6.01	0.78	16.54	5.70	0.76	7–35
Peer acceptance	30.05	6.76	0.78	28.92	7.06	0.80	9–45

Table 5.11

Descriptive Statistics and Internal Consistency Estimates for the ACS-YA, and each of its Subscales for the Boys and Girls in the Calibration Sample

	Males (n= 201)			Females (n= 192)			Possible
	Mean	SD	α	Mean	SD	α	Range
ACS-YA total scale	43.74	10.67	0.84	47.29	12.07	0.87	16–80
Promotion of the ideal body	15.53	5.22	0.73	17.61	6.02	0.77	7–35
Peer acceptance	28.20	6.84	0.79	29.68	7.24	0.81	9–45

The two-factor model of the ACS-YA was then used as a baseline and cross-validated utilising a multigroup invariance testing procedure where the remaining half of the sample data (n= 393) represented a validation sample to compare against the calibration sample. Findings are presented in **Table 5.12**. As can be seen, constraints on the measurement weights and structural covariances did not significantly alter the fit of the configural, unconstrained model, indicating cross-group equality. Both the RMSEA and SRMR values remained the same, further indicating the equivalence of model parameters across calibration and validation samples. Thus, the two-factor 16-item model was chosen as the final configuration of the ACS-YA as it was deemed the best fit for young adolescents both theoretically and statistically. The final model is presented in **Figure 5.1**.

Table 5.12

Summary Statistics from the Cross-Validation Procedure on the ACS-YA

Model	MLMχ2 (*df*), *p*-value	CFI	TLI	AIC	RMSEA (90% CI)	SRMR	ΔMLMχ2 (*df*), *p*-value
Multigroup configural model	411.89 (206), $p<0.001$	0.93	0.92	38948.84	0.05 (0.04,0.06)	0.05	
Multigroup constrained model	452.31 (236), $p<0.001$	0.93	0.93	38925.31	0.05 (0.04,0.06)	0.05	41.65 (30), $p>0.05$

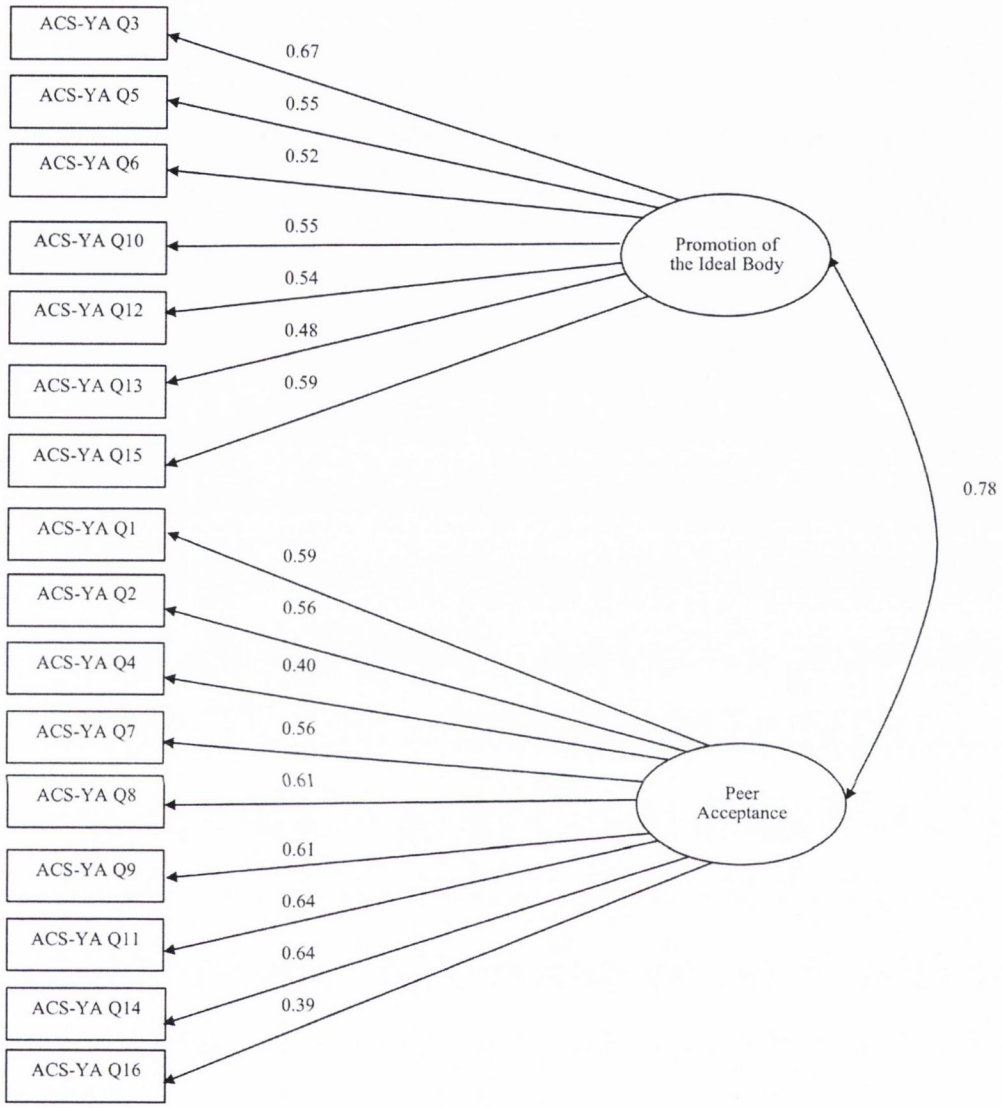
Note: CFI= Comparative Fit Index; TLI= Tucker Lewis Index;

AIC= Akaike Information Criterion; RMSEA= Root Mean Square Error of Approximation;

CI= Confidence Interval; SRMR= Standardised Root Mean Square Residual.

5.8 The Final Version of the ACS-YA

The final version of the ACS-YA used in subsequent analyses of the present study can be seen in **Table 5.13**. Two forms of the ACS-YA exist depending on the gender of the participant. The ACS-YA contains 16 multiple-choice items (two gender-specific) with responses based on a five-point Likert scale ranging from *strongly disagree* to *strongly agree*. Subscales include the *promotion of the ideal body* [e.g., "If my friends were doing things (e.g., dieting/exercise) to change how they look I would too"] and *peer acceptance* (e.g., "I often think about how I look because others my age are so judgmental") and higher scores indicate the impact of the appearance culture and endorsement of its tenets. The *promotion of the ideal body* subscale has an internal consistency of 0.76 and the *peer acceptance* subscale has an internal consistency of 0.80. The total scale has good internal consistency (α= 0.86) and converges with measures of body image and associated cognitive processes (see **Section 5.10.2**).



Note: All factor loadings are statistically significant ($p< 0.001$)

Item numbers correspond to those presented in Table 5.13

Figure 5.1 Final CFA Model of the Derived Two-Factor Solution for the ACS-YA ($n= 393$)

Table 5.13

The Items Comprising the Final Version of the ACS-YA (Female)

Item 1	I would like to be skinny because that is what everybody my age likes
Item 2	I often think about how I look because others my age are so judgmental
Item 3	Articles in magazines (e.g. articles on how to get a celebrity's body) make me want to change my body
Item 4	If I had no friends I would try to improve my appearance
Item 5	If my friends were doing things (e.g. dieting/exercise) to change how they look I would too
Item 6	When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too
Item 7	If I had an ideal body, I think people I fancied would like me more
Item 8	Whenever I meet other people my age with ideal bodies it makes me think about how my body compares
Item 9	People my age judge me about my appearance
Item 10	It is common for me and my friends to talk about how to get an ideal body (e.g. through dieting/exercise)
Item 11	I want to have an ideal body to fit in with the popular people in my class
Item 12	If someone I fancied liked a female celebrity, I would try and copy how that celebrity looks
Item 13	If members of my family were doing things (e.g. dieting/exercising) to change how they look, I would too
Item 14	I want to change my appearance to get attention from people I fancy
Item 15	I often look up websites related to appearance (e.g. videos on YouTube, fashion websites)
Item 16	If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body

5.8.1 Comparison of Hypothesised and Statistically Formed Constructs

To determine whether the statistical grouping of items in the measure supported the hypothesised formation of constructs, the two-factor structure produced from the EFA and CFA was compared with the initial constructs from a logical and conceptual perspective (Comrey, 1988). The initial constructs were developed deductively from theory, empirical findings, and the focus group data. The formation of the original five constructs was predominantly based on the sources of influence, with three constructs reflecting peer influences, one reflecting family influences, and the fifth reflective of media influences. This structure coincided with reports of the increasing role of the peer group in early adolescence as well as the tripartite influence model framework and the general structure of sociocultural measures in the literature (e.g., McCabe & Ricciardelli, 2001; Shroff & Thompson, 2006). The factor structure following the EFA was expected to coincide loosely with the initial formation of constructs but differences were also envisaged. A reduction in the number of latent factors was predicted, and the

grouping of items was expected to differ due to the complex transmission of influences from multiple sources. Indeed, in line with predictions, direct and indirect peer influences are evident in both factors. *Promotion of the ideal body* contains four items where peers proximally promote the societal ideal, while the *peer acceptance* subscale exclusively reflects peers as the proximal transmitter of influence. This pattern supports the literature and the dominance of peers in the original grouping of items. However, it is inconsistent with the original tripartite influence model variables and the factor structure of Keery et al.'s (2004) multidimensional sociocultural influence construct where the triad was separated. The factor structure extends previous measures by reflecting the multiple and complex patterns of influence, such as the aspiration to attain a celebrity body to improve quality of life in one's immediate environment (i.e., the peer context), or peers communicating critical comments through social media.

Items from the initial *family influences*, *peer appearance environment,* and *media influences* constructs are all represented in the *promotion of the ideal body* factor. With only one item tapping into influences from family members, the factor structure reflects the decreasing role of the family in transmitting messages related to the appearance culture as the individual enters adolescence (Shroff & Thompson, 2006). However, it also emphasises the influencing role of the modelling of body-change behaviours by family members. Indeed the focus group discussions pertained to this item as participants were highly knowledgeable of family engagement in such behaviours. The factor also includes two items from the original *peer appearance environment* construct, which reflect peer appearance conversations and peer modelling of body-change strategies. One of these items addresses the same form of influence as the items related to family members, highlighting the influence of this process in relation to significant others in the immediate environment. The items in this factor predominantly originated from the original *media influences* factor, which is not surprising considering the immense power of the media in the promotion of cultural norms (Murnen. 2011). The items that remained in the final version of the ACS-YA reflect the strong role that celebrities play in transmitting the societal ideal body even when the motivation was linked to the expectation of peer admiration. Two items reflect the transmission of information related to appearance through utilisation of the media and two cite sources from the Internet, indicating the importance of addressing this medium in the assessment of sociocultural influences (Hinduja & Patchin, 2008). These patterns also coincide with the focus group findings. The factor reflects a functional aspect of the appearance culture in how ideals of physical attractiveness and the means to accomplish them are promoted through the media, peer group, and family. The promotion can occur directly or indirectly, as values from distal influences can be transmitted through one's immediate environment.

The *peer acceptance* factor represents the transmission of influences from the peer group. Two of the items were originally in the *peer rejection* construct, reflecting the perceptions that peers judge one's physical appearance negatively. These items highlight the impact of perceived covert forms of intimidation within the peer group, which were discussed in the focus groups as a strong motivation to alter one's appearance to fit in with the peer crowd. This is not surprising considering the importance of peer acceptance in early adolescence. Additionally, the EFA and CFA revealed these indirect forms of feedback to load highly within the factor structure, indicating that previous measures focusing exclusively on overt criticism may not have captured the full picture. Surprisingly, no items reflecting overt teasing remained despite the emphasis on this direct form of adverse influence in the focus groups. Moreover, one item that loaded on this factor originated from the *peer appearance environment* factor. This item reflects how the peer appearance environment triggers thoughts and concerns within the individual associated with their physical appearance. A further item refers to the transmission of negative comments related to appearance through social networking sites. Although this item was initially grouped with *media influences*, responses were based on function rather than source, concentrating on the transmission of rejection from peers. The final five items represent items that were initially included in the original *peer acceptance* construct. The items reflect: expectations that an ideal body would increase peer acceptance; peer acceptance as a motivator to alter one's body; and the importance of attaining an ideal body for the pursuit of romantic peer relations. The *peer acceptance* construct originally contained ten items but only five remained following the EFA. The items that were dropped also reflected the motivation of peer acceptance, the attainment of an ideal body for romantic peer relations, and a reverse-scored item. Thus, no additional concepts were omitted and the factor reflected all of the domains highlighted as strong influences in the literature and focus group findings. These findings further highlight the importance of peer acceptance during this stage of adolescence, and the major role physical attractiveness plays in this endeavour.

5.9 Reliability and Item Analysis

5.9.1 Estimating Reliability

Establishing reliability and validity is a continuous process and is not possible to accomplish from one test. Consequently, it was necessary to determine the most important and feasible aspects of reliability and validity to test in order to provide a preliminary account for the purposes of the measure. The reliability of a test provides an indication of the amount of measurement error and information on how well the test items assess the construct (Deitz, 1989). In estimating reliability for the ACS-YA, various methods were evaluated. Test-retest reliability assesses the stability of a measure over time. This was not of immediate importance

for the ACS-YA; the scale was developed for a young adolescent population and stability over time is not expected as the individual progresses through adolescence. Furthermore, the target population of young adolescents is likely to be experiencing a range developmental change during this period (Kerlinger & Lee, 2000). Split-half reliability was also considered inappropriate, as the varying number of items representing the constructs would have made the grouping of items difficult, possibly affecting the outcome (Yu, 2001). Cronbach's alpha was chosen as most appropriate type of reliability to demonstrate for the purpose and multidimensionality of the ACS-YA. Cronbach's alpha can be used for large-scale data with multiple-scored items, and is essentially the mean of all the split-half coefficients. As the ACS-YA contains latent dimensions, the alpha coefficients for the two subscales were also computed; erroneous conclusions can be drawn if only the overall alpha is computed in multidimensional measures (Yu, 2001).

5.9.2 Internal Consistency of the 16-Item ACS-YA

The internal consistency of the 16-item ACS-YA was computed using Cronbach's alpha coefficient analysis. The analysis was run for the overall calibration sample, and for males (n= 201) and females (n= 192) separately. The total scale was reliable with all groups (total: α= 0.86; males: α= 0.84; females: α= 0.87). Reliability analysis was also conducted with the extracted factors. Good reliability coefficients emerged for the *promotion of the ideal body* subscale with the total sample and for males and females (α= 0.76, 0.73, and 0.77 respectively); and the *peer acceptance* subscale had satisfactory Cronbach alpha coefficients (total: α= 0.80; males: α= 0.79; females: α= 0.81). There is no universally agreed cut-off for Cronbach's coefficient. It is generally proposed that 0.70 or above is acceptable (Kerlinger & Lee, 2000; Nunally, 1978), although it can depend on the nature of the measure. In general, these reliability estimates suggest that the items function well together within their respective factors, and as a whole in assessing the endorsement of the appearance culture.

5.9.3 Item Analysis of the ACS-YA

The ACS-YA and its subscales demonstrated good internal consistency. Still, it must be acknowledged that Cronbach's alpha can be affected by the number of items in a scale and by interitem correlations. Thus, item analysis was also conducted with the calibration sample to support indications of reliability and validity for the ACS-YA. Item analysis is a statistical means of determining whether the items are relatively comparable in terms of content and quality, and in identifying ambiguous or badly constructed items (Kerlinger & Lee, 2000). In identifying and removing any items within the measure that are displaying poor psychometric properties, the overall quality of the measure will be increased. For example, if an item can be

interpreted in a number of ways, the response distribution will affect the heterogeneity of interpretations and the item will show little statistical reason for retention (Clark & Watson, 1995). Furthermore, following factor analysis, it is important to determine whether items within a factor meet a satisfactory "statistical criterion of relatedness" in order for the factor to be appropriately defined (Comrey, 1988, p. 755). For each of the 16 items in the ACS-YA, (i) item distributions, (ii) discrimination abilities, (iii) inter-item correlations, and (iv) item-total correlations were examined.

5.9.3.1 Item Means and Distributions

Histograms were examined for individual items to inspect the distribution of responses. Although a small number of items were positively and negatively skewed, the skew was slight and distributions were relatively balanced. For the most part, the range of distributions was quite broad and appropriate for a measure with Likert-type rating scales. Additionally, the means for each item ranged from 2.03 to 3.64. It is typical for a scale of this type to have means centred near the middle but also desirable to have a good range between means. In this case, there is an acceptable range of 1.61 units. From a psychometric standpoint, the majority of items demonstrate adequate variability.

5.9.3.2 Item Discrimination

In order to test the ability of each item to discriminate between those who highly endorse the influence of the appearance culture and those who do not, the responses of the top 25% of high scorers (n= 98) and lowest 25% of low scorers (n= 98) were analysed. Item discrimination indices were then calculated, with those who obtained a high score from the overall measure expected to obtain a high score on any of the items that assess the target construct and vice versa (Gwyer, 1989). All of the 16 items had discrimination indices falling within the acceptable range for retention (Rust, & Golombok, 2009). Specifically, 14 items (88%) had excellent discriminative power (>0.39), and two items (12%) displayed satisfactory discriminative ability (0.38–0.39).

5.9.3.3 Inter-Item Correlations

Internal consistency can also be demonstrated through the inter-item correlations (Comrey, 1988). Additionally, in order to favour the factor solution produced by the CFA, the intra-subscale item correlations must be higher than the inter-subscale item correlations (Clark & Watson, 1995). The mean inter-item correlations of the total scale (r= 0.27), and the range of inter-item correlations within the subscales (r= 0.16–0.51) are all within the acceptable ranges proposed by Clark and Watson (1995). The *promotion of the ideal body* subscale had an average interitem correlation of 0.34 (range= 0.19–0.47), and the average interitem correlation for the *peer acceptance* subscale was 0.35 (range= 0.16–0.51). When intra-subscale correlations were

compared with inter-subscale correlations, the intra-subscale correlations were consistently higher supporting the two-subscale solution for the ACS-YA.

5.9.3.4 Item-Total Correlations

A further assessment of the internal attributes of the scale was the examination of item-total correlations. If the item fits in well with the measure as a whole, it should correlate highly with the total (Kerlinger & Lee, 2000). This also provides evidence of validity as it shows the extent to which each item consistently reflects the construct measured by the total score, and the extent of homogeneity with the other items (Dunn, 1989; Kerlinger & Lee, 2000). All item-total correlations were moderate to high (all *r*s >0.34). Deletion of any of the items would not have resulted in an increased alpha or a substantial difference in the alpha value, indicating that no 'bad apples' were present among the items in the measure. Item-total correlations were also calculated for the two subscales. The coefficient for the seven-item *promotion of the ideal body* factor was 0.76 (corrected item-total *r*s= 0.42–0.65). The reliability of the nine-item *peer acceptance* factor was 0.80 (corrected item-total *r*s= 0.38–0.67). Deletion of items in either subscale would not have improved the alpha coefficients.

5.10 Tests of Validity

Evidence of validity for a measure provides information on the utility, dimensions, and boundaries of the psychological construct as well as discriminative and predictive abilities (Haynes, Richard, & Kubany, 1995). These elusive aspects cannot be inferred from a single set of observations, as they will change over time. Regular assessments of efficacy through a series of observations can provide further evidence of the latent constructs that underlie a measure (Clark & Watson, 1995). In order to evaluate what can be inferred from the ACS-YA, a number of tests were conducted to begin the process of validation, gathered from various sources and methods. Outcomes can then be confirmed through subsequent use of the scale in further research.

The process began with the literature review and focus group findings guiding the objectives, mode of data collection, development of initial constructs, and item pool. The sequential mixed methods approach added to the content validity of the scale, resulting in the development of a culturally appropriate quantitative survey examining the complex pathways by which various external sociocultural influences are transmitted, potentially leading to a negative body image (Dunn, 1989). Following this, the EFA and CFA grouped items that had at least moderate correlations with one another and identified the latent domains of the ACS-YA. Reliability estimates and item analysis of the identified factor structure revealed the extent to which the items and subscales tap into the intended constructs, providing initial indications of construct

validity. The initial constructs were then compared with the identified factors from a logical point of view to determine whether the data supported the hypothesised structure.

Further tests were conducted at this point to obtain additional indices of validity for the ACS-YA. A description of these procedures and tests is provided below. First, expert reviews were conducted to provide a further index of content validity. Subsequently, initial indices of construct validity were afforded through: i) correlational analyses to test hypothesised associations with related constructs, providing an indication of convergent validity; and ii) examination of hypothesised differences between selected groups to imply discriminant validity (Clark & Watson, 1995).

5.10.1 Content Validity

Content validity refers to the information collected that supports the relevance of the ACS-YA, and the representativeness of the target constructs it purports to measure (Gwyer, 1989; Haynes et al., 1995). In establishing what inferences can be drawn from the scale scores, the appropriate functions of the instrument must be evaluated. Like other forms of validity, content validity is an elusive concept that is fluid in nature and will vary with the assumptions drawn from the datasets of each assessment.

There are multiple means of assessing content validity; all with the general goal of reducing error variance and contributing towards subsequent assessments of construct validity (Haynes et al., 1995). Face validity is a component of content validity and represents how potential respondents and 'experts' in the area rate the measure. This includes ratings of the adequacy of items in reflecting the target constructs, the relevancy of the measure in addressing the predetermined objectives, and the effectiveness of the format and structural elements (Haynes et al., 1995). This process began with the expert review before the first piloting phase, which involved a conceptual analysis of items and determined administration and scoring procedures. Additionally, the administration of evaluation sheets to the target population in Pilot Study 1 identified some inappropriate items (e.g., self-reported height and weight), and obtained feedback on readability and functional aspects of the design.

A second round of expert reviews was also conducted following the refinement of the ACS-YA. The expert reviews at this stage were a valuable component of content validity for the scale and its underlying factor structure as they provided a judgment of whether items within the subscales were considered indicative of the factor they are representing (Haynes et al., 1995; Kerlinger & Lee, 2000). A number of individuals identified as having expertise in the area were asked to provide a review of the measure. These individuals included: an Associate Professor in

health psychology specialising in the area of adolescent body image, an Assistant Professor in clinical psychology specialising in child and adolescent mental health, an Assistant Professor in developmental psychology, and two PhD candidates with research expertise in developmental psychology. As recommended by Haynes and colleagues (1995), a table of specifications (**Table 5.14**) was provided as a template that included a grid describing the domains of the two constructs, a description of the dimensions assessed by the items, and the response mode. A summarised account of the theoretical background, target population, and purpose and aims of the measure was also provided. The reviewers were asked to rate each item for its presumed representativeness of the corresponding constructs that were described. They were also asked to provide their views on the appropriateness of each item for the target population and whether they should be retained in the test. It was of interest to determine whether items were matched with their respective factors, and whether the items selected were deemed representative of the constructs the ACS-YA purported to measure (Gwyer, 1989).

The reviewers considered all items age-appropriate and relevant. There was some concern over the differentiation of the factors for one item from two of the reviewers. The item was considered to reflect a form of peer acceptability (i.e., the importance of the ideal body for potential romantic partners), even though it fit into the definition of the *promotion of the ideal body* factor. The item, "If someone I fancied liked a male/female celebrity, I would try and copy how that celebrity looks", reflects the promotion of the ideal by celebrities although it is transmitted through the peer group, potentially tapping into both constructs. The indirect nature of the transmission of influences is one of the key aspects of this measure, however this can be problematic when differentiating between constructs. The CFA and item analysis did not indicate any crossloading with the item but it will be important to be mindful of this issue. The clinical psychologist rated the items age-appropriate in terms of language but difficult to determine in terms of conceptual content since cognitive functioning in early adolescence can vary. However, the scale reflected concepts discussed in the focus groups and caused no problems in the testing of the scale. Furthermore, the researcher was present at all times during administration, allowing clarification to be sought from participants at any time if necessary. Therefore, the conceptual content was deemed appropriate. No other issues were identified and all comments or questions from reviewers were adequately addressed.

5.10.2 Construct Validity

Construct validity establishes how well an instrument assesses the target construct by determining the degree of consistency between inferences from the instrument scores and the aims and hypotheses deducted from the empirical and theoretical base (Haynes et al., 1995). Incisive evidence of construct validity can be provided through convergence and

discriminability, as the underlying theory can be further substantiated (Kerlinger & Lee, 2000). Tests of convergence can help determine whether the measure shows expected associations with measures assessing variables that have been empirically associated with the target construct. If predicted associations with these measures are confirmed, initial evidence of construct validity can be demonstrated (Noar, 2003). Discrimination can be addressed by examining differences between subgroups of the sample. If a significant difference in test scores pertains to the differences that have been shown in previous research between groups with these characteristics, then construct validity can be evidenced (Dunn, 1989).

Table 5.14

Table of Specifications for the ACS-YA

Factor	Factor Reflected By:	Dimensions	Mode
Promotion of the ideal body	Appearance culture within the family: • Modelling of behaviours Appearance culture among peers: • Discussions • Modelling of behaviours Celebrities: • Role of celebrities within the peer appearance culture • Endorsement of the body shape promoted by celebrities Media: • Sourcing information on the ideal body • Sourcing information on how to attain the ideal body Social networking sites: • Transmission of trends	Level of endorsement, frequency of behaviours	Agreement/ disagreement with statements assessing beliefs, frequency of behaviours
Peer acceptance	Perceptions of appearance being judged by peers. Peer appearance culture triggers appearance-related comparisons, thoughts, and feelings. Beliefs and expectations associated with peer acceptance if the ideal body is attained. Peer acceptance as a motivator to alter body. Importance of the ideal body for potential romantic partners.	Level of endorsement	Agreement/ disagreement with statements assessing thoughts, beliefs, behaviours

Assessment method: Paper-and-pencil survey

In testing for convergent validity, the main aim was to determine whether the ACS-YA was moderately associated with measures assessing negative body image evaluations based on the data obtained from the calibration sample. Specifically, consistent with theory and literature on body image (e.g., Jones, 2011; Keery et al., 2004), positive correlations were expected between the ACS-YA and the following components of negative evaluative body image: self-ideal discrepancies and body dissatisfaction. Additionally, in line with the tripartite influence model, higher scores on the measure were also expected to be associated with higher levels of identified cognitive processes, which included appearance-related comparisons and internalisation of the ideal body. A further cognitive component of body image, appearance schemas was tested, and

a positive correlation was expected with the ACS-YA based on the literature review (e.g., Hargreaves & Tiggemann, 2004).

The correlations obtained for the ACS-YA and: (i) the IBS, reflecting self-ideal discrepancies; (ii) the BIBCI-BS, representing body dissatisfaction when reverse-scored; (iii) the SATAQ-3, reflecting internalisation; (iv) the revised version of the PACS, reflecting social comparisons; and (v) the CAS measure, reflecting appearance schemas, are displayed in **Table 5.15**. Correlations with all of these measures were moderate to strong and significant for females, while significant moderate to strong correlations were found with body dissatisfaction, internalisation, comparison, and appearance schemas but not with self-ideal discrepancies for males. The moderate to strong and significant correlations were expected and desirable since they indicate that endorsement of the appearance culture assesses unique components whilst also showing associations with identified cognitive processes related to, and facets of, a negative body image. The lack of a significant relationship between the measure and an evaluative component of a negative body image for males was unexpected. The significant correlations that were found with the remaining variables are in line with previous reports of the increasing impact of cultural norms related to appearance (Murnen, 2011), and where aspects of the peer appearance culture have been significantly associated with weight preoccupation and schematicity, in males (Jones & Crawford, 2006). Males generally report less body dissatisfaction than females and engage in higher levels of extreme exercise to influence their body shape (e.g., Smolak et al., 2005), and so the pattern of outcomes possibly reflects the stronger influence of the appearance culture on body image investment than evaluation per se. Alternatively, the nonsignificant result may have been due to the measurement of self-ideal discrepancies, which can be problematic with males since the discrepancy generally reflects aspects of both weight and muscularity (Abell & Richards, 1996; McCreary, 2011). Overall, the ACS-YA showed associations in the expected direction with important measures associated with a negative body image, supporting its practical use as an assessment tool, and providing evidence of construct validity.

Table 5.15

Correlation Coefficients for the Relationships between the ACS-YA and Identified Cognitive and Evaluative Body Image Variables

	Self-Ideal Discrepancies	Body Dissatisfaction	Internalisation	Appearance Comparison	Appearance Schemas
Males	0.14	0.29*	0.63*	0.58*	0.57*
Females	0.35*	0.38*	0.67*	0.59*	0.62*

Note: * $p < 0.01$

Assessment of discriminant validity involved the examination of differences across gender and school year. In accordance with the literature (e.g., O'Connell & Martin, 2012; Myers & Crowther, 2009), females were hypothesised to score higher on the instrument than males, while no difference was hypothesised for school year since the age range was slight and all participants were expected to experience similar influences at this time. An analysis using *t* tests revealed that females [*M*= 47.29, *SD*= 12.07] did score significantly higher than males [*M*= 43.74, *SD*= 10.67; $t(391) = -3.09$, $p < 0.01$], supporting the gender differences outlined in the literature, such as greater immersion in the appearance culture for females (Jones & Crawford, 2006). Additionally, as predicted, a non-significant difference was found between first [*M*= 45.33, *SD*= 11.44] and second year students [*M*= 45.63, *SD*= 11.60; $t(391) = -0.26$, $p > 0.05$].

5.11 Conclusion

This chapter provided an overview of the scale development process and a series of empirical applications utilising the ACS-YA, a culturally appropriate, comprehensive scale assessing young adolescents' subscription to the modern-day appearance culture. The final version of the ACS-YA is based on decisions made regarding theoretical and empirical underpinnings, qualitative work with the target population, and systematic but preliminary standardisation procedures. The gender-appropriate content provides a glimpse into the differential effects of the appearance culture for boys and girls. On the whole, findings thus far have provided adequate support for the use of the ACS-YA to assess sociocultural influences associated with body image.

Chapter 6.
Test of an Expanded Aetiological Model of Negative Evaluative Body Image

6.1 Aim of the Chapter

This chapter aims to describe Phase Two of the research where two competing integrative aetiological models of negative evaluative body image were tested using SEM. The uses of SEM will be outlined in relation to the study's purposes, and the preparatory steps for model testing will be detailed, including model specification, identification, and data screening. Following this, the results of the model testing will be presented, from both the measurement and structural levels with comparisons across gender. Finally, an interpretation of the findings will be presented.

6.2 Research Design for Phase Two

The research design for Phase Two was a cross-sectional study involving the administration of a comprehensive survey package to young Irish adolescents, and the collection of objective height and weight measurements (see **Chapter 5, Section 5.7**). The survey package consisted of a battery of assessments reflecting the constructs comprising the competing a priori models.

With the intention of further determining the aetiological process of body image concerns and providing an increased understanding of the appearance culture and its relationship to body image, the models tested included a number of progressions from Keery and colleagues' (2004) adolescent version of Thompson, Heinberg, and colleagues' (1999) hypothetical tripartite influence models where the outcomes of interest were negative evaluative body image and problematic psychological functioning. Specifically, the ACS-YA reflected sociocultural influences. Although the original tripartite influence model separated the sources of sociocultural influences, Keery et al. adapted the model by employing an integrative measure in their testing with female adolescents. Hence, the differential contribution of each source and interrelated contribution in some cases, should not contradict any of the model assumptions. Furthermore, the significant correlations between the ACS-YA and other measures reflecting elements of the model (e.g., internalisation, appearance comparisons) are in line with the model's predictions (see **Chapter 5, Section 5.10.2**). Moreover, physical characteristic variables reflecting BMI and pubertal development, and appearance schematic processing were included in the model, based on strong associations found with body dissatisfaction in previous research (e.g., Jones et al., 2004; Tiggemann, 2006) and the need to further determine the differential effects of these influences across gender.

The competing models were then tested using SEM. First, the data pertaining to the measurement level of the model were analysed. Next, at the structural level, model comparisons and respecification were conducted to produce the final best-fitting model. The final model was estimated for the total sample, and separately for males and females. Multi-group analyses were also conducted to determine model comparability across gender and to provide an indication of cross-validation. These SEM procedures are more fully described in **Section 6.4.4**.

6.3 Structural Equation Modelling

SEM is a range of comprehensive and flexible statistical techniques for quantifying theoretical models and conceptual hypotheses (Hoyle, 2011). In SEM, a hypothesised structural equation model is compared with sample data to determine whether it can be supported empirically. Such assessment involves the examination of a collection of fit statistics and estimated model parameters, which are produced from the analysis of the sample data covariance matrix (Ullman, 2001). An attractive feature of SEM is the ability to model latent constructs, each of which is manifested by a collection of observed variables that reflect its specific indicators. A structural equation model consists of two components, a measurement model and a structural model. The measurement model assesses the assumed relationships between observed and latent variables, while the structural model assesses directional relations between the variables (Nachtigall, Kroehne, Funke, & Steyer, 2003). Emphasising relations between both observed and latent constructs permits the statistical assessment of complex conceptual models (Hoyle, 2011).

The assessment of a priori hypotheses concerning the relations between observed indicators and their underlying latent variables, and interrelations between the latent variables (i.e., the measurement model) involves the use of CFA. CFA determines the extent to which the indicators correspond to their underlying latent construct by freely estimating the factor loadings on their hypothesised latent variable and restricting their loadings to zero on the remaining latent variables (Byrne, 2009). The intercorrelations between latent variables are also examined but no directional associations are tested at this stage (Raykov & Marcoulides, 2000). Goodness-of-fit testing to the sample data is conducted in order to separate the measurement error from the observed variables and to validate the measurement portion of the model (Ullman, 2001). The structural model is concerned with the configuration of the covariance matrix by specifying the latent regression structure among the variables (Byrne, 2009). Similar to beta weights in regression analyses, path coefficients are produced in order to interpret the direction and strength of relations between the latent variables (Thompson et al., 1995).

Due to its flexible assumptions, SEM boasts many advantages: i) error terms are included within the model, providing an estimate of measurement error whilst removing it from the multifactorial latent variables; ii) overall models can be tested in addition to individual coefficients; iii) a number of dependents can be regressed on other variables simultaneously; iv) direct, indirect, and total effects can be tested simultaneously within the same model; v) and models can be tested in a multigroup analysis. Since multiple observed indicators in a dataset reflect latent variables, measurement error is accounted for and modelled separately, deriving unbiased estimates of the relationships between latent factors (Ullman, 2001). To this end, the reality of measurement error is incorporated into the analysis unlike other techniques, such as multiple regression or analysis of variance, where it is assumed that no measurement error exists (Kline, 2010). The intentions are similar to multiple regression but since we are dealing with a system of regression equations, the analyses are conducted in a more powerful way (Nachtigall et al., 2003). Indeed, with all of the relevant paths tested simultaneously, an entire multidimensional model can be inspected as well as the individual effects, providing higher-level interpretation of the analyses (Kline, 2010). Furthermore, the hypotheses to be tested can reflect direct, indirect, and total effects, interactions, mean differences between groups, parameters that are constrained equal, and feedback loops, all within one model. Multigroup analyses can also be conducted to determine whether latent structures and relations among these structures are operating equivalently across groups (Byrne, 2004).

6.4 Specification

6.4.1 Modelling Approach

There are three main modelling approaches in SEM. The *strictly confirmatory* approach involves the testing of a single a priori hypothesised model. If the model fails to account for the proposed relations between the variables, it has not been confirmed and the analysis is discontinued (Hoyle, 2011). On the other hand, the *alternative models* approach involves the postulation of a number of alternative a priori models comprising the same variables and the model that best represents the sample data is selected (Byrne, 2009). A third approach is the *model generating* approach. When the theoretically driven model is not adequately supported by the data, the model is modified and tested again with the same dataset. The aim is to generate a new model that makes conceptual as well as statistical sense, and sufficiently fits the sample data (Kline, 2010).

The strictly confirmatory approach is not very commonly adopted, as the best solution is seldom found in the first instance of model testing, and it rarely makes practical sense to abandon a research project at that stage. The alternative models approach is more desirable, as the models

to be tested are specified a priori and grounded in theory. Indeed, in psychological research there are often a number of ways models can be specified. However, if there are no apparent alternative models to be tested, or there is scope for revising a theoretical model, the model generating approach can be adopted. Caution is warranted for this strategy, as respecification based solely on statistical grounds may not replicate with other samples (Hoyle, 2011). When a model is respecified, the analysis shifts from a confirmatory to an exploratory mode and should be subjected to cross-validation to enhance the value of the findings (Byrne, 2009).

Adopting an alternative models approach, the present study used SEM to test the adequacy of revised partial versions of Keery and colleagues' (2004) adolescent adaptation of the two competing hypothetical tripartite influence models (Thompson, Heinberg, et al., 1999), with negative evaluative body image and problematic psychological functioning representing the outcomes of interest. Specifically, the intention was to assess the overall fit of the models, and to determine associations between the observed and latent variables as well as the direct and indirect pathways within the chosen model. Through examination of the trajectories across gender, the research then aimed to uncover important gender differences, and determine the differential effects of the identified influencing factors.

6.4.2 Conceptual Models

Two competing non-hierarchical models developed for the present study were tested (see **Chapter 3**, **Figures 3.1** & **3.2**). In Model 1, sociocultural influences lead to appearance comparisons and internalisation of the ideal body. Sociocultural influences are also postulated to indirectly affect internalisation through appearance comparisons. In addition, sociocultural influences lead to a third cognitive mediator, appearance schemas. Appearance comparison, internalisation, and appearance schemas all lead to negative body image evaluations. In addition, BMI and pubertal development are specified to directly influence negative body image evaluations, which in turn influences problematic psychological functioning. Model 2 is a competing model that contains the same parameters as Model 1 but with problematic psychological functioning moved back in the sequence. In this case, sociocultural influences lead to problematic psychological functioning, which in turn is directly associated with the three cognitive mediators (i.e., appearance comparison, internalisation of the ideal body, and appearance schemas). An indirect effect on internalisation is again specified through appearance comparisons, but in this case stemming from problematic psychological functioning. As in Model 1, BMI and pubertal development are proposed to directly influence negative body image evaluations. These a priori alternative models, although competing, have both been proposed as plausible within the same theoretical perspective (Keery et al., 2004; Thompson, Heinberg, et al., 1999).

In expanding portions of these integrative aetiological models with a particular focus on the processes leading to negative body image evaluations, the aim was to progress from Keery and colleagues' final model and build on the existing theoretical base. The specification error of omitting all potential causal variables in a model is particularly likely in social psychology research. Accordingly, the aim was to decrease this degree of misspecification and build on the existing model through the incorporation of three additional variables: appearance schemas, BMI, and pubertal development. The justification for the inclusion of these variables was based on an extensive review of the body image literature with adolescents (see **Chapter 3**). In addition, an updated gender-appropriate measure assessing the endorsement of the current appearance culture was applied to reflect the triad of sociocultural influences.

6.4.2.1 Relationships under Investigation

In Model 1, the key variables that were investigated across gender included pubertal development, BMI, sociocultural influences, appearance comparison, internalisation of the ideal body, appearance schemas, and negative body image evaluations. The effect of these factors on the outcome of problematic psychological functioning was examined. The direct effects of sociocultural influences on appearance comparison, internalisation, and appearance schemas and its indirect effects on negative body image evaluations through each of these cognitive mediators were tested. The influence of BMI and pubertal development on negative body image evaluations was investigated, as was the influence of negative body image evaluations on problematic psychological functioning. Furthermore, the indirect effects of sociocultural influences on problematic psychological functioning through each of the cognitive processing variables and negative body image evaluations were investigated. All presumed direct and indirect pathways were expected to be positive with the exception of BMI and pubertal development for boys. These paths were expected to be negative coinciding with the literature which proposes that prepubescent boys with low BMI will likely display dissatisfaction with their bodies as this also deviates from the societal ideal (e.g., McNicholas et al., 2012; Ricciardelli & McCabe, 2011).

The key variables that were investigated across gender in Model 2 included pubertal development, BMI, sociocultural influences, appearance comparison, internalisation of the ideal body, appearance schemas, and problematic psychological functioning. The effect of these factors on negative body image evaluations was examined. The direct effects examined included: i) sociocultural influences on problematic psychological functioning, ii) problematic psychological functioning on appearance comparison, internalisation, and appearance schemas, and iii) BMI and pubertal development on negative body image evaluations. The indirect effects of sociocultural influences and problematic psychological functioning on negative body image

evaluations through each of the three cognitive processing variables were also investigated. As per Model 1, all postulated direct and indirect pathways were expected to be positive with the exception of those from BMI and pubertal development to negative body image evaluations for boys.

The survey package from which indicators for the latent variables were formed can be seen in **Appendix G**. The indicators that formulated the components in the a priori models are as follows:

BMI: Objective measures of participants' height in centimetres (cm) and weight in kilograms (kg) were calculated into a BMI score for each participant using the following formula: weight (kg)/height $(cm)^2$.

Pubertal development: The pubertal development factor was latent and represented by the five items comprising the PDS ($y1$-$y5$). Total scores ranged from 5 to 20 with higher scores indicating completeness of pubertal development.

Sociocultural influences: The sociocultural influences construct was latent and comprised of the two subscales from the ACS-YA ($y6$-$y7$). The *promotion of the ideal body* subscale consists of seven items with scores ranging from 7 to 35. Higher scores reflect greater endorsement of the appearance ideal and body shape promoted both proximally and distally within the appearance culture. The *peer acceptance* subscale consists of nine items with scores ranging from 9 to 45. Higher scores reflect greater perceived pressure to consider one's appearance for acceptance from, and in the presence of, the peer group.

Appearance comparison: The latent variable of appearance comparison comprised the four items from the revision of the PACS ($y8$-$y11$). Scores ranged from 4 to 20 with higher scores reflecting a greater tendency to compare one's appearance to the appearance of others.

Internalisation of the ideal body: The latent variable of internalisation comprised the total scores from two subscales of the SATAQ-3: the Internalisation-General subscale, and the Internalisation-Athlete subscale ($y12$-$y13$). The Internalisation-General subscale consists of nine items. With scores ranging from 9 to 45, the subscale assesses an individual's desire to look like models and stars on television, in movies, and in magazines. The Internalisation-Athlete subscale consists of five items. With scores ranging from 5 to 25, higher scores reflect an individual's desire to look like sport's athletes and people in good shape.

Appearance schemas: The appearance schemas construct was latent and reflected the eight items that comprise the CAS ($y14$-$y21$). Scores range from 0 to 16 with higher scores reflecting higher levels of appearance schemas.

Problematic psychological functioning: The problematic psychological functioning factor was latent and comprised of total scores from the RSE and the CDI-S ($y22$-$y23$). The RSE consists of ten items with total scores ranging from 0 to 30; higher scores indicate higher levels of self-esteem. The scale was reverse-scored in this application so that higher scores reflected lower levels of self-esteem. The CDI-S consists of ten items with scores ranging from 0 to 20; higher scores are indicative of greater levels of depressive symptoms.

Negative body image evaluations: The latent construct of negative body image evaluations was initially planned to comprise the total score of the Body Satisfaction subscale of the BIBCI (BIBCI–BS) and one item from the IBS reflecting self-ideal discrepancies. It was envisioned that the latent construct would reflect both self-ideal discrepancies and body dissatisfaction to provide a comprehensive account of the evaluative component of the body image construct. However, data analyses indicated that the BIBCI–BS and the IBS were not highly correlated. The BIBCI–BS reflects satisfaction with global and discrete aspects of one's body, and has established psychometric properties with the target population. Therefore, it was deemed a more appropriate measure of negative body image evaluations in comparison to the IBS, which involves calculating a discrepancy score from one's perceived and ideal body size selected from twelve silhouettes ranging in size. Consequently, the IBS was dropped as a negative evaluative body image indicator. The revised latent construct of negative body image evaluations comprised the seven items from the BIBCI–BS ($y24$-$y30$). The subscale asks participants to rate their attitudes on aspects of overall appearance and four discrete body parts. As higher scores indicate greater satisfaction with one's body, items were reverse-scored. Thus, scores ranged from 7 to 35 with higher scores indicative of negative evaluations.

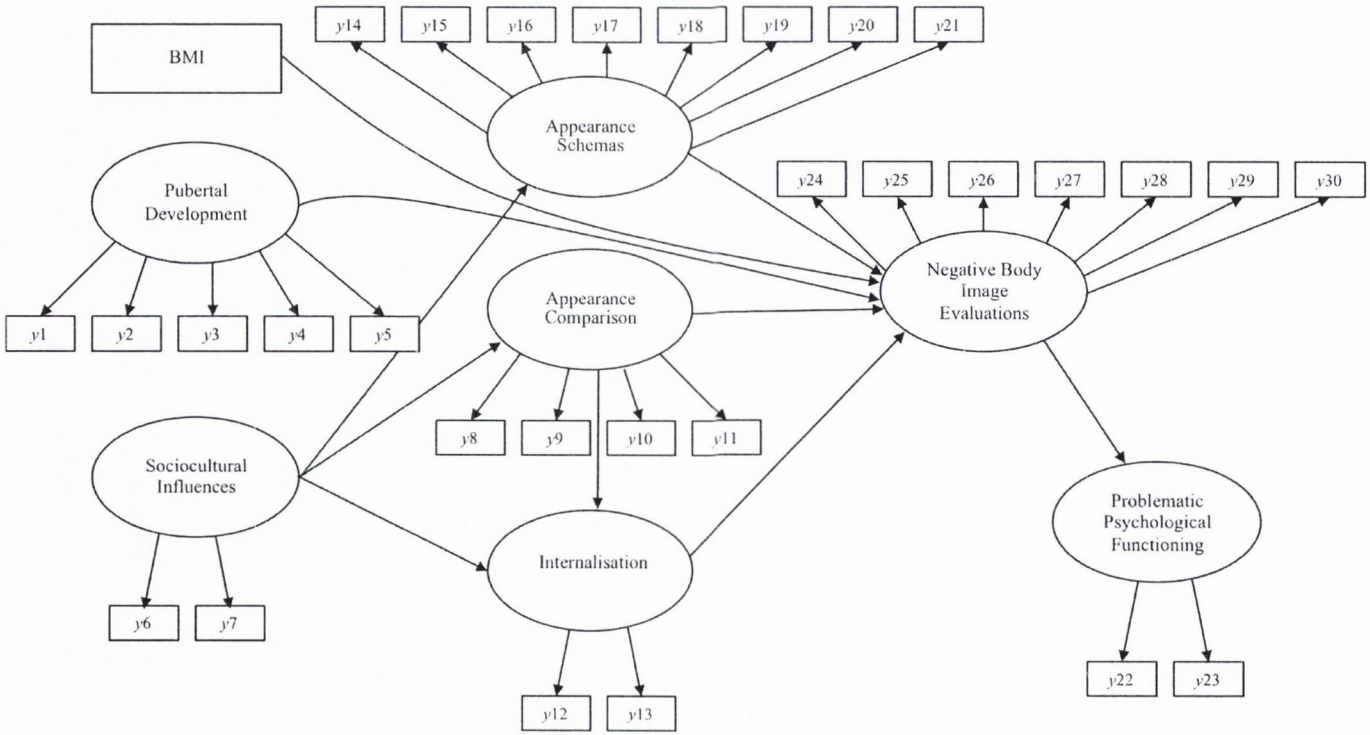
6.4.2.2 Description of the Graphical Representation of the Models

As noted above, all but one of the variables (i.e., BMI) included in the competing structural equation models are latent. Since the indicators are considered reflective in their relation to the corresponding latent variables, the unexplained variance is considered unique to each indicator and is assumed not to covary with other indicators in the latent variable. Hence, each indicator has a corresponding error term with a unique variance, or *uniqueness*. The causes of the independent or exogenous variables are not represented in the model and, therefore, their variances and covariances with other exogenous variables are free for estimation (Kline, 2010). For the dependent or endogenous latent variables, a *disturbance* is assigned to account for the

unexplained variance caused by variables that are not specified in the model (Hoyle, 2011). Thus, although not measured, these disturbances can be considered exogenous variables and are also assigned variances that are free for estimation. Unit loading identification (ULI) constraints were used to assign scales to the latent variables, uniquenesses, and disturbances in the model (Kline, 2010). This involved fixing the factor loading of the most reliable indicator of a latent, and the pathways from the disturbances and error terms to the constant 1.0.

Since indirect effects are specified within the models, appearance comparison, internalisation, appearance schemas, negative body image evaluations (in Model 1 only), and problematic psychological functioning (in Model 2 only) can be considered both dependent and independent variables in the model (Baron & Kenny, 1986). For latent variables it is preferable to use a number of indicators as it provides a more reliable account of the latent than a single indicator (Raykov & Marcoulides, 2000). However, in some cases, as with an objective measure of height and weight transformed to BMI, constructs are best represented as a single observed variable. Therefore, both target models can be considered partially latent structural equation models (Kline, 2010).

The hypothesised models are presented in **Figures 6.1** and **6.2**. Following typical path diagram conventions, rectangles represent the observed variables (i.e., BMI and indicators $y1 - y30$) and ovals represent latent variables. Arrows connecting latent variables to their indicators represent factor loadings, indicative of how well the latent variables are reflected by the observed indicators. Arrows between latent variables as well as the observed variable, BMI, are regression coefficients. The regression coefficients represent the strength of the linear associations from one variable to another. The absence of a line connecting variables indicates that no direct effect is specified. To reduce the complexity of the diagrams, several components of the models have been omitted, including the uniquenesses, disturbances, covariances between exogenous variables, and ULI constraints, as these are not necessary to communicate the hypothesised model structures.

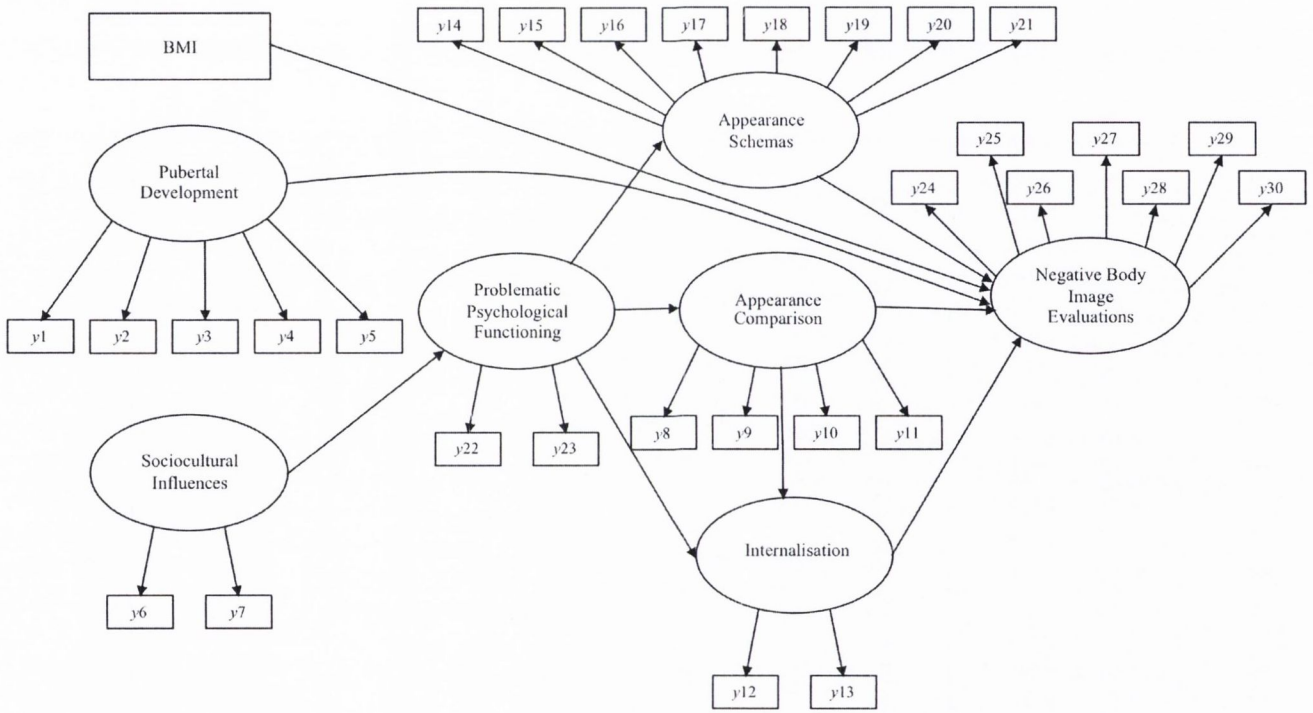


Note: Disturbances and uniquenesses are omitted to improve readability of the figure

*y*1-*y*30 = reflective indicators of the latent variables

N.B. At a later stage in the analyses, the indicators of internalisation and negative body image evaluations were transformed

Figure 6.1. Path diagram of hypothetical SEM Model 1 representing direct and indirect correlates of negative body image evaluations and problematic psychological functioning.



Note: Disturbances and uniquenesses are omitted to improve readability of the figure

*y*1-*y*30= reflective indicators of the latent variables

N.B. At a later stage in the analyses, the indicators of internalisation and negative body image evaluations were transformed

Figure 6.2. Path diagram of hypothetical SEM Model 2 representing direct and indirect correlates of negative body image evaluations.

6.4.3 Assessing the Fit of the Models

Indication of a well-fitting model can be seen when the covariance matrix produced by the sample data supports the model's estimated population covariance matrix (Ullman, 2001). The overall fit of a model is generally evaluated by examining a selection of *goodness-of-fit* statistics.

6.4.3.1 Chi-Square

To assess the discrepancy between the sample covariance matrix and the estimated covariance matrix produced by the model, the "χ^2" goodness-of-fit summary statistic is often used (Hu & Bentler, 1999). This statistic, generally referred to as chi-square (χ^2), follows a χ^2 distribution but is problematic as it makes assumptions about characteristics of the model that are largely unrealistic in practice (Hoyle, 2011). In particular, it tests the inflexible hypothesis of *exact fit*, with any lack of fit in the sample attributed to sampling error. This can never be fully true in practice for any overidentified model, leading researchers to respecify or reject models that are presumed to closely approximate reality (MacCallum et al., 1996). The χ^2 statistic is essentially the product of the sample size minus one and the mimimum fitting function, and therefore the value increases substantially when the model is not a good fit or when the sample size is large (Hu & Bentler, 1999). However, as SEM depends on large sample sizes to obtain accurate parameter estimates, when samples are large any slight amount of measurement error or misspecification will produce a significant result (MacCallum et al., 1996).

To overcome this problem, the chi-square/degrees of freedom (χ^2/df) ratio has been introduced as a means to adjust the chi-square for sample size. Although this ratio can be useful as a rough approximation, its reliability has been challenged. The sensitivity to sample size remains since *N-1* is still required for the calculation of the ratio, it has not been subjected to simulation studies, and no consistent criterion for the indication of a good fitting model has been agreed upon (Brown, 2006; Hu & Bentler, 1999). If modifications are made to models, the chi-square difference test (i.e., $\Delta\chi^2$) can be used to examine measurement and structural equivalence, and the significance of respecification to the original model. It is often used to compare nested models, i.e., models in which the parameters to be estimated are a subset of the parameters estimated in the original model (Hoyle, 2011). When comparing non-hierarchical models that are not nested, the AIC (Akaike, 1974) is a useful fit index to consult. The index takes model fit and parsimony into account; the model with the smallest AIC value is the one most likely to replicate if tested again in the population (Kline, 2010).

6.4.3.2 Fit Indices

The problems inherent in the interpretation of the chi-square for evaluation of model fit have led to the development of a number of fit indices that can supplement the evaluation of correspondence between the data and the model. Although there is no universal agreement on which fit indices to use when evaluating model fit, Hu and Bentler (1999) recommend the use of incremental fit indices and absolute fit indices based on their Monte Carlo studies. These two classes have different measurement properties, with incremental fit indices assessing the improvement in fit by comparing the hypothesised model with a restricted baseline model, and absolute fit indices measuring how well the hypothesised model can reproduce the sample data.

Incremental fit indices include the CFI and the TLI. The CFI represents the proportionate improvement in fit of the target model over the baseline model, but is based on the χ^2 distribution and provides a reference for determining acceptable fit based on improvement in noncentrality (Kline, 2010). Since the baseline model is expected to fit the data poorly, CFI values close to 1.0 are considered indicative of good model fit (Kline, 2010). The TLI works on a similar logic but is not normed so values can lie outside the range of 0.0 to 1.0.

Examples of absolute fit indices include the RMSEA, and the SRMR. The RMSEA accounts for error of approximation in the population and is expressed per degrees of freedom in the model. The index is based on the noncentral χ^2 distribution but provides a more realistic indicator of model fit than the chi-square test as it is grounded in the hypothesis of *close fit* rather than exact fit, and it induces a penalty for models that are not parsimoniously specified (Hoyle, 2011). Therefore, the value of 0.05 is generally recommended as an indicator of acceptable fit, with values ranging from 0.05 to 0.08 indicative of close fit (Browne & Cudeck, 1993). Furthermore, 90% confidence intervals (CI) are calculated for the RMSEA, which can inform on the degree of precision in the model. A wide CI reflects the imprecision of the value as an indicator of fit, while a narrow CI supports the interpretation of the RMSEA as a precise indicator in reflecting model fit in the population (MacCallum et al., 1996). The SRMR is the standardised value of the root mean square residual (RMR). The RMR is the average residual value from the sample data variance-covariance matrix. The standardisation transforms the observed and estimated covariance matrices into correlation matrices, offering an improvement over the interpretation of the RMR (Hu & Bentler, 1999). With absolute mean values ranging from 0.0 to 1.0, smaller SRMR values represent better fit (Byrne, 2012).

6.4.3.3 Estimator

For the purposes of the present study, ML estimation was employed to estimate all models. Medium to large sample sizes and assumptions of normality, independence, and continuous

variables must be met for the effective use of ML estimation. Continuous scales are rarely used in social psychology research, but ML estimation can produce acceptable estimates with Likert-types scales containing five or more response options (Hoyle, 2011).

The chi-square statistic derived from ML estimation is the most commonly used in SEM research. ML assumes multivariate normality but when this assumption is not viable, a scaling correction can be applied. The S-Bχ^2 adjusts the χ^2, correcting the scale when normality does not hold by taking the model, estimation method, and kurtosis of the sample data into account (Byrne, 2012). In this way, ML can still be used to produce parameter estimates with standard errors and robust versions of other fit indices. This robust version of the χ^2 is suitable for any SEM analysis where data screening has indicated possible departures from normality as long as all other assumptions based on ML hold (e.g., continuous data, the assumption of independence; Ullman, 2001). The scaling correction factor value of the S-Bχ^2 is provided in the output, where the extent of the difference between the two χ^2 values can be determined. If data are multivariate normal, there will be small differences while scaling corrector factor values >1.0 indicate deviations from normality (Byrne, 2012).

Hu and Bentler (1999) recommend a combinational index reporting strategy for SEM outcomes. Combinations include the ML-based SRMR with the ML-based CFI, TLI, or RMSEA. In their Monte Carlo studies, a combination of RMSEA (cut-off $\leq$ 0.06) and SRMR (cut-off $\leq$ 0.09) resulted in the least Type I or Type II error rates. The CFI and RMSEA also appear to perform close to theoretical expectations in social psychological research (Hoyle, 2011). If data fit is acceptable based on combinational rules, more confidence can be placed on the interpretation of model fit (Hu & Bentler, 1999). Values >0.90 for the CFI, and TLI, and < 0.08 for the RMSEA were originally considered representative of a well-fitting model but revised cut-off values close to 0.95 and 0.06 respectively, and close to 0.08 for the SRMR have been recommended (Hu & Bentler, 1999).

6.4.4 SEM Procedures for the Present Study

For the purpose of the present study, the hypothesised conceptual models were specified and estimated with robust ML estimation using Mplus Version 6.12 (Muthén & Muthén, 2011). Mplus permits specific analyses such as significance testing of indirect effects and the use of adjusted fit statistics that account for departures from multivariate normality (e.g., the S-Bχ^2). The S-Bχ^2 was used to evaluate the adequacy of the two a priori models, supplemented by the CFI, TLI, the RMSEA with 90% CIs, and the SRMR. In accordance with recommendations outlined above, incremental indices above 0.90 were indicative of adequate fit while values

greater than 0.95 were interpreted as a well-fitting model. Values of the RMSEA ranging from 0.0 to 0.05 were indicative of good fit and values from 0.05 to 0.08 were considered an adequate fit; SRMR values close to 0.08 were indicative of good fit (Browne & Cudeck, 1993; Hu & Bentler, 1999). In addition to global fit measures, parameter estimates and standardised residuals were examined to determine the accountability of specific associations, and whether there were similarities between the produced and expected estimates (Jackson, Gillaspy, & Purc-Stephenson, 2009).

In the first step of the modelling process, the structural models were respecified as a measurement model. CFAs determined the number and nature of the latent variables within the model and evaluated the fit in relation to the sample data. In testing the measurement model, Bollen's (2000) *jigsaw piecewise* technique was employed. This method involved first testing portions of the model at a time and then together as a coherent whole while evaluating the fit of the model at each stage. The parameter estimates produced when the model is fitted in portions can be compared to the estimates produced when the model is fitted as a whole. Large differences may be indicative of model misspecification (Bollen, 2000).

Secondly, the fits of the structural models were tested and compared with one another. The model that produced the most consistent covariance matrix with the data from the total sample was chosen. Post-hoc modifications were made to the chosen model, as they were theoretically justifiable, and significantly improved overall fit and model parsimony. Since the aim was to build on existing theory, the explanatory power of the refined model, with the incorporation of extra influencing variables on negative evaluative body image and problematic psychological functioning outcomes, was compared to the corresponding portion of the final model proposed by Keery and colleagues (2004).

The refined model was then tested separately for boys and girls and the specific pathways between the variables were investigated. The significance of relations within the model was examined through inspection of the path coefficients and associated *t*-values (Thompson et al., 1995; Ullman, 2001). Multigroup SEM was also employed to examine potential gender differences in the patterns of factor loadings and the magnitude of associations between constructs in the model. Finally, the refined model was tested with randomly split halves of the data to provide an initial account of cross-validation.

6.5 Identification

Identification is an essential requirement when specifying structural models for estimation. A model is *just identified* if the number of parameters to be estimated equals the number of data points, and a model is *overidentified* if it has less free parameters than data points allowing unique values to be obtained in multiple ways (Hoyle, 2011). Overidentified models are preferable, as with positive degrees of freedom they tolerate a greater chance of rejection (Byrne, 2009).

Firstly, to determine the degrees of freedom, the number of data points and parameters to be estimated was calculated. The number of data points equates the number of observations (variances and covariances) from the sample data (Ullman, 2001). Bentler (1995) proposed rules to follow in determining the number of parameters that can be uniquely estimated in a structural equation model. In accordance to the first rule, all variances of exogenous variables are model parameters. Since residual and disturbance terms are unmeasured elements, they are also considered under the umbrella of exogenous variables in SEM. In addition, unless theory specifies otherwise, the covariances between exogenous variables, factor loadings from latent variables to their respective indicators, and direct effects on endogenous variables, either observed or latent, are model parameters. Furthermore, since the latent variables do not have a natural metric, a scale is set, generally by assigning ULI constraints, rendering these parameters fixed (Raykov & Marcoulides, 2000).

The number of observations p can be calculated from the number of observed variables v in the model, where $p= v(v+1)/2$ (Kline, 2010). With 31 observed variables, there are 496 observations in the models [$p= 31(32)/2$]. The number of parameters q to be freely estimated in the models is 74. The degrees of freedom were then calculated by subtracting the number of parameters from the number of observations. Both of the hypothesised models are overidentified with 422 [496-74] degrees of freedom.

Next, the measurement models were assessed for identifiability. The measurement portion of both hypothesised models are the same and contain seven factors, with four containing three or more indicators. Each indicator loads on only one factor, no uniquenesses are correlated, and the variances and covariances are free for estimation. Therefore, in line with the rules of identification for standard CFA models, the measurement portion of the model is identified (Ullman, 2001).

Finally, the identification status of the structural portion of the models was assessed. A model is said to be recursive if there are no reciprocal relations specified between the endogenous

variables and if disturbances are uncorrelated. According to the identification rules, recursive models are identified whilst the identification of nonrecursive models can be problematic (Kline, 2010). Since both hypothesised models are recursive, they are identified. Because all rules are sufficiently satisfied, both target models can be considered overidentified.

6.6 Data Screening

6.6.1 Sample

Data collection involved the administration of the survey package to 798 young male and female adolescents attending first (n= 442) and second year (n= 356) of secondary school. The initial sample was reduced to 786 (males= 403; females= 383), due to incomplete survey packages and multivariate outliers. Participants' ages ranged from 12 to 15 years (M= 13.36, SD= 0.64). The majority of participants identified themselves as Caucasian (91.9%), 3.3% as African, and 2% as Asian (nonresponse= 2.8%).

Adequate sample sizes for model testing involve the consideration of a number of factors including model complexity, the type of estimator algorithm, and the required power to successfully conduct the SEM analyses. More complex models require more estimates and, in effect, larger samples to produce stable results (Kline, 2010). A rule of thumb that has been proposed for SEM analyses using ML estimation is the N:q rule, where adequate sample size is considered in terms of the ratio of observations to free model parameters. Jackson (2003) proposed an ideal sample size to be a ratio of 20:1 while Nachtigall and colleagues (2003) proposed a minimum ratio of 10:1, a more feasible goal with complex models. Furthermore, in simulation studies, sample sizes of approximately 200 for small to medium models and 400 for models using ML estimation produced estimates as expected (Curran, West, & Finch, 1996). In this study, there were 786 participants and 74 parameters in each model. The ratio of cases to estimated parameters was 11:1. This ratio is adequate based on Nachtigall et al.'s (2003) suggestion and considering the acceptable reliabilities of the observed measures used in the study (see **Section 6.7.2**).

In determining the sample size necessary to achieve adequate power, MacCallum and colleagues' (1996) framework for calculating power and required sample size was used. This approach uses effect sizes determined from the RMSEA fit index where the difference between the H_0 (i.e., that RMSEA< 0.05) and H_a (i.e., that RMSEA ≥0.05) for the test of close fit reflects the effect size ε, or the extent to which H_0 is incorrect. Using the desired estimate of power, required sample size depends on the *df*s. When the number of *df*s in a model is large, adequate power is generally achieved with moderate sample sizes. Using the recommended web-based

application (Preacher & Coffman, 2006), tests for power and sample size requirements were computed. For α= 0.05, df= 422, ε_0= 0.05, and ε_a= 0.08, power was 1.0 for the test of close fit. Using this power and RMSEA, the minimum sample size required was 400.

6.6.2 Missing Data

Of the initial sample of 798, those who were missing ≥ 5% of the items (n= 10, 1.25%) were not included in the analyses. In all of these cases, the measures placed at the end of the survey package were incomplete, indicating that nonresponse was likely due to time constraints rather than the constructs being measured per se. There was a nominal amount of item nonresponse (<1% for each measure) and, using Little's (1988) χ^2 test to determine whether data were MCAR, the H_0 that data were MCAR was retained. The missing data were imputed using the EM algorithm. EM was decided upon as a model-based imputation method can produce more than one estimated score per missing value, taking the structure of the data into account and recapturing estimates with more precision (Kline, 2010).

6.6.3 Suitability of the Data for Analysis

6.6.3.1 Multivariate Normality

Data were screened for normality and outliers prior to the SEM procedures. Requirements for multivariate normality include normal univariate and bivariate distributions among variables, and approximately linear bivariate scatterplots (Kline, 2010). ML estimation assumes multivariate normality with violations possibly leading to overestimation of goodness-of-fit and an inflated risk of Type I error (Jackson et al., 2009). In particular, multivariate kurtotic distributions are the most troublesome in SEM analyses as they can substantially impact variances and covariances, leading to the underestimation of standard errors and the overestimation of the significance of parameter estimates (Byrne, 2009). Recommended solutions to multivariate nonnormality include using a robust estimator and corrected chi-square, such as the ML Boost estimator and the S-Bχ^2, which appear to compensate well for such violations (Nachtigall et al., 2003; Ullman, 2001; West, Finch, & Curran, 1995).

The skew and kurtosis of each of the items were examined through SPSS 20.0 and ranged from -0.96 to 1.83 (males: from -0.74 to 2.11; females: from -1.21 to 1.61) and from -1.27 to 3.86 (males: from -1.30 to 5.33; females: from -1.22 to 2.91), respectively. Values are within the acceptable range for the analyses in accordance with West and colleagues' (1995) suggestion, where values equal to or greater than seven are indicative of departures from univariate normality. Pairwise scatterplots between variables were randomly assessed and all showed approximate cigar-shaped associations. The CDI-S scores produced the highest positive

skewness and kurtosis values. However, since the scale assesses the presence of depressive symptoms these trends appear reasonable, as symptoms of depression are not expected to be normatively distributed in the population. To address this slight expected violation of multivariate normality, the ML Boost estimator was used in the analyses on Mplus, producing the S-Bχ^2 (or MLMχ^2) and robust goodness-of-fit statistics (Ullman, 2001).

6.6.3.2 Multivariate Outliers

To determine the presence of multivariate outliers, the Malahanobis distance (D^2) statistic can be consulted, which assesses the difference in standard deviation units between the scores from one case and the sample means for all the variables, correcting for intercorrelations (Kline, 2010). Two cases with D^2 values distinctively higher than all others were detected and removed from the dataset. The remaining D^2 values showed minimal evidence of multivariate outliers.

6.6.3.3 Data Manipulations

Corrective action for potential data-related complications involved the manipulation of data in the form of transformations to improve the distribution of problematic variables. Additionally, scores of indicators with item wording that either contrasted with items from other indicators or with the nature of the construct reflected in the latent variable were reverse coded.

6.6.3.3.1 Data Transformations

To reduce skewness and kurtosis on the CDI-S, data transformations were applied. As recommended by Kline (2010), both square root (i.e., $X^{1/2}$) and lnX transformations were computed, and each outcome was compared. Since scores were low for the CDI-S, the natural log base was used. By compressing the differences in the upper end of the distribution more than the lower end, the scores become more evenly dispersed. Firstly, the constant 1.0 was added so that the lowest value was 1.0 and then scores were computed using each transformation. A greater reduction in non-normality across groups was afforded by the lnX transformation with skewness and kurtosis values reduced to 0.28 and -0.86 respectively (males= 0.44, -0.72; females= 0.13, -0.89), and so this application was retained for the analyses.

6.6.3.3.2 Reverse Coding

The items from the RSE were positively worded compared to the items from the CDI-S. In order for the RSE and the CDI-S to avoid rejection from the measurement model, the correlation between the two indicators should be positive (Kline, 2010). Accordingly, the RSE items were reverse-coded to match the direction of the CDI-S. The coding resulted in high scores on the RSE reflecting greater self-esteem problems and higher scores on the latent variable reflective of problematic psychological functioning. Additionally, the items from the BIBCI-BS were reverse-coded so that higher scores reflected greater levels of body dissatisfaction.

6.7 Results: The Measurement Level

CFA was used to examine the underlying latent variable structure of the target models. Based on theory and empirical research, relations between the observed measures and their underlying factors were postulated and formal tests of these a priori hypotheses were conducted.

6.7.1 Formulation of Indicator Variables

Firstly, the identification of appropriate items for the formulation of indicators and the amount to use in reflecting each latent construct was determined. In carrying out CFAs to determine the nature and number of indicators to use in representing latent variables, the subscale-level solutions for internalisation and the item-level solutions for negative body image evaluations were problematic. Due to the high number of item-level indicators for these latents, correlated uniquenesses emerged impacting on the number of iterations needed for a solution to converge (Hoyle, 2011; Little, Cunningham, Shahar, & Widaman, 2002). Consequently, the dimensionality of both the internalisation and negative body image evaluation constructs was examined to determine whether corrective action was warranted.

In the case of internalisation, the SATAQ-3 consists of two subscales, athletic and general. Since both assess internalisation and are subscales in a broader measure, the CFAs tested the following alternative hypotheses: internalisation for early adolescents as assessed by the SATAQ-3 subscales is a one-factor structure in which there is no distinction between general and athletic internalisation, and internalisation for early adolescents as assessed by the SATAQ-3 subscales is a multidimensional construct with two factors representing general and athletic internalisation. The fit indices for the two alternative CFA models tested with the total sample are presented in **Table 6.1**. The one-factor model was not an acceptable fit to the data. The two-factor model resulted in an improved fit but goodness-of-fit remained unsatisfactory. Therefore, in order to improve the latent structure of internalisation, parcelling was employed.

Parcelling involves grouping items into aggregate-level indicators, and when indicators of a latent variable comprise the sum of groups of items from a measure, the model is considered partially disaggregated (Little et al., 2002). This approach can reduce the number of parameters in the measurement portion of the model, but has sparked controversy as it assumes that items grouped into each parcel are unidimensional. Nevertheless, parcelling has been advocated if the process fits in with the overall purpose of the study, the conceptualisation of the latent construct, and the structure of the data (Williams & O'Boyle, 2008).

Parcelling hails many advantages relative to item-level data, particularly when the number of indicators at item level is large. Item-level data generally need more iterations in order for a

solution to converge and standard errors of factor loadings can be large (Little et al., 2002). Additionally, item-level data can be problematic with greater chances of correlated uniquenesses, violations of multivariate normality, and lower levels of reliability, communalities, and common factor variance (Hoyle, 2011; Little et al., 2002). Consequently, latent constructs comprised of parcels are expected to produce more acceptable goodness-of-fit and solutions with greater stability. Since the overall purpose of the model testing was to explore associations among latent variables, a partially disaggregated model was preferable, reducing the number of parameters and, in turn, producing a model with greater parsimony (Hall, Snell, & Foust, 1999; Williams & O'Boyle, 2008).

Table 6.1

Fit Indices for Alternative CFA Models of Internalisation and Negative Body Image Evaluations

	MLMχ2(*df*), *p-value*	**CFI**	**TLI**	**AIC**	**RMSEA (90% CI)**	**SRMR**
Internalisation 1-factor	1000.51 (77), $p< 0.001$	0.78	0.73	31797.78	0.12 (0.12, 0.13)	0.09
Internalisation 2-factor	523.85 (76), $p< 0.001$	0.89	0.87	31187.76	0.09 (0.08, 0.09)	0.06
Internalisation 3-factor IC	239.04 (51), $p< 0.001$	0.95	0.93	26423.87	0.07 (0.06, 0.08)	0.04
Internalisation 3-factor DR	1160.57 (76), $p< 0.001$	0.74	0.68	31961.20	0.14 (0.13, 0.14)	0.15
Negative body image evaluations 1-factor	147.85 (14), $p< 0.001$	0.92	0.89	14172.89	0.11 (0.10, 0.13)	0.05
Negative body image evaluations 2-factor	67.08 (13), $p< 0.001$	0.98	0.96	14033.40	0.07 (0.06, 0.09)	0.03

Note: IC= Internal Consistency (approach); DR= Domain Representation (approach); CFI= Comparative Fit Index; TLI= Tucker Lewis Index; AIC= Akaike Information Criterion; RMSEA= Root Mean Square Error of Approximation; CI= Confidence Interval; SRMR= Standardised Root Mean Square Residual.

The first step in the parceling process was to examine the dimensionality of the items. Although the items reflecting internalisation in the SATAQ-3 have been grouped into two subscales by the authors, the two-factor model did not indicate adequate fit for the young adolescent population. Therefore, the dimensionality of the two subscales was further investigated with EFA using a promax oblique rotation. Analysis of the screeplot and eigenvalues indicated that two or three factors should be retained. The two-factor solution reflected the two identified subscales, Internalisation-General and Internalisation-Athlete. As this solution was already investigated, the three-factor solution was examined. Inspection of the item content revealed that the first factor reflected Internalisation-General with six items, the second factor reflected Internalisation-Athlete with three items, and the third factor represented the three reverse-scored

items from the Internalisation-General subscale. Two items from the scale were deleted as they did not meet the a priori criteria for retention, where items with loadings greater than ±0.40 on the primary factor and less than or equal to ±0.30 on the remaining factors were retained. All three factors fit well conceptually with the initial factor structure proposed by the scale developers and had good composite reliability (total sample: CR= 0.99, 0.98, & 0.96 respectively; males: CR= 0.99, 0.97, & 0.94 respectively; females: CR= 0.99, 0.96, & 0.94 respectively).

This new factor structure was then subjected to CFA using two parcelling approaches. The first approach was the internal consistency approach where items from each factor that emerged in the EFA are combined to form each parcel (Kishton & Widaman, 1994, cf. Little et al., 2002). This approach retains the dimensionality of the construct keeping all conceptually similar items within each parcel. The second approach was the domain representation approach where items are selected across each factor and are combined into parcels so that all three factors are represented within each parcel (Williams & O'Boyle, 2008). The fit indices of these two alternative approaches can also be seen in **Table 6.1**. As can be noted, the domain representation approach did not show an improvement in model fit over the two-factor solution. However, the fit indices for the internal consistency approach indicated substantial improvement in the measurement model of internalisation for all groups. This approach also retained the conceptual dimensionality of the original subscales. Therefore, the latent construct of internalisation was revised to comprise three indicators representing parcels formed using the internal consistency approach, in line with recommendations to group conceptually similar items into every parcel (Hall, et al., 1999).

For the negative body image evaluations construct, a one-factor model containing all seven items was tested. This solution did not produce an adequate fit to the total sample data, with problems lying in the RMSEA values indicating unacceptable fit and precision for the model (**Table 6.1**). Since the measure of negative body image evaluations is a subscale from the BIBCI, a unidimensional structure was assumed. Consequently, Hall and colleagues' (1999) correlated uniqueness approach to parcelling was employed. The approach aims to address the implications of high numbers of item-level indicators reflecting a latent construct. As the number of item-level indicators increase, so does the possibility of secondary influences and cross-loadings, leading to unacceptable indices of model fit, possibly due to fit indices failing to account for indicator-factor ratios rather than lack of model fit per se. Parcelling approaches represent an appealing remedy when such incidents are likely.

For a unidimensional measure, parcels can be formed in a number of ways, including random allocation, and groupings based on empirical, theoretical and statistical justification. However, Hall et al. (1999) demonstrated in their series of simulation studies how parcelling procedures could impact the outcomes of SEM analyses if secondary influences are present. First the dimensionality of the subscale needs to be investigated using EFA. If unidimensionality is not indicated, secondary factor influences may be shared by some of the items. The logic reverts back to violations of external consistency, or the extent to which two or more items share variance with a secondary dimension external from the scale. This can impact SEM analyses as uniquenesses include random and systematic error, both of which can be affected by these secondary influences.

In their simulation studies, Hall and colleagues (1999) demonstrated that when no indication of secondary influence is present, the choice of parcelling method did not have a discernible impact. However, when a secondary influence was present, a distributed uniqueness strategy (i.e., where items sharing the secondary influence are dispersed across parcels) produced biased estimates of factor loadings and path coefficients, while a correlated or isolated uniqueness strategy (i.e., when items sharing the secondary dimension are combined into one parcel) produced estimates and indications of poor model fit with more accuracy. The correlated uniqueness strategy improves the external consistency of the measure by separating the secondary influence into a single parcel so that only one parcel reflects the secondary construct.

The EFA on the BIBCI-BS indicated, from inspection of the screeplots and eigenvalues, a relatively strong primary factor explaining 54.37% of the variance with the first two eigenvalues at 3.81 and 0.87. These findings and the ratio of eigenvalues from the first to the second factor confirmed the suitability of the data for the correlated uniqueness parcelling strategy. The technique has produced relatively consistent parameter estimates when the secondary influence can be easily defined and only weakly influences some of the items reflecting the primary construct (Hall et al., 1999). The outcome of the CFA for the one-factor model yielded large MIs between error terms for some items (3, 5, and 7) indicating better model fit if these uniquenesses were specified to covary. These three items represented questions regarding one's satisfaction with muscle size, arms and shoulders (males), and legs and thighs (females). This distinction is likely to be important, particularly for males, as negative body image evaluations can stem from dissatisfaction with weight- or muscle-related aspects of the body, or both (e.g., Field et al., 2005; Jones et al., 2008). Thus, a revised two-factor model was tested with these three muscle-related items comprising one parcel and the remaining four weight-related items comprising the second parcel (**Table 6.1**). Although the S-Bχ^2 remained significant (as expected with the large *N*), other fit indices indicated that the model fit the data well. All factor

loadings were statistically significant (weight factor, β= 0.60–0.86; muscle factor, β= 0.54–0.81). Subsequently, the parcelled, two-factor structure was retained to represent negative body image evaluations (CR= 0.96, 0.99).

It is important to note at this stage that due to the revised representation of indicators for the internalisation and negative body image evaluation constructs, the degrees of freedom for the SEM models changed. The method from **Section 6.5** was again employed to calculate the degrees of freedom. The number of observations p changed to 378 [p= 27(28)/2]. The number of parameters free for estimation q changed to 66. The degrees of freedom for the a priori models were reduced to 312 [378-66]. The identification status of the models remained overidentified. Additionally, tests for power and sample size requirements were computed for the revised model structure. The ratio of cases to estimated parameters improved to 12:1 (N:q= 786:66). For α= 0.05, df= 312, ε_0= 0.05, and ε_a= 0.08, power remained at 1.0 for the test of close fit and the minimum sample size required increased to 500.

6.7.2 Psychometric Characteristics of the Data

Descriptive statistics for the measured indicators used in the SEM models to constitute the observed and latent variables are presented in **Table 6.2** for the total sample, and separately for the boys and girls. The mean scores for pubertal development items were generally below the median. Girls had a higher mean score for *promotion of the ideal body* and *peer acceptance* indicators, suggesting that influences from the appearance culture may be more salient for them, although the dispersion of scores was also larger for females. Girls had higher mean scores on the majority of indicators for appearance schemas, comparisons, internalisation, and negative body image evaluations, with boys generally showing higher mean scores for items tapping athleticism and muscular build. Additionally, boys had a lower mean score for self-esteem problems. Reliability analyses were also conducted on the hypothesised model indicators. These included the PDS; the two subscales of the ACS-YA; the CAS; PACS; the parcelled SATAQ-3 factors; the parcelled BIBCI–BS factors; the RSE; and the CDI-S. Internal reliability for the PACS was < 0.70 for the total sample and the boys, likely due to the PACS being standardised on females and the low number of items in the scale. The third parcelled factor of the SATAQ-3 also produced internal consistencies < 0.70 across groups. This was likely due to the parcelled indicator comprising three items representing reverse-scored items. On the whole, levels of reliability were deemed adequate since error is accounted for in latent variable methods with sufficient sample sizes (Kline, 2010).

Table 6.2

Descriptive Statistics and Internal Consistency Estimates for the Measured Indicators used in the SEM Models

Latent Variable	Measured Variable	Total (n = 786)				Males (n = 403)				Females (n = 383)				Possible
		Mean (SD)	Cronbach's α	Skew	Kurtosis	Mean (SD)	Cronbach's α	Skew	Kurtosis	Mean (SD)	Cronbach's α	Skew	Kurtosis	Range
Pubertal Development	PDS Q1 *"Have you had a very fast growth in height (a growth spurt)?"*	2.67 (0.78)	----	-0.44	-0.13	2.59 (0.76)	----	-0.49	-0.11	2.75 (0.81)	----	-0.44	-0.14	1-5
	PDS Q2 *"Describe your pubic hair development"*	3.05 (0.70)	----	-0.50	0.42	3.00 (0.69)	----	-0.56	0.75	3.11 (0.70)	----	-0.47	0.12	1-5
	PDS Q3 *"Have you noticed or experienced any changes in your skin (pimples etc)?"*	2.61 (0.83)	----	-0.37	-0.39	2.51 (0.84)	----	-0.40	-0.54	2.73 (0.81)	----	-0.34	-0.27	1-5
	PDS Q4 *Males: "Describe your facial hair development" Females: "Describe your breast development"*	2.46 (0.80)	----	-0.16	-0.48	2.14 (0.81)	----	0.26	-0.50	2.80 (0.62)	----	-0.16	0.09	1-5
	PDS Q5 *Males: "Has your voice changed (become deeper)?" Females: "Describe the development of your period (menarche)"*	2.60 (1.05)	0.74 (total scale)	-0.24	-1.10	2.40 (0.96)	0.77 (total scale)	-0.07	-1.00	2.82 (1.10)	0.70 (total scale)	-0.53	-0.98	1-5
Sociocultural Influences	ACS-YA Promotion of the Ideal Body e.g. "When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too"	16.65 (5.80)	0.78	0.48	-0.30	15.82 (5.40)	0.75	0.60	0.01	17.52 (6.08)	0.79	0.33	-0.28	7-35
	ACS-YA Peer Acceptance e.g. "I often think about how I look because people my age are so judgmental"	28.83 (7.31)	0.88	-0.28	-0.46	28.37 (6.86)	0.79	-0.22	-0.53	29.32 (7.73)	0.84	-0.37	-0.58	9-45
Appearance Schemas	ASM Q1 *"What I look like is an important part of me"*	1.38 (0.63)	----	-0.53	-0.64	1.29 (0.65)	----	-0.39	-0.73	1.48 (0.60)	----	-0.67	-0.50	0-2
	ASM Q2 (reverse-scored) *"I'd rather think about other things than thinking about what I look like"*	0.72 (0.66)	----	0.37	-0.75	0.65 (0.64)	----	0.48	-0.68	0.80 (0.66)	----	0.26	-0.77	0-2
	ASM Q3 (reverse-scored) *"Other things are more important to me than how I look"*	0.49 (0.64)	----	0.95	-0.18	0.39 (0.60)	----	1.25	0.54	0.59 (0.67)	----	0.69	-0.59	0-2
	ASM Q4 *"I spend time thinking about how I look"*	0.94 (0.71)	----	0.09	-1.03	0.83 (0.70)	----	0.24	-0.96	1.05 (0.71)	----	-0.06	-1.02	0-2
	ASM Q5 *"I often think of ways to make myself look better"*	1.14 (0.72)	----	-0.21	-1.08	1.02 (0.71)	----	-0.03	-1.02	1.26 (0.72)	----	-0.42	-0.98	0-2
	ASM Q6 *"I wonder how I look compared to other people"*	0.95 (0.75)	----	0.08	-1.20	0.79 (0.71)	----	0.32	-0.98	1.11 (0.75)	----	-0.19	-1.21	0-2
	ASM Q7 (reverse-scored) *"It is a waste of time worrying about how I look"*	1.05 (0.76)	----	-0.09	-1.27	0.95 (0.77)	----	0.08	-1.30	1.16 (0.74)	----	-0.26	-1.14	0-2
	ASM Q8 (reverse-scored) *"I never think about how I look"*	1.53 (0.61)	0.78 (total scale)	-0.96	-0.11	1.42 (0.67)	0.76 (total scale)	-0.74	-0.55	1.64 (0.53)	0.77 (total scale)	-1.13	0.25	0-2
Appearance Comparisons	PACS Q1 *"At parties and other social events, I compare my physical appearance to the physical appearance of others"*	2.42 (1.09)	----	0.32	-0.61	2.18 (0.99)	----	0.51	-0.29	2.67 (1.13)	----	0.07	-0.72	1-5
	PACS Q2 *"The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others"*	2.08 (1.16)	----	0.67	-0.68	2.22 (1.18)	----	0.47	-0.92	1.94 (1.12)	----	0.92	-0.22	1-5
	PACS Q3 *"At parties and other social events, I compare how I am dressed to how other people are dressed"*	3.05 (1.20)	----	-0.06	-0.85	2.79 (1.16)	----	0.05	-0.82	3.33 (1.18)	----	-0.20	-0.82	1-5
	PACS Q4 *"In social situations, I sometimes compare my figure to the figures of other people"*	2.38 (1.11)	0.69 (total scale)	0.41	-0.60	2.16 (1.03)	0.68 (total scale)	0.54	-0.44	2.62 (1.14)	0.70 (total scale)	0.23	-0.71	1-5
Internalisation	SATAQ-3 IC Factor 1 e.g. *"I would like my body to look like the people who are in movies"*	14.63 (6.06)	0.91	0.35	-0.56	13.32 (5.40)	0.89	0.40	-0.39	16.01 (6.41)	0.92	0.16	-0.76	6-30
	SATAQ-3 IC Factor 2 e.g. *"I wish I looked as athletic as sports stars"*	8.66 (3.11)	0.80	-0.01	-0.58	9.29 (3.17)	0.82	-0.21	-0.54	8.01 (2.91)	0.76	0.13	-0.44	3-15
	SATAQ-3 IC Factor 3 (reverse-scored) e.g. *"I do not try to look like the people on TV"*	7.81 (2.93)	0.65	0.15	-0.59	7.59 (2.93)	0.64	0.22	-0.50	8.04 (2.92)	0.65	0.08	-0.64	3-15
Negative Body Image Evaluations	BIBCI-BS Weight Factor e.g. *"How satisfied are you with your weight?"*	10.94 (3.41)	0.83	0.27	-0.22	10.40 (3.24)	0.83	0.40	0.14	11.52 (3.51)	0.83	0.12	-0.41	4-20
	BIBCI-BS Muscle Factor e.g. *"How satisfied are you with your muscle size?"*	8.25 (2.59)	0.72	0.16	-0.37	7.58 (2.42)	0.68	0.28	-0.15	8.96 (2.58)	0.78	-0.01	-0.39	3-15
Problematic Pyschological Functioning	RSE (reverse-scored) e.g. *"I feel that I am a person of worth, at least on an equal plane with others"*	11.09 (4.72)	0.83	0.32	0.20	10.44 (4.49)	0.82	0.23	0.07	11.77 (4.87)	0.85	0.35	0.19	0-30
	CDI (lnX tranformed) e.g. *"I am sad once in a while", "I am sad many times", "I am sad all the time"* (choose one)	0.98 (0.77)	0.84	0.28	-0.86	0.85 (0.75)	0.82	0.44	-0.72	1.12 (0.77)	0.85	0.13	-0.89	0-3
	Body Mass Index	21.43 (3.85)	----	1.20	1.85	20.87 (3.41)	----	1.09	1.33	22.02 (4.19)	----	1.16	1.62	11.36-38.66

6.7.3 The Measurement Model

In evaluating the fit of the measurement model to the sample data, the jigsaw piecewise technique was employed where the defined latent variables were tested in rationally identifiable portions of the model before testing the measurement model as a whole (Bollen, 2000). One portion tested the proximal influences and outcome measures together (i.e., sociocultural influences, pubertal development, negative body image evaluations, and psychological functioning) while the second portion tested the cognitive processes of appearance comparisons, internalisation, and appearance schemas.

The CFAs were conducted with the underlying assumptions that: (i) each indicator was the effect of both the factor it purported to measure and all other sources of influence, represented by its associated uniqueness; (ii) the uniquenesses were independent of each other; and (iii) all the factors were correlated (Kline, 2010). Values of the fit statistics for both model portions and the full measurement model for the total sample, and separately for the boys and girls, are presented in **Table 6.3**. The fit of *Portion 1* was excellent across groups, and *Portion 2* produced adequate fit statistics across groups. As a result, the full measurement model fit the data well, particularly for females. The jigsaw piecewise method can permit comparisons between the estimates produced when the model is fitted in portions with the estimates produced when the model is fit as a whole. The differences noted ranged from 0.0 to 0.15 for all groups, suggesting minimal evidence of model misspecification (Bollen, 2000).

The correlations between the latent factors are reported in **Table 6.4** while the standardised and unstandardised factor loadings of the full measurement model are reported in **Table 6.5** for the total sample, and separately for the boys and girls. The majority of correlations between factors are statistically significant with the exception of some relationships involving pubertal development. The correlations between the sociocultural influence factor and each of the cognitive processing factors are moderate to strong but fall well below the excessively high threshold (< 0.90), indicating discriminability (Kline, 2010). In relation to convergent validity, the findings are inconsistent. The standardised loadings for indicators of some factors were all high, for example, the range of loadings for the problematic psychological functioning factor with the total sample is 0.78 to 0.80. On the other hand, other standardised factor loadings are quite low for the total sample, such as 0.34 for Item 2 of the PACS. Values of R^2_{SMC} for indicators range from 0.12 to 0.76 (males: range= 0.11–0.71; females: range= 0.11–0.83).

Table 6.3

Fit Indices for Portions of the Measurement Model and for the Measurement Model as a Whole

	MLMχ2(*df*), *p-value*	CFI	TLI	AIC	RMSEA (90% CI)	SRMR
Total Sample						
Portion 1 (PD, SCI, NBI, PPF)	51.58 (38), $p > 0.05$	0.99	0.99	32027.98	0.02 (0.00, 0.04)	0.02
Portion 2 (INT, COM, SCH)	286.86 (87), $p < 0.001$	0.93	0.92	32994.48	0.05 (0.05, 0.06)	0.04
Full Measurement Model	676.10 (278), $p < 0.001$	0.93	0.92	64307.73	0.04 (0.04, 0.05)	0.04
Males						
Portion 1 (PD, SCI, NBI, PPF)	52.54 (38), $p > 0.05$	0.99	0.98	16264.43	0.03 (0.00, 0.05)	0.04
Portion 2 (INT, COM, SCH)	199.76 (87), $p < 0.001$	0.92	0.90	16823.47	0.06 (0.05, 0.07)	0.05
Full Measurement Model	506.41 (278), $p < 0.001$	0.92	0.90	32810.06	0.05 (0.04, 0.05)	0.05
Females						
Portion 1 (PD, SCI, NBI, PPF)	36.20 (38), $p > 0.05$	0.99	1.02	15482.05	0.01 (0.00, 0.03)	0.03
Portion 2 (INT, COM, SCH)	189.45 (87), $p < 0.001$	0.93	0.92	15894.24	0.06 (0.05, 0.07)	0.05
Full Measurement Model	451.74 (278), $p < 0.001$	0.95	0.94	30973.55	0.04 (0.03, 0.05)	0.05

Note: PD= Pubertal Development; SCI= Sociocultural Influences; NBI= Negative Body Image Evaluations; PPF= Problematic Psychological Functioning; INT= Internalisation; COM= Appearance Comparisons; SCH= Appearance Schemas; CFI= Comparative Fit Index; TLI= Tucker Lewis Index; AIC= Akaike Information Criterion; RMSEA= Root Mean Square Error of Approximation; CI= Confidence Interval; SRMR= Standardised Root Mean Square Residual.

6.7.4 Correlational Analyses

The intercorrelations among all variables were investigated using the Pearson product-moment correlation coefficient and can be seen for the total sample in **Table 6.6**. The correlation matrix of the observed variables used in the model testing for boys and girls is presented in **Appendix I**. Indicators reflecting a common latent construct all had positive correlations that were statistically significant, suggesting internally consistent sets (Kline, 2010). As multiple direct and indirect relationships were investigated in the SEM models, all of the theoretically meaningful variables were retained for analyses. Following the CFAs and correlational analyses, the latent structure of the SEM models was deemed appropriate to proceed with the analyses of the structural portions of the models.

Table 6.4

Correlations between the CFA Latent Factors

Total Sample							
	PD	SCI	SCH	COM	INT	NBI	PPF
PD	----						
SCI	0.14**	----					
SCH	0.20***	0.61***	----				
COM	0.22***	0.60***	0.53***	----			
INT	0.13***	0.67***	0.56***	0.54***	----		
NBI	0.07	0.32***	0.29***	0.28***	0.27***	----	
PPF	0.11**	0.43***	0.33***	0.35***	0.31***	0.45***	----
Males							
	PD	SCI	SCH	COM	INT	NBI	PPF
PD	----						
SCI	0.08	----					
SCH	0.13*	0.56***	----				
COM	0.18***	0.53***	0.49***	----			
INT	0.02	0.62***	0.54***	0.46***	----		
NBI	-0.17**	0.21***	0.20***	0.12*	0.18***	----	
PPF	0.07	0.30***	0.21***	0.21***	0.16**	0.38***	----
Females							
	PD	SCI	SCH	COM	INT	NBI	PPF
PD	----						
SCI	0.15**	----					
SCH	0.15**	0.65***	----				
COM	0.17**	0.64***	0.53***	----			
INT	0.21***	0.70***	0.57***	0.59***	----		
NBI	0.18***	0.37***	0.28***	0.36***	0.32***	----	
PPF	0.08	0.51***	0.40***	0.43***	0.41***	0.48***	----

Note: *= $p < 0.05$; **= $p < 0.01$; ***= $p < 0.001$

PD= Pubertal Development; SCI= Sociocultural Influences; SCH= Appearance Schemas; COM= Appearance Comparisons; INT= Internalisation; NBI= Negative Body Image Evaluations; PPF= Problematic Psychological Functioning.

Table 6.5

Standardised and Unstandardised Factor Loadings (and Standard Errors) for the Measured Indicators Reflecting the Latent Variables

Latent Variable	Measured Variable	Total (n= 786)			Males (n= 403)			Females (n= 383)		
		β	B	SE	β	B	SE	β	B	SE
Pubertal Development	y1 PDS Q1 *"Have you had a very fast growth in height (a growth spurt)?"*	0.50	1.00	0.01	0.59	1.00	0.01	0.40	1.00	0.01
	y2 PDS Q2 *"Describe your pubic hair development"*	0.60	1.07	0.10	0.65	1.01	0.10	0.56	1.23	0.20
	y3 PDS Q3 *"Have you noticed or experienced any changes in your skin (pimples etc)?"*	0.55	1.17	0.11	0.57	1.06	0.12	0.50	1.26	0.21
	y4 PDS Q4 *Males: "Describe your facial hair development" Females: "Describe your breast development"*	0.67	1.36	0.12	0.65	1.18	0.13	0.62	1.19	0.18
	y5 PDS Q5 *Males: "Has your voice changed (become deeper)?" Females: "Describe the development of your period (menarche)"*	0.73	1.94	0.16	0.70	1.51	0.15	0.75	2.55	0.36
Sociocultural Influences	y6 ACS-YA Promotion of the Ideal Body *e.g. "When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too"*	0.77	1.00	0.01	0.72	1.00	0.01	0.78	1.00	0.01
	y7 ACS-YA Peer Acceptance *e.g. "I often think about how I look because people my age are so judgmental"*	0.84	1.37	0.06	0.84	1.49	0.10	0.86	1.40	0.07
Appearance Schemas	y9 ASM Q1 *"What I look like is an important part of me"*	0.56	1.00	0.01	0.56	1.00	0.01	0.54	1.00	0.01
	y10 ASM Q2 (reverse-scored) *"I'd rather think about other things than thinking about what I look like"*	0.35	0.65	0.08	0.33	0.58	0.10	0.33	0.68	0.12
	y11 ASM Q3 (reverse-scored) *"Other things are more important to me than how I look"*	0.42	0.75	0.08	0.37	0.60	0.09	0.41	0.85	0.13
	y12 ASM Q4 *"I spend time thinking about how I look"*	0.65	1.31	0.09	0.61	1.17	0.12	0.68	1.51	0.15
	y13 ASM Q5 *"I often think of ways to make myself look better"*	0.71	1.45	0.10	0.71	1.38	0.14	0.70	1.58	0.15
	y14 ASM Q6 *"I wonder how I look compared to other people"*	0.64	1.35	0.10	0.58	1.13	0.13	0.65	1.52	0.16
	y15 ASM Q7 (reverse-scored) *"It is a waste of time worrying about how I look"*	0.51	1.10	0.09	0.52	1.09	0.13	0.47	1.09	0.14
	y16 ASM Q8 (reverse-scored) *"I never think about how I look"*	0.49	0.85	0.07	0.51	0.94	0.11	0.42	0.69	0.10
Appearance Comparisons	y17 PACS Q1 *"At parties and other social events, I compare my physical appearance to the physical appearance of others"*	0.71	1.00	0.01	0.60	1.00	0.01	0.74	1.00	0.01
	y18 PACS Q2 *"The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others"*	0.34	0.52	0.06	0.44	0.87	0.13	0.38	0.51	0.08
	y19 PACS Q3 *"At parties and other social events, I compare how I am dressed to how other people are dressed"*	0.60	0.95	0.06	0.60	1.18	0.14	0.57	0.81	0.07
	y20 PACS Q4 *"In social situations, I sometimes compare my figure to the figures of other people"*	0.78	1.13	0.06	0.80	1.38	0.14	0.76	1.03	0.07
Internalisation	y21 SATAQ-3 IC Factor 1 e.g. *"I would like my body to look like the people who are in movies"*	0.87	1.00	0.01	0.81	1.00	0.01	0.81	1.00	0.01
	y22 SATAQ-3 IC Factor 2 e.g. *"I wish I looked as athletic as sports stars"*	0.51	0.30	0.03	0.74	0.54	0.04	0.48	0.24	0.03
	y23 SATAQ-3 IC Factor 3 (reverse-scored) e.g. *"I do not try to look like the people on TV"*	0.58	0.32	0.02	0.43	0.29	0.04	0.68	0.34	0.03
Negative Body Image Evaluations	y24 BS Weight *"How satisfied are you with your weight?"*	0.84	1.00	0.01	0.75	1.00	0.01	0.80	1.00	0.01
	y25 BS Muscle *"How satisfied are you with your muscle size?"*	0.75	0.68	0.05	0.70	0.69	0.08	0.80	0.65	0.06
Problematic Pyschological Functioning	y26 RSE (reverse-scored) *e.g. "I feel that I am a person of worth, at least on an equal plane with others"*	0.80	1.00	0.01	0.78	1.00	0.01	0.81	1.00	0.01
	y27 CDI (lnX transformed) e.g. *"I am sad once in a while", "I am sad many times", "I am sad all the time"* (choose one)	0.78	0.16	0.01	0.71	0.15	0.02	0.83	0.16	0.01

Note: All factor loadings are statistically significant (p< 0.001)

Table 6.6

Intercorrelations among Observed Variables for the Total Sample

Variable	PDS1	PDS2	PDS3	PDS4	PDS5	PIB	PA	ASM1	ASM2	ASM3	ASM4	ASM5	ASM6	ASM7
PDS1	----													
PDS2	0.32***	----												
PDS3	0.28***	0.36***	----											
PDS4	0.33***	0.37***	0.37***	----										
PDS5	0.35***	0.44***	0.38***	0.51***	----									
PIB	0.06	0.13***	0.09*	0.15***	0.15***	----								
PA	0.06	0.07	0.06	0.06	0.08*	0.64***	----							
ASM1	0.05	0.07	0.09*	0.07*	0.06	0.31***	0.42***	----						
ASM2	0.07	0.05	0.05	0.11**	0.09*	0.20***	0.20***	0.28***	----					
ASM3	0.03	0.05	-0.02	0.03	0.07	0.30***	0.28***	0.23***	0.34***	----				
ASM4	0.05	0.11**	0.09*	0.07	0.09**	0.35***	0.43***	0.36***	0.21***	0.27***	----			
ASM5	0.08*	0.07*	0.11**	0.16***	0.16***	0.43***	0.50***	0.39***	0.21***	0.24***	0.51***	----		
ASM6	0.10**	0.14***	0.14***	0.19***	0.12**	0.39***	0.48***	0.31***	0.10**	0.20***	0.41***	0.48***	----	
ASM7	0.05	0.06	0.07	0.07	0.06	0.28***	0.32***	0.35***	0.28***	0.29***	0.32***	0.32***	0.28***	----
ASM8	0.15***	0.09**	0.09**	0.14***	0.10**	0.24***	0.31***	0.32***	0.23***	0.20***	0.40***	0.31***	0.26***	0.37***
PACS1	0.08*	0.12**	0.12**	0.17***	0.19***	0.41***	0.49***	0.28***	0.18***	0.29***	0.33***	0.38***	0.41***	0.23***
PACS2	0.03	0.06	0.07*	0.02	0.07*	0.23***	0.27***	0.16***	0.06	0.09*	0.07	0.13***	0.19***	0.09*
PACS3	0.15***	0.11**	0.14***	0.13***	0.10**	0.32***	0.43***	0.30***	0.13***	0.17***	0.33***	0.31***	0.38***	0.21***
PACS4	0.11**	0.14***	0.09**	0.13***	0.15***	0.43***	0.51***	0.31***	0.16***	0.24***	0.33***	0.41***	0.48***	0.26***
INTF1IC	0.08*	0.12**	0.11**	0.14***	0.19***	0.62***	0.56***	0.35***	0.23***	0.30***	0.39***	0.46***	0.43***	0.29***
INTF2IC	0.01	0.03	0.00	-0.08*	0.02	0.37***	0.40***	0.24***	0.13***	0.13***	0.19***	0.32***	0.29***	0.20***
INTF3IC	0.01	0.03	0.02	0.07*	0.08*	0.40***	0.36***	0.23***	0.19***	0.21***	0.25***	0.31***	0.27***	0.28***
BDWeight	0.03	0.02	0.03	0.08*	0.08*	0.25***	0.29***	0.09**	0.05	0.18***	0.16***	0.26***	0.30***	0.20***
BdMuscle	-0.02	0.00	0.00	0.09*	0.07	0.21***	0.27***	0.07*	0.04	0.20***	0.18***	0.19***	0.25***	0.17***
rRSE	0.04	0.02	0.08*	0.07*	0.12**	0.33***	0.40***	0.16***	-0.01	0.17***	0.21***	0.30***	0.33***	0.21***
CDIln	0.06	0.08*	0.11**	0.13***	0.13***	0.29***	0.39***	0.18***	0.06	0.17***	0.28***	0.36***	0.36***	0.20***
BMI	0.18***	0.18***	0.19***	0.24***	0.25***	0.19***	0.10**	-0.01	0.00	0.09*	0.01	0.14***	0.10**	0.04

Note: *= $p < 0.05$; **= $p < 0.01$; ***= $p < 0.001$

Variable	ASM8	PACS1	PACS2	PACS3	PACS4	INTF1IC	INTF2IC	INTF3IC	BDWeight	BDMuscle	rRSE	CDIln	BMI
PDS1													
PDS2													
PDS3													
PDS4													
PDS5													
PIB													
PA													
ASM1													
ASM2													
ASM3													
ASM4													
ASM5													
ASM6													
ASM7													
ASM8	----												
PACS1	0.23***	----											
PACS2	0.00	0.21***	----										
PACS3	0.28***	0.39***	0.21***	----									
PACS4	0.23***	0.56***	0.29***	0.49***	----								
INTF1IC	0.26***	0.43***	0.19***	0.37***	0.48***	----							
INTF2IC	0.12**	0.27***	0.21***	0.21***	0.30***	0.44***	----						
INTF3IC	0.17***	0.30***	0.18***	0.24***	0.33***	0.52***	0.22***	----					
BDWeight	0.09*	0.25***	0.09*	0.13***	0.28***	0.25***	0.06	0.26***	----				
BdMuscle	0.08*	0.21***	0.12**	0.15***	0.25***	0.24***	0.05	0.22***	0.64***	----			
rRSE	0.13***	0.33***	0.14***	0.19***	0.30***	0.30***	0.10**	0.24***	0.41***	0.38***	----		
CDIln	0.15***	0.30***	0.10**	0.25***	0.30***	0.29***	0.10**	0.19***	0.39***	0.33***	0.63***	----	
BMI	0.04	0.16***	-0.02	-0.04	0.10**	0.12**	0.01	0.06	0.39***	0.13***	0.14***	0.16***	----

Note: *= $p< 0.05$; **= $p< 0.01$; ***= $p< 0.001$

6.8 Results: The Structural Level

6.8.1 Model Comparisons

The structural level of the SEM models was tested using the ML Boost estimator on Mplus with the variance-covariance matrix as input. The covariance matrix was assumed to be singular as the programme converged for each test. The two hypothesised models were tested with the total sample, and the comparative fit of Models 1 and 2 was assessed based on goodness-of-fit, the interpretation of parameter estimates, model parsimony, and the AIC.

A summary of goodness-of-fit for both models is presented in **Table 6.7**. According to the chosen fit criteria and cut-off values, the fit of Model 1 was adequate, while the fit of Model 2 was unsatisfactory. The S-Bχ^2 was significant for both models, which was expected due to the sample size. A larger ratio of S-Bχ^2/df was produced for Model 2, although both ratios were above three. The scaling correction factor for both models was >1.0, indicative of distributions deviating somewhat from normality, and of the suitability of the ML Boost estimator. The RMSEA and its 90% confidence interval for Model 1 was below 0.06 and the SRMR was below 0.08, both less than the cut-off values proposed for the combinational index reporting strategy, indicating that greater confidence can be placed in the interpretation of fit for this model (Hu & Bentler, 1999). Model 1 also passed the test of close fit, producing a probability value of $p=$ 0.19.

Conversely, Model 2 failed the test of close fit, producing a probability of $p<$ 0.001. Examination of the unstandardised and standardised parameter estimates revealed some problematic path coefficients, in particular, dangerously high coefficients for the pathways between sociocultural influences and problematic psychological functioning, and problematic psychological functioning and appearance schemas. The placement of problematic psychological functioning further back in the sequence in Model 2 produced specification errors and distorted the solution. This is likely due to the close associations often reported between sociocultural influences and appearance-related cognitive processing (e.g., Myers & Crowther, 2009; Wertheim & Paxton, 2011), and indicates that problematic psychological functioning does not play a mediating role.

The AIC is an index used for the purpose of model comparison, with the lowest value indicative of the best fitting model. The AIC induces a penalty of two for every parameter that is estimated, and, given two competing models the most parsimonious will be favoured. However, since both comparative models have the same *df*s, model parsimony is not an issue, and so the lower AIC for Model 1 is indicative of better goodness-of-fit (Kline, 2010). On the basis of

these considerations, Model 1 appears to be the most statistically acceptable and theoretically plausible model. However, although Model 1 produced adequate fit indices, diagnostic information was examined for possible repsecification to improve goodness-of-fit.

Table 6.7

Fit Indices for the Two Proposed Models, Modifications to Model 1, and the Application of Keery et al.'s (2004) Final Model

	MLMχ2(*df*), *p-value*	**CFI**	**TLI**	**AIC**	**RMSEA (90% CI)**	**SRMR**	**SCF**
Model 1	980.59 (312), $p< 0.001$	0.90	0.89	64327.24	0.05 (0.05, 0.06)	0.07	1.05
Model 2	1201.80 (312), $p< 0.001$	0.86	0.84	64558.79	0.06 (0.06, 0.06)	0.07	1.05
Model 1a (*add SCI → PPF*)	886.28 (311), $p< 0.001$	0.91	0.90	64229.67	0.05 (0.05, 0.05)	0.06	1.05
Model 1b (*remove INT → NBI*)	877.96 (312), $p< 0.001$	0.91	0.90	64220.68	0.05 (0.04, 0.05)	0.06	1.05
Model 1c (*remove COM → INT*)	877.74 (313), $p< 0.001$	0.91	0.90	64218.80	0.05 (0.04, 0.05)	0.06	1.05
Keery et al.'s (2004) Final Model	206.77 (59), $p< 0.001$	0.95	0.94	44104.93	0.06 (0.05, 0.07)	0.06	1.12

Note: SCI= Sociocultural Influences; PPF= Problematic Psychological Functioning; INT= Internalisation; NBI= Negative Body Image Evaluations; COM= Appearance Comparisons; CFI= Comparative Fit Index; TLI= Tucker Lewis Index; AIC= Akaike Information Criterion; RMSEA= Root Mean Square Error of Approximation; CI= Confidence Interval; SRMR= Standardised Root Mean Square Residual; SCF= Scaling Correction Factor

6.8.2 Respecification

Respecification is applied to an a priori model when there are theoretically and statistically justified modifications that can improve the structure of the model. The application of post hoc tests to a priori models undoubtedly warrants cautious action. It must be acknowledged that model respecification shifts the SEM analyses from a confirmatory approach to an exploratory approach (Byrne, 2009). In addition, the incorporation of parameters into a model must be theoretically verified to reduce the risk of a Type I error, or capitalisation on chance factors where acceptance of a modified model is due to sample characteristics rather than its ability to replicate across samples from the population (Hoyle, 2011).

Indicators for model respecification include MIs and standardised residuals. MIs represent the improvement in model fit and the estimated change in the parameter value if a specific parameter is freed for estimation in the model (Raykov & Marcoulides, 2000). In the examination of MIs, caution is again warranted. These often indicate the presence of correlated

uniquenesses or disturbances. Although in some cases this situation may be defensible, particularly in social psychological research where the presence of an additional factor may be implied, there must be good theoretical justification. Otherwise, these residuals may substantially influence primary parameters despite their practical meaningfulness being equivocal to the solution (Nachtigall et al., 2003). Standardised residuals can also indicate problematic aspects of the model as they represent the amount of variation between two observed variables that remains underexplained or overexplained (Raykov & Marcoulides, 2000).

MIs and standardised residuals for Model 1 were inspected to determine whether any theoretically plausible modifications could be made. In relation to the structural paths in the model there were two large MIs, corresponding to the paths from sociocultural influences to problematic psychological functioning (MI= 79.28), and from appearance schemas to problematic psychological functioning (MI= 74.84). The largest MI appears reasonable since it coincides with research indicating that exposure to appearance-related sociocultural influences is associated with higher levels of negative affect and lower levels of self-esteem in adolescents (e.g., McNicholas et al., 2009; Valkenburg et al., 2006). The inspection of the standardised residual matrix revealed four large positive residuals between two appearance schema indicators and problematic psychological functioning indicators and between sociocultural influence indicators and problematic psychological functioning indicators. These residuals suggest that the model considerably underexplains the associations between these variables and also correspond to the largest MIs. Adding one or both of these structural paths to the model may resolve the unexplained variance. Since the estimation of MIs is based on a univariate approach, any building or trimming of the model must be carried out one parameter at a time (Byrne, 2009). Each time a parameter is added or dropped the MIs can change, sometimes substantially. Thus, the parameter for the pathway from sociocultural influences to problematic psychological functioning was freed and the model was tested again. The outcomes from the respecification process are presented in **Table 6.7**.

On inspection, the respecified Model 1a appeared to produce a greater fit to the sample data. In order to indicate whether significant improvement was made to the fit of the model, the chi-square difference test is generally applied. When robust estimation is used, the difference values are not distributed as chi-square but such tests can be applied with the incorporation of a correction formula provided by Satorra and Bentler (2001, cf. Asparouhov & Muthén, 2006). The corrected chi-square difference test indicated that Model 1a was a significant improvement with the addition of this path (MLM$\Delta\chi^2_{(1)}$= 89.56, p< 0.001). Following this respecification, only one MI representing the structural paths in the model remained and its value was not

concerning. The respecification also reduced the large positive standardised residuals between problematic psychological functioning indicators and both the sociocultural influence and appearance schema indicators. A number of MI values remained that were related to covariances in the model; many represented suggested covariances of error terms between factors. It was decided that there was no acceptable theoretical reason to let these errors correlate, and it was not deemed appropriate to incorporate residual covariances exclusively on the basis of statistical grounds. They were likely attributable to random or systematic measurement error in item responses due to the similar format of the scales. MIs were also produced for pathways that ran counter to the postulated model. Although, some pathways may be legitimate, they were not of interest in the present study. Taking the improved fit of the model into account, with particular reference to the low RMSEA and SRMR values (0.05 and 0.06 respectively), and the lack of any substantial MIs, it was decided that further incorporation of parameters would lead to an overfitted model.

In reviewing the parameter estimates of Model 1a, two parameters were nonsignificant; the path from internalisation to negative body image evaluations, and the path from comparison to internalisation. In fact, the corresponding *p*-values indicated that they were contributing very little to the model (p= 0.57, 0.69). In the interest of model parsimony, these paths were deleted from the model. The corrected chi-square difference test was again applied to the resulting models following the elimination of each of these parameters, and the modifications either significantly improved, or did not impact, model fit (Model 1b: MLM$\Delta\chi^2_{(1)}$= 8.33, p< 0.001; Model 1c: MLM$\Delta\chi^2_{(1)}$= 0.16, p >0.05). The AIC for Model 1c also indicated a better fitting, more parsimonious model after these parameters were removed.

6.8.3 The Final Model

The goodness-of-fit of the final respecified Model 1c applied to the total sample is presented in **Table 6.7**. The scale corrected chi-square was not statistically significant, however, the test of exact fit is overly stringent for such a large model and sample size. The test of close fit produced a high probability value of p= 0.83, indicating that the model fit the data well. The ratio of S-Bχ^2/df was < 3.0 and appropriate. Goodness of fit was statistically better than the hypothesised Model 1, and values of fit statistics were acceptable and generally favourable. Moreover, the confidence interval for the RMSEA was very narrow further supporting the precision of the low RMSEA. Although the incremental fit indices were not as high as the revised cut-off recommended by Hu and Bentler (1999), they were adequate considering it was of importance to only modify the model when theoretically justified. In order to maintain a

balance of a well-fitted yet parsimonious model that makes conceptual sense, Model 1c was chosen to represent the sample data.

6.8.3.1 Statistically Significant Relationships within Model 1c

The parameter estimates for the path coefficients can be interpreted as regression coefficients, assuming direct association from variables leading to the corresponding endogenous variable (Kline, 2010). **Table 6.8** presents the ML estimates for Model 1c for the total sample, and for the boys and girls. All parameter estimates in the model for the total sample were feasible and statistically significant. The signs and magnitude of parameter estimates appeared consistent with the underlying theory. Sociocultural influences were strongly predictive of the three cognitive processes with low corresponding standard errors, particularly for the pathways from sociocultural influences to appearance comparisons and appearance schemas. This is likely due to the high correlations previously noted between these latents and the significance of these pathways may be inflated as a consequence (Byrne, 2012). Moreover, the standard error for the pathway from appearance schemas to negative body image evaluations is quite large in comparison to the standard errors for the other pathways, indicating that the interpretation of the appearance schemas latent also warrants caution. Although the SRMR index provides a summary, the pattern of residuals was inspected to provide more diagnostic information on model fit. The matrix of standardised residuals produced a small number of residuals >3.0 indicating some minor localised problems. The locations of these residuals indicated that they represented error covariances between reverse-scored items or items that tapped similar processes (e.g., between reverse-scored items in the CAS, and between the one item that reflects comparison processes in the CAS and items from the PACS). The measurement issues arising from the choice of assessments representing the constructs in the model may help to understand why the respecification of the model did not adequately estimate these relationships to produce a better fit for the sample data (see **Chapter 7, Section 7.4.2**).

6.8.3.2 Model 1c for the Total Sample

Figure 6.3 shows the standardised solution scores for the various pathways within Model 1c specified and estimated for the total sample. There was a significant pathway from BMI to negative body image evaluations (β= 0.38, p< 0.001), with those having a higher BMI more likely to evaluate their bodies negatively. The negative significant pathway from pubertal development to negative body image evaluations (β= -0.13, p< 0.01) did not support the hypothesised relationship for girls, but did support the negative relationship hypothesised for boys. Sociocultural influences had positive and significant associations with appearance schemas, appearance comparisons and internalisation. Thus, participants who perceived higher levels of influence from the sociocultural environment were also more likely to experience

higher levels of cognitive processes related to appearance. There was also a direct path from sociocultural influences to problematic psychological functioning (β= 0.46, p< 0.001), with influences from the appearance culture associated with detrimental psychological functioning. The path from appearance schemas to negative body image evaluations was significant (β= 0.17, p< 0.01), with those highly schematic more likely to evaluate their bodies in a negative fashion. The tendency to compare one's appearance with others' also had a significant direct effect on negative body image evaluations (β= 0.21, p< 0.001). Finally, negative body image evaluations had a significant effect on problematic psychological functioning (β= 0.37, p< 0.001). The squared multiple correlation (SMC, denoted as R^2) represents the proportion of variance in the endogenous variable that is accounted for by the variables that lead to it (Byrne, 2009). The model accounted for 27% of the variance in negative body image evaluations, and 44% of the variance in problematic psychological functioning.

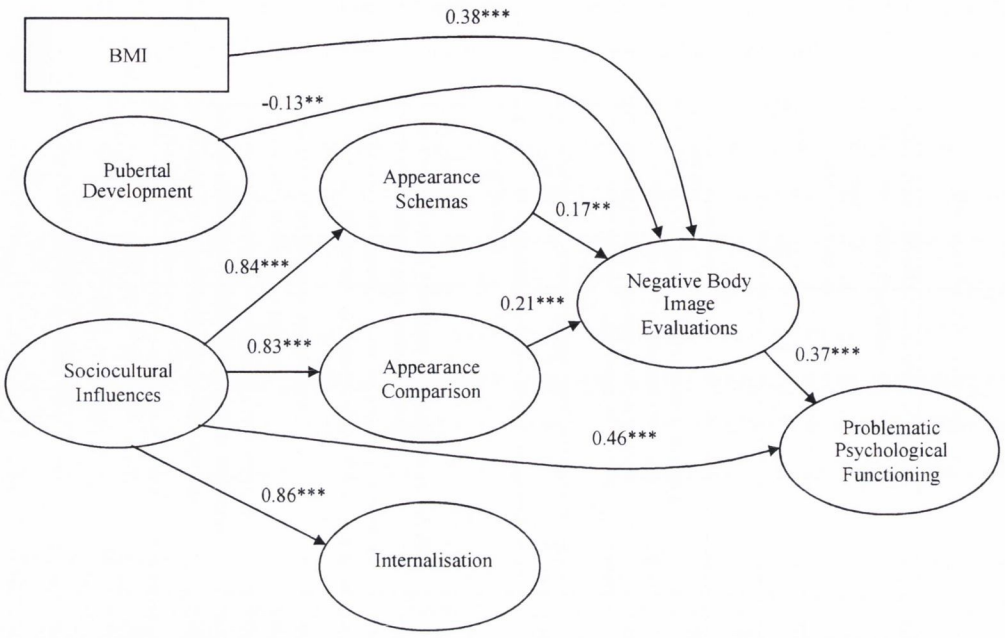
In addition to direct effects, indirect effects were also examined to permit full consideration of the associations between variables in the model (see **Table 6.8**). Indirect effects represent how a variable can influence an endogenous variable indirectly through its direct path to one or more intervening variables that have a direct association with the endogenous variable. The influence of prior variables is expected to transfer onto subsequent variables through the intervening variables (Kline, 2010). The standardised indirect effects of sociocultural influences on negative body image evaluations via both appearance schemas and appearance comparisons were significant (β= 0.10, p< 0.01 and β= 0.18, p< 0.001, respectively). Thus, sociocultural influences have a significant direct effect on both appearance schemas and appearance comparisons, and a significant part of these effects is transmitted to negative body image evaluations. An indirect impact was also observed between sociocultural influences and problematic psychological functioning via appearance schemas and negative body image evaluations (β= 0.05, p< 0.01), and via appearance comparisons and negative body image evaluations (β= 0.06, p< 0.01). Overall, Model 1c has acceptable fit for the total sample at a global and diagnostic level.

Table 6.8

Standardised and Unstandardised Regression Weights (with Standard Errors) for the Structural Paths, and Values of R^2_{SMC} *for the Endogenous Variables in Model 1c.*

Variables	Total (n= 786)			Males (n= 403)			Females (n= 383)		
	β	B	SE	β	B	SE	β	B	SE
Direct Influences									
Body Mass Index → Negative Body Image Evaluations	0.38***	0.33	0.03	0.32***	0.40	0.04	0.38***	0.29	0.03
Pubertal Development → Negative Body Image Evaluations	-0.13**	-1.14	0.30	-0.16***	-1.61	0.34	-0.01	-0.10	0.51
Sociocultural Influences → Appearance Comparisons	0.83***	0.15	0.01	0.76***	0.12	0.01	0.87***	0.15	0.01
Sociocultural Influences → Schemas	0.84***	0.07	0.01	0.80***	0.08	0.01	0.86***	0.06	0.01
Sociocultural Influences → Internalisation	0.86***	1.05	0.05	0.84***	0.96	0.07	0.86***	1.07	0.06
Sociocultural Influences → Problematic Psychological Functioning	0.46***	0.40	0.04	0.39***	0.35	0.06	0.55***	0.46	0.05
Appearance Comparisons → Negative Body Image Evaluations	0.21***	0.93	0.26	0.08	0.58	0.36	0.34***	1.34	0.39
Schemas → Negative Body Image Evaluations	0.17**	1.58	0.57	0.19**	1.64	0.57	0.09	0.96	0.10
Negative Body Image Evaluations → Problematic Psychological Functioning	0.37***	0.41	0.04	0.21***	0.17	0.05	0.35***	0.42	0.06
Indirect Influences									
Sociocultural Influences → Negative Body Image Evaluations *via* Schemas	0.10**	0.09	0.03	0.14**	0.11	0.04	0.08	0.06	0.06
Sociocultural Influences → Negative Body Image Evaluations *via* Appearance Comparison	0.18***	0.14	0.04	0.06	0.07	0.04	0.29**	0.21	0.06
Sociocultural Influences → Problematic Psychological Functioning *via* Negative Body Image Evaluations *and* Schemas	0.05**	0.05	0.02	0.07	0.08	0.04	0.03	0.02	0.03
Sociocultural Influences → Problematic Psychological Functioning *via* Negative Body Image Evaluations *and* Appearance Comparisons	0.06**	0.06	0.02	0.01	0.01	0.01	0.10**	0.09	0.03
	R2	**SE**	***p*-value**	**R2**	**SE**	***p*-value**	**R2**	**SE**	***p*-value**
R2									
Schemas	0.71	0.03	$p< 0.001$	0.65	0.04	$p< 0.001$	0.74	0.04	$p< 0.001$
Appearance Comparisons	0.69	0.04	$p< 0.001$	0.57	0.05	$p< 0.001$	0.75	0.05	$p< 0.001$
Internalisation	0.75	0.04	$p< 0.001$	0.70	0.05	$p< 0.001$	0.73	0.05	$p< 0.001$
Negative Body Image Evaluations	0.27	0.03	$p< 0.001$	0.14	0.04	$p< 0.001$	0.31	0.05	$p< 0.001$
Problematic Psychological Functioning	0.44	0.04	$p< 0.001$	0.21	0.05	$p< 0.001$	0.56	0.05	$p< 0.001$

Note: **= $p< 0.01$; ***= $p< 0.001$



Note: ***= $p<0.001$; **= $p<0.01$

For clarity, reflective indicators for latent constructs are not shown

Figure 6.3. Final model testing among the total sample (n= 786), standardised coefficients for Model 1c, and correlates of negative body image evaluations and problematic psychological functioning.

In order to determine the usefulness of the expanded theoretical model, Model 1c was compared with Keery and colleagues' (2004) final model. However, this model contained three outcome variables, problematic psychological functioning, restriction and bulimia, and since the latter two constructs were not examined in the present research, only a partial version of the model could be compared. The partial model proposes that sociocultural influences lead to two cognitive processes, appearance comparison and internalisation. Comparison has direct pathways to both internalisation and negative body image evaluations, and internalisation has a direct effect on negative body image evaluations. Finally, negative body image evaluation is directly associated with problematic psychological functioning. The test of the model suggested that it was a good fit to the sample data, but overall not as favourable as Model 1c (see **Table 6.7**). Despite higher incremental fit indices, the ratio of S-Bχ^2/df was >3, and absolute fit indices, although acceptable, were higher than those for Model 1c. Nevertheless, the AIC was much lower in comparison to Model 1c. However, since more complex models withstand greater chance of rejection resulting in more precise estimation, Model 1c was the stronger

candidate for consideration (Raykov & Marcoulides, 2000). From the four common structural pathways, the effect sizes were stronger for the pathways from sociocultural influences to appearance comparison and internalisation for Model 1c. On the other hand, the pathways from appearance comparison to negative body image evaluations and from negative body image evaluations to problematic psychological functioning were weaker in Model 1c. Then again, the weaker effects in Model 1c are likely attributable to the additional pathways sharing the variance. Furthermore, the variances explained (R^2) for negative body image evaluations and problematic psychological functioning produced with Keery and colleagues' (2004) model were lower than those for Model 1c (23% and 42% respectively). On the whole, the incorporation of pubertal development, BMI, and appearance schema constructs provided additional explanatory power, and a preferable fit overall to the sample data.

6.8.4 Gender-Specific Models

Model 1c was tested separately for both boys and girls to determine whether pathways varied as a function of gender. Maximum likelihood estimates are presented in **Table 6.8**.

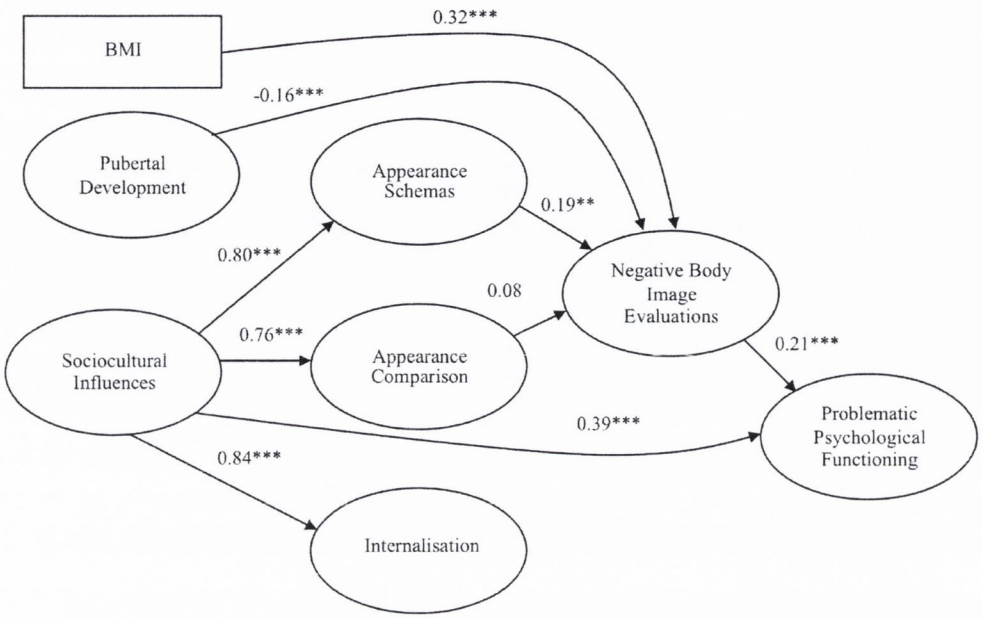
6.8.4.1 Model 1c for Boys

For the boys, the model provided an adequate fit to the data. Again the scale corrected chi-square was not statistically significant (MLM$\chi^2_{(313)}$ = 650.20, p> 0.001), however, the ratio of degrees of freedom to the S-Bχ^2 was 2.08. Values of incremental fit indices were promising but did not reach acceptable standards (CFI= 0.88, TLI= 0.87). Absolute fit indices were satisfactory (RMSEA= 0.05, 90% CI: 0.05, 0.06; SRMR= 0.06), and the test of close fit was not rejected (p= 0.32). The parameter estimates were all feasible and signs corresponded with predictions. The standard errors followed a similar pattern as those that emerged with the total sample, indicating that once again the pathway from appearance schemas to negative body image evaluations must be interpreted with care. Inspection of the standardised residuals showed three residuals > 3.0. The residuals indicated that the model under-predicted the association between BMI, problematic psychological functioning and negative body image evaluation indicators.

BMI had a significant positive association (β= 0.32, p< 0.001) with negative body image evaluations. Pubertal development had a significant negative direct effect on negative body image evaluations (β= -0.16, p< 0.001) corresponding with hypothesised relationships. The pathways from sociocultural influences to appearance schemas, appearance comparisons and internalisation were all positive and significant, with boys' who perceive high levels of sociocultural influences related to appearance more likely to experience higher levels of related cognitive processes. The direct path from sociocultural influences to problematic psychological

functioning was also significant (β= 0.39, p< 0.001), with such influences associated with detrimental psychological functioning. The path from schemas to negative body image evaluations was significant (β= 0.19, p< 0.01), with boys who are highly appearance schematic more likely to be dissatisfied with their bodies. The pathway from appearance comparison to negative body image evaluations did not reach significance (β= 0.08, p> 0.05), indicating that this process is not directly associated with body dissatisfaction for the boys. Additionally, a direct positive association emerged between negative body image evaluations and problematic psychological functioning (β= 0.21, p< 0.001). The model accounted for 14% of the variance for negative body image evaluations and 21% of the variance for problematic psychological functioning (**Figure 6.4**).

Following the total sample, indirect effects of sociocultural influences on negative body image evaluations and problematic psychological functioning were examined. The indirect impact of sociocultural influences on negative body image evaluations via appearance schemas was significant (β= 0.14, p< 0.01). However the indirect effects of sociocultural influences on negative body image evaluations and problematic psychological functioning via appearance comparisons were not significant. This was to be expected due to the insignificant direct effect noted earlier for the pathway from appearance comparisons to negative body image evaluations for boys. Additionally, the indirect effect from sociocultural influences to problematic psychological functioning also failed to reach significance via appearance schemas. Thus, in terms of indirect effects for the boys, sociocultural influences had a significant direct effect on appearance schemas, and part of this effect was transmitted to negative body image evaluations but not to problematic psychological functioning.



Note: ***= $p<0.001$; **= $p<0.01$

For clarity, reflective indicators for latent constructs are not shown

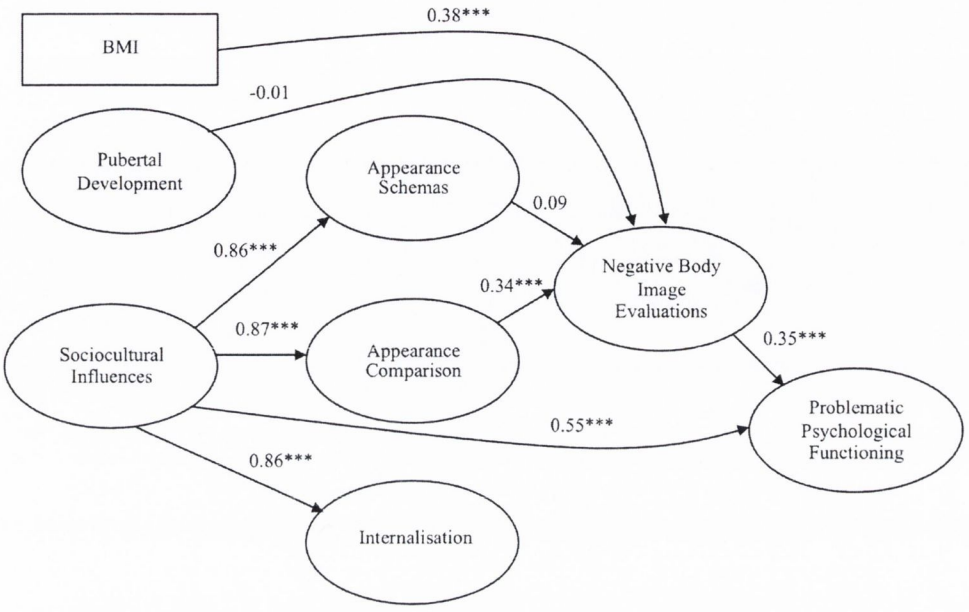
Figure 6.4. Final model testing among the boys (n=403), standardised coefficients for Model 1c, and correlates of negative body image evaluations and problematic psychological functioning.

6.8.4.2 Model 1c for Girls

Goodness-of-fit for Model 1c was much improved when applied to the female sample. Despite the nonsignificance of the scale corrected chi-square (MLM$\chi^2_{(313)}$ = 565.64, p> 0.001), the ratio of degrees of freedom to the S-Bχ^2 was 1.81. Both incremental and absolute fit indices were acceptable (CFI= 0.93; TLI= 0.92; RMSEA= 0.05, CI: 0.04, 0.05; SRMR= 0.06), and the close fit test produced a p-value of 0.88. Globally, the model fit the female sample well. Diagnostically, parameter estimates all exhibited the correct sign and size. The large standard error for the pathway from appearance schemas to negative body image evaluations that was observed with the total sample and the boys was greatly reduced, indicating that the parameter was estimated with more precision for the female sample. This implies that the measure of appearance schemas may not have been transferable to males. Only two residuals > 3.0 were observed and both were between reverse-scored items assessing appearance schemas.

There was a significant direct pathway from BMI to negative body image evaluations (β= 0.38, p< 0.001). Interestingly, and inconsistent with the pattern found for the total sample and the boys, there was no statistically significant direct path from pubertal development to negative body image evaluations (β= -0.01, p >0.05). This finding did not correspond to predictions but indicates that the negative path found with the total sample was predominantly reflecting the effect from the boys. In accordance with the total sample and the boys, the pathways from sociocultural influences to appearance schemas, appearance comparisons and internalisation were all positive and significant, with the endorsement of the appearance culture associated with higher levels of appearance-related cognitive processing for girls. A strong and positive direct effect was observed between sociocultural influences and problematic psychological functioning (β= 0.55, p< 0.001), indicating that sociocultural influences are strongly associated with dysfunctional psychological functioning for girls. The path from appearance schemas to negative body image evaluations was not significant (β= 0.09, p >0.05) while the pathway from appearance comparison to negative body image evaluations did reach statistical significance (β= 0.34, p< 0.001). Thus, for the girls, the cognitive process of comparing one's appearance to others' was directly associated with body dissatisfaction while the importance of one's appearance was not. Furthermore, a moderate positive association emerged between negative body image evaluations and problematic psychological functioning (β= 0.35, p< 0.001). The model (as shown in **Figure 6.5**) accounted for 31% of the variance in negative body image evaluations and 56% of the variance in problematic psychological functioning.

As the direct pathway from appearance schemas to negative body image evaluations failed to reach significance, so too did the indirect effect of sociocultural influences on negative body image evaluations and problematic psychological functioning via schemas (see **Table 6.8**). On the other hand, the indirect effect of sociocultural influences on negative body image evaluations and problematic psychological functioning via appearance comparisons was significant (β= 0.29, p< 0.01 and β= 0.10, p< 0.01, respectively). For the girls, sociocultural influences had a significant direct effect on appearance comparisons, part of this effect was transmitted to negative body image evaluations, and part of this was further transmitted to problematic psychological functioning.



Note: ***= $p<0.001$

For clarity, reflective indicators for latent constructs are not shown

Figure 6.5. Final model testing among the girls (n= 383), standardised coefficients for Model 1c, and correlates of negative body image evaluations and problematic psychological functioning.

6.8.4.3 Comparison of the Final Model across Samples

In the application of Model 1c to the total sample, both appearance schemas and appearance comparison had significant pathways to negative body image evaluations. However, these pathways were not significantly consistent in the gender-based models. In the boys' model, only appearance schemas had a significant direct pathway to negative body image evaluations, whereas, in the girls' model, only appearance comparisons had a significant direct pathway to negative body image evaluations. These differences also transpired when indirect effects were explored between sociocultural influences and negative body image evaluations and problematic psychological functioning via these cognitive processes. Furthermore, for the total sample and the boys, pubertal development had a significant negative pathway to negative body image evaluations while no significant pathway emerged with the girls. The many similarities across gender subsamples must also be noted. Moderate to strong significant pathways were found between: i) sociocultural influences and the three cognitive processing constructs; ii) BMI and negative body image evaluations; iii) sociocultural influences and problematic

psychological functioning; and iv) negative body image evaluations and problematic psychological functioning.

6.8.5 Invariance Testing across Gender

Multigroup analysis was employed in order to further examine whether the factorial structure of the measurement model and pathways in the specified model structure were operating equivalently across gender. The invariance testing strategy involves a series of hierarchical steps. Once a well-established baseline model has been determined for each group, a multigroup version of this baseline model is then tested with no equality constraints imposed, termed the *configural model* (Byrne, 2012). The configural model provides parameters for all groups simultaneously and is the baseline for comparisons of all successive restricted models. Tests of equivalence are then run in a logical order, generally beginning with the measurement model before moving on to the structural model. The chi-square difference test plays an important role in invariance testing as the procedure involves the comparison of nested models. A significant difference in model fit between the configural model and subsequent models in which equality constraints have been posed is used as evidence to argue for noninvariance across groups (Byrne, 2012). This difference value is distributed as chi-square, and since a scale corrected chi-square does not follow the same distribution, the corrected chi-square difference test can be applied. The CFI difference test can also be used as an alternative approach, where noninvariance is evident when the difference in CFI values between the configural model and subsequent constrained model is > 0.01 (Cheung & Rensvold, 2002).

6.8.5.1 Invariance Testing at the Measurement Level

Summary statistics for the invariance testing procedure are presented in **Table 6.9**. Multigroup analysis was applied to the original CFA model to produce a configural model from which to base tests of invariance at the measurement level. Although the configural model was similarly specified for boys and girls this does not mean that the underlying theoretical structure and item measurement is equivalent, as the operation of measurement tools and assessments often differ across gender (Byrne, 2004). At this level of invariance testing, it was of interest to determine whether the seven-factor measurement model was operating equivalently for boys and girls with respect to the pattern of factor loadings and the factor covariances. Firstly, the fully constrained measurement model was tested against the configural model. The corrected chi-square difference value was statistically significant and the difference in CFI values was above the cut-off point, indicating that one or more factor loadings were not operating equivalently across groups. The next step involved determining which factor loadings were contributing towards the noninvariant findings using MIs related to the factor loadings. Tests were conducted in a sequence by freeing the parameters one at a time, as indicated by the MIs. These parameters

included the factor loadings of one indicator from each of the internalisation, appearance schemas, and pubertal development latents. With these three parameters freed, model fit was much improved and did not differ significantly from the configural model. This model then became the measurement model used in testing for invariance at the structural level with the three noninvariant parameters freed for estimation (Model 1.3).

6.8.5.2 Invariance Testing at the Structural Level

Using Model 1c as the baseline model that fit the data in the most parsimonious and meaningful manner, the configural model was estimated (Model 1.4). The model yielded an acceptable fit overall: MLM$\chi^2_{(642)}$ = 1190.65, p< 0.001 (scaling correction factor = 1.05); CFI= 0.91; TLI= 0.90; RMSEA= 0.05 (90% CI: 0.04, 0.05); SRMR= 0.06. Following this, a fully constrained path model was tested (Model 1.5). Although model fit remained acceptable (MLM$\chi^2_{(651)}$= 1216.83, p< 0.001; CFI= 0.91; TLI= 0.90; RMSEA= 0.05; SRMR= 0.06), the corrected chi-square difference test determined that the constrained model significantly differed from the configural model.

Accordingly, based on the MIs, one structural path was freed at a time and the model was compared against the configural model in a stepwise manner. The largest MI relevant to the structural paths emerged between sociocultural influences and problematic psychological functioning (MI= 12.72 for males, 12.62 for females), and so the constraint was lifted from this parameter and the resulting model (Model 1.6) was compared with the configural model. Since the increase in MLMχ^2 was significant, the MIs were further reviewed and the equality restraint on the pathway from pubertal development to negative body image evaluations was relaxed based on the highest MI relevant to the structural paths in the model (MI= 8.52 for males and females). The resulting model (Model 1.7) did not differ significantly from the configural model. Relaxing the equality constraints on the paths from sociocultural influences to problematic psychological functioning and from pubertal development to negative body image evaluations, while constraining all other pathways to be equal, produced a model that did not differ significantly from the configural model. Thus, results indicate that these two associations were not operating equivalently across gender.

Table 6.9

Summary Statistics for Tested Models in the Multigroup Analysis

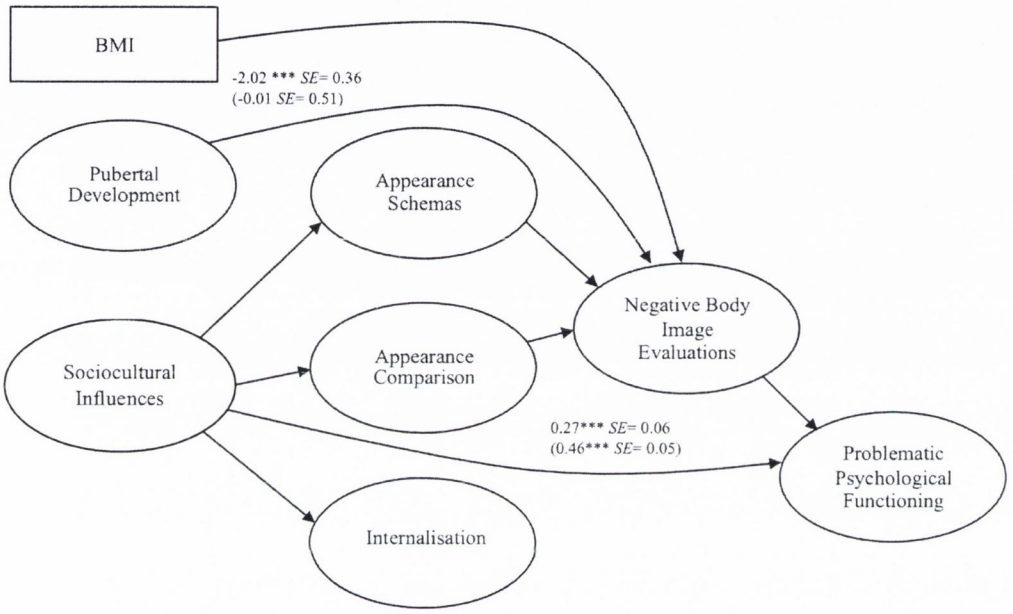
Model	Parameter	MLMχ2(*df*), *p*-value	CFI	ΔMLMχ2 (*df*), *p*-value	ΔCFI
1.1	All covariances and factor loadings in the measurement model are freely estimated	958.29 (556), $p< 0.001$	0.93		
1.2	All covariances and factor loadings in the measurement model are constrained to be equal	1049.25 (575), $p< 0.001$	0.92	90.96 (19), $p< 0.001$	0.01
1.3	All covariances and factor loadings in the measurement model are constrained to be equal except INTF2IC, ASM8, and PDS5 are freely estimated	981.11 (572), $p< 0.001$	0.93	22.34 (16), $p> 0.05$	0.00
1.4	All path coefficients in the structural model are freely estimated	1190.65 (642), $p< 0.001$	0.91		
1.5	All path coefficients in the structural model are constrained to be equal	1216.83 (651), $p< 0.001$	0.91	24.86 (9), $p< 0.01$	0.00
1.6	Model 1.5 with sociocultural influences → problematic psychological functioning freely estimated	1208.96 (650), $p< 0.001$	0.91	17.39 (8), $p< 0.05$	0.00
1.7	Model 1.6 with pubertal development → negative body image evaluations freely estimated	1200.26 (649), $p< 0.001$	0.91	9.12 (7), $p> 0.05$	0.00

Note: Only summary statistics for paths coefficients that significantly differed across gender are presented

6.8.5.3 Final SEM Multigroup Model

The final gender comparison model with the aforementioned parameters freed at both measurement and structural levels produced an acceptable fit to the sample data with MLM $\chi^2_{(649)}= 1200.26$, $p< 0.001$(scaling correction factor = 1.05); CFI= 0.91; TLI= 0.90; RMSEA= 0.05 (90% CI: 0.04, 0.05); SRMR= 0.06. This model demonstrated significant improvement over the fully constrained model (MLM$\Delta\chi^2_{(2)}= 15.74$, $p< 0.001$; ΔCFI< 0.01). Model 1.7 with unstandardised and standardised parameter estimates for the structural paths that operated differently across gender is shown in **Figure 6.6**. Only the unstandardised estimates are constrained in tests for invariance, leaving the corresponding standardised estimates unequal (Kline, 2010). Thus, unstandardised estimates are also presented, as they are generally more appropriate for comparisons across groups. First, the direct effect between sociocultural influences and problematic psychological functioning, although significant across gender, was

much higher for girls (B= 0.46, β= 0.54, SE= 0.05, p< 0.001) than for boys (B= 0.27, β= 0.30, SE= 0.06, p< 0.001). Secondly, there was a gender difference in the path from pubertal development to negative body image evaluations. Here the path coefficients were significant for boys indicating a negative correlation (B= -2.02, β= -0.28, SE= 0.36, p< 0.001), but nonsignificant for girls (B= -0.01, β= -0.01, SE= 0.51, p> 0.05).



Note: ***= p<0.001*

The estimates for the girls are shown in parentheses.

For clarity, reflective indicators for latent constructs are not shown

Figure 6.6. Final Multigroup Model for Males and Females (Model 1.7)

6.9 Interpretation

6.9.1 Acknowledgment of Equivalent Models

SEM analysis provides the means for testing theoretical models and produces evidence against rejection of the chosen model, but it is also important to acknowledge the presence of equivalent models. Although the present research tested two competing equivalent models and chose the most favourable, there are likely many more equally plausible equivalent or near-equivalent models that could be generated. An equivalent model produces equal fit statistics but contains a different configuration of specified associations between variables in the model, such as reversed directional paths (Hoyle, 2011).

For example, although the chosen model placed problematic psychological functioning as the outcome variable, it is also plausible that problematic psychological functioning is situated at the very beginning of the sequence. The competing Model 2 placed it further back in the sequence and did not produce good fit but this may be because it was postulated to intervene between sociocultural influences and the three cognitive processing constructs. In accordance with Cash's (1996) model of historical and proximal influences, where historical and proximal issues are separated, problematic psychological functioning may be conceptualised as a dispositional attribute, previously developed and maintained by the sequence of influencing factors. In this case, a near-equivalent model could be specified, with the problematic psychological functioning construct placed as an exogenous variable alongside BMI and pubertal development, all leading to sociocultural influences. Sociocultural influences could, as before, lead to the three cognitive processes, which in turn, have direct associations with negative body image evaluations. Future research is needed to address the credibility of this and other equivalent or near-equivalent models. At this stage, the final model generated in the present research was deemed preferable, due to its strong theoretical underpinnings and the high statistical power generated from the SEM analysis to successfully identify model fit (Kline, 2010).

6.9.2 Cross-Validation of the Final Model

One approach to increase the credibility and stability of a specified model in the face of the inevitable presence of equivalent or near-equivalent models is to apply a cross-validation procedure. Cross-validation also relieves some of the issues involved in model respecification, such as the increased chance of Type I errors, through the confirmation of a model's good fit with validation samples from the same population (Jackson et al., 2009).

The ability to cross-validate with independent samples is hindered by the requirement of large sample sizes for SEM analyses. Consequently, a popular method of cross-validation involves testing the model with randomly selected split-halves of the data (e.g., Neumark-Sztainer et al., 2003). An invariance-testing procedure can be applied where one random half of the data becomes the calibration sample and the other half becomes the validation sample, both representative of the same population. The model is first confirmed with the calibration sample and then multigroup analysis is used to test the validity of its structure by determining whether the model is operating equivalently with the validation sample (Byrne, 2012).

The goodness-of-fit statistics for the cross-validation tests are reported in **Table 6.10**. When tests were conducted separately, goodness-of-fit for the calibration sample (n= 393) was slightly better than it was for the validation sample (n= 393). However, in the multigroup analysis, using

the adjusted chi-square difference test, the replication of the model across samples was confirmed.

Table 6.10

Summary Statistics for the Tested Models in the Cross-Validation Invariance Testing Procedure

Model	MLMχ2(*df*), *p*-value	CFI	TLI	AIC	RMSEA (90% CI)	SRMR	ΔMLMχ2(*df*), *p*-value
Calibration sample	576.63 (313), $p< 0.001$	0.92	0.91	31982.32	0.05 (0.04, 0.05)	0.06	
Validation sample	641.05 (313), $p< 0.001$	0.91	0.90	32003.91	0.05 (0.05, 0.06)	0.06	
Multigroup configural	1141.55 (626), $p< 0.001$	0.92	0.91	68283.14	0.05 (0.04, 0.05)	0.05	
Multigroup constrained	1166.52 (654), $p< 0.001$	0.92	0.91	68250.50	0.05 (0.04, 0.05)	0.06	42.23 (34), $p>0.05$

Note: CFI= Comparative Fit Index; TLI= Tucker Lewis Index; AIC= Akaike Information Criterion; RMSEA= Root Mean Square Error of Approximation; CI= Confidence Interval; SRMR= Standardised Root Mean Square Residual.

6.10 In Summary

From a comparative test of two competing a priori models, the most promising was chosen. After a small number of justified modifications, the chosen model was respecified to produce a conceptually meaningful and parsimonious final model. When tested with the total sample, BMI and pubertal development had significant direct effects on negative body image evaluations. Sociocultural influences had significant direct effects on the three cognitive processes, appearance schemas, appearance comparison, and internalisation. In turn appearance schemas and appearance comparison were directly associated with negative body image evaluations. Furthermore, sociocultural influences and negative body image evaluations both had significant associations with problematic psychological functioning.

When the final model was tested on boys and girls separately, some important gender differences were noted. The pathways from pubertal development and appearance schemas to negative body image evaluations were significant for boys but not girls. The pathway from appearance comparison to negative body image evaluations was significant for girls but not boys. Multigroup analysis produced a model where the pathway from pubertal development to negative body image evaluations differed across gender, as expected. Interestingly, so too did the pathway from sociocultural influences to problematic psychological functioning, despite the significance of the pathway when the model was tested separately across gender.

No definitive conclusions regarding the present research can be made at this point, but since the aim of the SEM analysis was to test and generate a model based on multiple criteria that fits well enough to provide a useful approximation of body image influences for the population, reasonable explanations for the trends in the data can be provided. A summary of the findings, their relation to previous research, and their implications for theory and practice will be provided in the following chapter.

Chapter 7. Discussion

7.1 Aim of the Chapter

This chapter aims to provide a summary of the key findings from the present research and discuss their significance in relation to the literature base and the adopted theoretical frameworks. The strengths and limitations of the research will then be discussed, followed by the implications of the research for health initiatives and programme development. Finally, avenues for future research in the field of study will be identified.

7.2 Aims and Objectives of the Current Research

This research was concerned with furthering our understanding of the aetiology of negative body image evaluations for young adolescents, and to further explain the pattern of multiple and interactive influencing factors. Specifically, the primary aim of the research was to test two competing aetiological models, which represented expanded versions of Keery and colleagues' (2004) adaptation of the tripartite influence model (Thompson, Heinberg, et al., 1999). The models focused on the outcomes of negative evaluative body image and problematic psychological functioning, provided an ecological account of sociocultural influences, and incorporated three additional influencing factors informed by cognitive-behavioural perspectives and the research base: BMI, pubertal development, and appearance schemas.

As discussed in **Chapter 2**, the tripartite influence model has provided a useful conceptual framework for understanding the complex interplay of risk factors for negative body image evaluations, and the inclusion of mediating cognitive processing variables has offered promising explanations to account for varying levels of vulnerability to sociocultural influences. Furthermore, Keery and colleagues' (2004) adolescent adaptation of the model appears applicable across gender for adolescents. However like many sociocultural models, this model was developed with, and has been largely applied to, female samples focusing on the thin ideal body (Hargreaves & Tiggemann, 2006). Consequently, the explanatory power of these models has been much greater for females, albeit remain moderate at best (Jones et al., 2004). The failure to include key constructs relevant to both males and females and methodological issues are likely to be partly responsible.

Keery et al.'s (2004) model and previous applications of the tripartite influence model have largely overlooked individual-level factors relating to physical characteristics (e.g., Smolak et al., 2005). Thus, in order to acknowledge the important role of normative developmental stressors that are experienced in early adolescence, the physical characteristics of body weight

and pubertal development were included in the model. Gender comparisons of the associations between these physical characteristics and negative body image evaluations were of interest considering the notable patterns found in the literature, and the importance of these physical attributes proposed in cognitive-behavioural perspectives (Cash, 2002). Body weight in the form of BMI has shown direct associations with negative body image evaluations (Jones et al., 2004; Lawler & Nixon, 2011), and these associations have been positive for females and both positive and negative for males (Jones & Crawford, 2006; Wojtowicz & von Ranson, 2012). Associations with body image evaluations generally coincide with the normative deviation from societal portrayals of the ideal body, most often seen in postpubescent girls and prepubescent boys (McNicholas et al., 2012). Since early adolescence is characterised by the advent of puberty and girls generally begin the process before boys, the variation in pubertal timing and its associated effects called for the inclusion of pubertal development in aetiological models applied to young adolescents. Furthermore, in accordance with the key role played by appearance schemas in the cognitive-behavioural perspective (Cash, 2005), and the proposed differential use of this mechanism across gender (Agliata & Tantleff-Dunn, 2004), this construct was added to the two cognitive processing variables in Keery and colleagues' (2004) integrative model. The aim was to provide a greater understanding of the role of each of these processes across gender, as no studies thus far have incorporated three forms of appearance-related cognitive processing within the same sociocultural model.

Mixed support has emerged for many of the widely researched risk factors for boys and girls (e.g., Paxton et al., 2006; Tiggemann, 2006). However, comparisons across studies have been difficult due to methodological differences. One such difference refers to the measurement of sociocultural influences. Brief measurement and narrow stimulus sampling has limited the ability to make appropriate comparisons across studies (Kazdin, 2003), and to determine the relevant forms of influence experienced by adolescents in the sociocultural environment (Ricciardelli & McCabe, 2003a; Keery et al., 2004). Hence, the sociocultural influence construct in this study's model was represented by a reflection of the common perceptions of, and influential processes occurring within, the current Irish appearance culture that shape thoughts and feelings concerning appearance. The intention was to provide a more representative account of sociocultural influences by devising and utilising an ecologically valid assessment of the appearance culture. Bronfenbrenner's (2005) bioecological model has not been previously adopted to explain the complex interplay of sociocultural factors related to body image. The present research is novel in its partial application of the bioecological model, and in attempting to capture the essence of sociocultural influences through an exploration of the current appearance culture in early adolescence. In particular, the research was innovative in exploring the interactive nature of influences stemming from both distal and proximal

environments, and the impact of celebrity role models and online media.

The present research went beyond existing studies by incorporating a comprehensive set of identified physical, social, and psychological influencing variables, related cognitive processing, and a reflection of the current appearance culture into an integrative model based on the tripartite influence model framework. The moderating variable of gender was also investigated to determine how the pattern of influences differentially operates for boys and girls. Many applications of theoretical models have focused on males or females only (e.g., Shroff & Thomspon, 2006; Smolak et al., 2005), failing to consider this important moderating factor. Accordingly, the measures used were gender-appropriate and generally applied to perceptions of the ideal body, whether this ideal represented ultra-thinness or hyper-muscularity. These approaches accounted for variations in bodily concerns that have been reported both within and between gender subgroups (Field et al., 2005), and permitted gender comparisons and a gendered multigroup analysis of the aetiological model to explore the diverse body-image experiences that emerge as a result (Lyu & Gill, 2012). This comprehensive study on adolescent males and females provides a unique contribution to the international literature base and a timely and necessary account of body image issues in young Irish adolescents (McNicholas et al., 2009), considering the recently noted prevalence rates of body dissatisfaction in this country (e.g., O'Connell & Martin, 2012).

7.3 Summary of Key Findings

7.3.1 Phase One

The purpose of Phase One was to develop and validate a measure of the appearance culture for young adolescents. This section discusses the findings from the mixed methods approach adopted here, and how the predetermined aims and objectives were fulfilled.

In the study of sociocultural influences related to body image, the literature thus far has been predominantly quantitative (Grogan & Richards, 2002), and although qualitative studies have been conducted with adolescent males and females, none have exclusively focused on influencing factors from the sociocultural environment. The current research base has provided valuable findings concerning sociocultural influences as was evidenced in the review of the literature in **Chapter 3**. However, an arising issue regarding the quantitative research base is the use of assessments reflecting varying levels of emphasis on forms or sources of influence (e.g., Jones et al., 2004; Paxton et al., 2006). Additionally, one-dimensional assessments addressing specific or vague forms of transmission from each of the triad of socialisation agents (e.g., the Perceived Sociocultural Pressure Scale) are unlikely to obtain a representative account of real-

world situations. Without incorporating the voices of individuals from the target population, research is less likely to adequately address aspects of the sociocultural environment that are especially influential for young adolescents (Stevens, 1996).

In order to obtain an insightful interpretation of influencing factors from the present-day appearance culture for young adolescents within a quantitative measure, a mixed methods approach was employed. An exploratory sequential mixed methods design was considered most appropriate for an ecological account of the appearance culture that was sensitive to the target population, as a reflective quantitative measure was not previously available (Creswell & Plano-Clark, 2007). An essential first step was to gain an understanding of how the appearance culture is currently experienced by young Irish adolescents through qualitative means. A focus group approach was adopted as insight into the adolescent experience could be gained within an everyday peer context (Hollander, 2004; Liamputtong, 2011). By obtaining a detailed account of common influential processes that occur within the appearance context and perceptions of them, an extensive pool of items was devised. Then, through a series of pilot studies and statistical refinements, a culturally relevant quantitative scale reflecting influences from the appearance culture was created.

7.3.1.1 The Focus Group Study

The focus group study with the target population addressed the first objective of the present study and provided an in-depth understanding of the messages received and pressures experienced within the everyday appearance culture (**Chapter 4**). Qualitative research across gender has been lacking in an Irish context as studies have mostly been conducted with females (e.g., Mooney et al., 2009). Through ascertaining the views of young Irish adolescent boys and girls within school and youth club environments, an ecologically valid insight was gained of how they experience the current appearance culture in important sociocultural contexts where many of the influences are encountered. The analysis of the data produced three main themes reflecting appearance-related norms and the processes operating in young adolescents' immediate environment, the means by which more distal levels of sociocultural influences are transmitted, and individual characteristics that shape the experience of the appearance culture.

The first theme, *the proximal appearance environment*, largely conceptualised appearance issues in relation to perceived social rewards, such as greater acceptance and social positioning within desirable peer groups and avoidance of peer rejection or criticism. The importance of the peer group largely supported previous research highlighting the associations between appearance issues and perceived peer relations (Westerberg-Jacobson et al., 2010), popularity with same-sex and opposite-sex peers (Hargreaves & Tiggemann, 2006; Mooney et al., 2009),

and vulnerability to teasing (Frost, 2003; Lawler & Nixon, 2011); concurring with the greater attention afforded to the peer group and peer relations in adolescence (Wertheim & Paxton, 2011; Wrzus et al., 2013). The processes described reflected many widely reported forms of influence such as appearance-related discussions (Jones & Crawford, 2005) and conforming to appearance standards and values set by the peer group (Wertheim & Paxton, 2011). However, other less-explored processes were also noted, such as perceived judgments and vicarious appearance teasing, and in accordance with the literature, were predominantly associated with females (e.g., Jones & Crawford, 2006; Milkie, 1999). Furthermore, social networking sites were mentioned by both boys and girls as a context where appearance-related criticism can occur, highlighting the importance of its inclusion as an additional modern-day appearance context where proximal and distal influences collide (Manago et al., 2008; Tiggemann & Miller, 2010). This form of influence has not previously been included in a study exploring an extensive range of sociocultural influences in adolescent males and females. Participants also mentioned the transmission of appearance-related information and the discussion and modelling of body-change behaviours by family members and peers within the proximal environment. This further indicates the need to address the wide spectrum of influences from these significant others as many are likely to be present in contexts supporting particular body-shapes (Rodgers & Chabrol, 2009; Stevenson et al., 2007).

The second theme, *the distal appearance environment*, highlighted the pervasive impact of the media and cultural appearance norms, such as the appearance-related messages transmitted by role models in the media, and also how these distal influences are inextricably linked with more proximal social issues. Sought-after celebrity looks encompassed both styles and body shapes for the girls and mainly sports products for the boys. This is consistent with previous research with girls (Mooney et al., 2009), and although the boys did not perceive themselves to be influenced by the media when asked directly, their extensive knowledge of the behaviours and products associated with their respective favoured sports stars that later emerged indicated that certain media influences might be operating at a sub-conscious level. This is especially likely in today's society where intimate details of the lifestyles of public figures are readily available and widely circulated through the media, of which many adolescents in Western cultures have extensive access (Rideout et al., 2010).

Much of this information is transmitted and shared within proximal environments, supporting previous research (Jones et al., 2004), although this interconnectedness has been largely overlooked in many investigations of sociocultural influences. The perceived social rewards of attaining the ideal body paralleled those promoted in the media (Levine & Chapman, 2011), and indicated that they may challenge and outweigh opposing personal values. The pervasiveness of

the media also appeared to shape adolescents' views of reality. For example, among the girls, all adolescents were perceived as similarly affected by the portrayal of ideal bodies in the media, possibly promoting similar processes among individuals in accordance with the third-person hypothesis (Davison, 1983; Milkie, 1999). Wider cultural norms were evident in the young adolescents' validation of the ideal body, focusing on the aesthetically thin ideal for girls and athletically muscular ideal for boys. The degree of thinness and muscularity considered ideal was negotiated within the focus group context, highlighting how distal appearance norms may be transmitted and shaped through proximal processes such as peer appearance discussions (Cash, 2011; Jones & Crawford, 2005).

The third theme, *personal attributes*, represented the strong perception that individual characteristics can impact the effects of the appearance culture. Resilience to pervasive sociocultural influences was discussed in terms of protective personality traits and attributes such as weight and age. Gender-typed traits were apparent among the discourses and physical appearance seemed to play a strong role in supporting an identity reflecting socially constructed gender roles. Typical gendered discourses emerged throughout the groups where girls were displayed as more vulnerable to sociocultural messages (e.g., Bearman et al., 2006) and the boys frequently constructed body image issues with feminine connotations. However, the gender gap was perceived to be decreasing, indicating that young adolescents are also aware of the recent cultural shift towards the male aesthetic body (McKinley, 2006). In relation to males, boundaries were set reflecting appearance- and body-related concerns and behaviours that were considered acceptable, whilst attempting to portray low investment in their looks. The topics were largely discussed within a sports context. This reframing is noteworthy as it increased the boys' comfort in discussing these issues and further supports the focus on sport and physical competence as important predictors for male body image concerns (Grogan & Richards, 2002; Ricciardelli & McCabe, 2009). The findings further highlighted the importance of acknowledging the highly gendered ideals and bodily concerns that are displayed in early adolescence (Calzo et al., 2012), in addition to the similarities and differences in the processes occurring within the appearance culture and how they are perceived across gender (Helfert & Warschburger, 2011).

Overall, an insight was gained of adolescents as a network of social actors, with their collective interpretations of embodiment within social contexts. With comparisons across gender, an understanding of living in the current appearance culture for young adolescents in Ireland was obtained. Given the fruitful findings, the range of dynamic influencing processes that emerged, and indications that the transmission of these processes from the triad was often interrelated, it was decided that the development of a quantitative survey that reflected these findings was

indeed warranted. The challenge for Stage Two of the mixed methods design was to determine how to express these aspects of the qualitative findings within a quantitative survey.

7.3.1.2 The Development of the ACS-YA

The ACS-YA was developed based on the focus group findings, the theoretical framework and the literature base (**Chapter 5**). The resulting 16 items addressed the second research objective of developing a refined and psychometrically sound quantitative measure reflecting the current appearance culture, and measuring the extent to which the commonly occurring processes and transmitted messages are endorsed. Therefore, a main goal of the work was to develop a scale that would measure the level of agreement with items reflecting common perceptions and processes that boys and girls experience, either directly or indirectly, from the appearance culture.

A series of revisions and psychometric investigations were carried out to render the ACS-YA specifically appropriate for young adolescents in the early years of post-primary school. The scale development process involved deductive reasoning regarding the content of the survey, the formulation of initial constructs, and creation of an item pool. An expert review and pilot study at this stage helped to determine the appropriateness of the items, design, and format, as well as administration procedures. To examine the factor structure and begin the determination of psychometric properties, a second pilot study was conducted. EFA revealed a concise grouping of latent constructs producing a 21-item version of the ACS-YA that was divided among three subscales (6 to 9 items per subscale). The measure was then employed in the main quantitative phase of the study, and was administered to a much larger sample allowing for further analysis of the factor structure and psychometric properties. Random subsamples were extracted and subjected to CFA for further refinement and evidence of construct validity (Underwood & Teresi, 2002). Several variations of the measure were computed to compare conceptualisations of the factor structure. Results indicated that a two-factor correlational model best represented the ACS-YA containing two subscales, *promotion of the ideal body* and *peer acceptance* (7 to 9 items per subscale), that can be summed into a total score. This two-factor model produced the best fit to the data based on parsimony and was theoretically and empirically supported. The final version was also deemed most appropriate, as the construct remained accurately assessed whilst brevity was attained. A multigroup CFA was then conducted with an additional subsample to cross-validate the scale. The results confirmed the good fit of the two-factor solution. The 16 items that remained in the final measure reflected the collective notion of the appearance culture and assessed the endorsement of perceptions and processes currently experienced by young Irish adolescents.

7.3.1.2.1 Promotion of the Ideal Body

The first subscale reflects how the societal ideal body is promoted through: family and peer modelling of body-change behaviours, peer discussions regarding body-change behaviours, the celebrity bodies desired by opposite-sex peers, magazine articles on how to attain celebrity body shapes, appearance-related websites, and appearance-related messages from peers on social networking sites. The modelling of body-change behaviours from family and peers reflect processes occurring within proximal environments. This is consistent with the focus groups where the body-change behaviours of family members were discussed, despite mixed findings in the literature regarding this form of influence for boys and girls (Canals et al., 2009; Wertheim et al., 2002). Greater support for this indirect form of influence has been noted when transmitted by peers and when male-appropriate modelling behaviours have also been addressed (Helfert & Warschburger, 2011). The promotion of the ideal body through peer discussions of body-change behaviours is in accordance with the significant role of appearance-related discussions among peers previously noted with boys and girls (Jones et al., 2004; Lawler & Nixon, 2011). Items may reflect the notion of 'fat talk' in girls (MacDonald Clarke et al., 2010) and both weight-reducing and muscle-building discussions in boys (Jones & Crawford, 2006).

The item reflecting the promotion of celebrity appearances if admired by desired romantic partners reflects the interactive effects of proximal and distal appearance contexts noted in the focus groups, particularly among the girls. This contrasts with McCabe and Ricciardelli's (2005) prospective study, which suggests that messages from opposite-sex peers are not influential in early adolescence, but supports research where adolescents have perceived physical attractiveness to be highly important when seeking out romantic partners (Mooney et al., 2009; Paxton et al., 2005). This perception warrants attention as when asked to choose ideals that members of the opposite-sex would consider most attractive, females have chosen significantly thinner and males significantly more muscular body shapes than what opposite-sex peers actually chose (Oliviardia et al., 2004; Paxton et al., 2005). The emulation of celebrity bodies reflected in the next item has been linked with body dissatisfaction in girls (Levine & Chapman, 2011) while findings are inconsistent for males (e.g., McCabe et al., 2002; Spitzer et al., 1999). However, boys have reported the use of media for fashion trends and styles (Hargreaves & Tiggemann, 2006), similar to findings from the focus groups. The large emphasis on the male body's function in the media (Thompson, Heinberg, et al., 1999) may buffer boys from bodily levels of this form of influence (Grogan & Richards, 2002). The items certainly highlight the promotion of these processes by capitalist consumer culture since such appearance-related information is accentuated in many media forms aimed at adolescents (Daniels & Porzerlius, 2013; Murnen, 2011). Additionally, the items highlight the important role of desired celebrities coinciding with research where a focus on looking like same-sex role

models was associated with body dissatisfaction in both boys and girls (Field et al., 2001), and has implications for the mixed support found for media influences with boys. Admired figures in the media may be a fruitful focus for future research, particularly in early adolescence (Maltby et al., 2005).

The use of appearance-related websites may reflect how web content providers are accommodating the needs and interests of the adolescent population (Rickert & Sacharow, 2010). There is certainly a need for further attention to be afforded to teen websites considering the prevalence of appearance-related advertisements found on the sites (Slater et al., 2012), and the associations found between Internet appearance exposure and body dissatisfaction in girls (Tiggemann & Miller, 2010). The items reflecting peer processes through SNSs further support the need to acknowledge this additional context where self-presentation and peer interaction are combined (Hinduja & Patchin, 2008). Indeed, female SNS members have reported higher levels of body dissatisfaction than nonmembers (Slater & Tiggemann, 2012). Adolescent awareness of this connection is already apparent, as Irish adolescents have reported that they are reluctant to post photographs to social media due to their body image (O'Connell & Martin, 2012).

7.3.1.2.2 Peer Acceptance

The second subscale reflects the perception that peer acceptance and popularity is largely dependent on appearance. Items refer to the following perceptions: attainment of the ideal body would lead to increased acceptance from the peer group, peer popularity, and desirability from potential romantic partners; and peer criticism through appearance-related comments on social networking sites would produce adverse consequences. Items also refer to the following processes: perceived judgments from the peer group trigger body-related concerns, and encountering peers with ideal bodies trigger appearance comparisons. The items reflecting perceptions of increased likeability among peers if the ideal body is attained reflects the centrality of peer acceptance in the life of the adolescent (Lyu & Gill, 2012), and the notion of the peer appearance context where norms, beliefs and expectations regarding appearance are reinforced within the peer group (Jones et al., 2004). These perceptions have been suggested for both girls (Westerberg-Jacobson et al., 2010) and boys (Helfert & Warschburger, 2011; Ricciardelli & McCabe, 2009) regarding peer acceptance and popularity with both same- and opposite-sex peers (Jones, 2011; McCabe & Ricciardelli, 2004b). The perception of body dissatisfaction arising from peer criticism of visual displays of appearance on SNSs further highlights the need for attention to be focused on this area, as it provides an additional context where peer victimisation can occur (Callaghan & the HBSC Team, 2012). The items reflecting perceived judgments are noteworthy as they reflect the importance of these perceptions in the peer context despite often being overlooked in assessments, and further supports Jones and

Crawford's (2006) finding of their negative impact on body image evaluations. The presence of peers with ideal bodies triggering appearance comparisons has been widely noted among girls (e.g., McCabe et al., 2006) and to a lesser extent among boys (Hargreaves & Tiggemann, 2004), supporting Wood's (1989) progression of social comparison theory where similar others in the social environment are proposed to actively encourage comparison processes.

The ACS-YA and its subscales produced very good internal consistency across two independent samples (i.e., α= 0.76–0.86) and item analyses supported the reliability and validity of the scale. To explore incremental validity issues, expert reviews and conceptual analyses were carried out for content validity. Differences between groups were examined to determine whether the measure discriminated as expected, and correlational analyses were conducted with various measures associated with, or reflecting facets of, a negative body image to demonstrate convergence. Preliminary construct validity was demonstrated by the measure discriminating between gender subgroups. As predicted from patterns in the literature (e.g., Ata et al., 2007; Jones et al., 2004; Paxton et al., 2006), the impact of influences from the appearance culture is stronger with young adolescent girls compared to young adolescent boys, further highlighting the particular necessity of early intervention for this group.

Evidence of convergent validity was also provided through observation of significant associations between the ACS-YA and both cognitive and evaluative body image variables, in line with integrative sociocultural models and previous research. Findings supported the following hypotheses for females: as endorsement of the appearance culture increases so do levels of internalisation, appearance comparisons, appearance schemas, and negative body image evaluations. Males who subscribed more to the appearance culture had higher levels of internalisation, appearance comparisons, and appearance schemas, while findings were inconsistent across the two measures of evaluative body image. The findings are supportive of the literature highlighting strong associations between sociocultural influences and these variables for females (e.g., Grabe et al., 2008; Myers & Crowther, 2009), and to a lesser extent for males (e.g., Cafri, Thompson, et al., 2005; Jones, 2004). Although the stronger correlations between the ACS-YA and the cognitive processing variables were consistent with expected patterns, they also reflect possible overlap between the constructs measured. This became more apparent in the analysis of the data from Phase Two, as the constructs were again highly correlated. The inclusion of sociocultural measures used in previous research in the validation process would have been useful, possibly uncovering the extent of this issue in Phase One of the study. These measurement issues are further discussed in **Section 7.4.2**.

The inconsistent finding regarding the association with evaluative body image for males was

likely due to the measurement of the construct. Two measures were administered, a figural rating scale and a questionnaire addressing satisfaction with global and site-specific body parts. Although significant associations were found with the latter measure for males, the former was not associated with the ACS-YA. The figural rating scale encompassed both adiposity and muscularity, but distinguishing between these components within the figures may have been difficult. Furthermore, nonsignificant associations between self-ideal discrepancies and body dissatisfaction have been previously reported within the same sample (Wang et al., 2006), supporting suggestions that these components are distinguishable until later in adolescence (Dohnt & Tiggemann, 2006). In fact, this failure to correlate led to the removal of the figural measure as an indicator of negative body image evaluation for the SEM testing of the aetiological models in Phase Two of the research. Moreover, the pattern of findings may also reflect the more detrimental impact of influences from the appearance culture to body image evaluations in girls. Perceptions of values within the appearance culture are often more detrimental, such as girls' perceived importance of thinness for heterosexual popularity despite dating behaviour showing no association with BMI (Paxton et al., 1999). Thus, the appearance culture may generate cognitive processing reinforcing these beliefs for both boys and girls, with more harmful effects on girls' body image evaluations.

The ACS-YA reflects a range of influencing factors from the appearance culture transmitted by a number of, at times interconnected, socialisation agents. The pattern is consistent with collective notions outlined in the literature (Jones, 2011; Jones et al., 2004) but inconsistent with the original tripartite influence model framework where the triad of parents, peers, and the media have been postulated to independently exert their influence. The measure demonstrates how widely messages are disseminated in the sociocultural environment (Tiggemann, 2011), and supports the value of exploring the collective notion of the appearance culture rather than separately investigating influences from each source (Jones, 2011). Methodological triangulation was also indicated, as the ACS-YA items supported and validated the main findings from the qualitative study. The three items reflecting the role of the Internet highlight its importance for the contemporary adolescent and are not surprising considering its high use among this population (Subrahmanyam & Lin, 2007), particularly the use of social networking sites (Lenhart et al., 2010). Since figures have likely increased further since these reports, more in-depth research exploring this source of influence is certainly warranted.

7.3.1.3 Theoretical Significance of the Findings from Phase One

To date, no known research has explicitly explored sociocultural influences related to body image in young adolescents based on Bronfenbrenner's bioecological model. The perspective provided an important framework from which to base the development of the ACS-YA. The

items and outcomes of the measure certainly reflected how perceptions and processes (e.g., appearance-related norms and discussions) in the proximal environment are shaped by both the context (e.g., peer context) and the characteristics of the individual (e.g., gender), influencing the course of body image development.

An ecological framework appears to be a useful perspective for examining the impact of the appearance culture. Bronfenbrenner posited that an important element of the bioecological model is experience, to examine both subjective and objective forces that determine the outcomes from proximal processes (Bronfenbrenner & Evans, 2000). By exploring how young adolescents subjectively experience components of the appearance culture, important insights were gained to produce the ACS-YA. The application of an ecological framework to the development of the ACS-YA made it possible to cohesively integrate several forms and sources of sociocultural influences as well as capture the interactive patterns that uniquely reflect the contemporary adolescent experience. This has not been achieved in many existing scales assessing sociocultural influences associated with body image in adolescence.

The implications of applying this theoretical framework are noteworthy. A more contemporary and representative understanding of the body-related experiences of young adolescents residing in an Irish context was gained. In relation to proximal processes, the ACS-YA also assesses an individual's perceptions of the values and behaviours of similar others, incorporating the interesting effect of the third-person hypothesis (Davison, 1983). The inclusion of this individual-level focus can enhance research designs (Bronfenbrenner & Morris, 2006). Moreover, in support of contextual approaches to researching health issues, the aim of this research was to move away from individualised accounts and traditional epidemiological approaches of studying social factors independently (Jones, 2011; Williams, 2003), towards the study of everyday individual-environment interactions that shape body-image evaluations. The partial application of the bioecological model in the present study was successful in supporting the proposition that processes occurring within, and perceptions of, the appearance culture differ across gender and the interactive contexts in which they occur, contributing to the existing literature on sociocultural influences.

7.3.2 Phase Two

In addressing the remaining research objectives, the present study used SEM to test two expanded variations of Keery et al.'s (2004) interactive model for adolescents, based on Thompson, Heinberg, and colleagues' (1999) original hypothetical tripartite influence models, focusing on the outcomes of negative body image evaluations and problematic psychological functioning (**Chapter 6**). The SEM testing of the two models revealed that Model 1, the model

corresponding to Keery and colleagues' (2004) final model, was the best fit to the data. However, since this a priori model did not produce a satisfactory fit, some justified post-hoc modifications were undertaken producing an adequate model that more closely represented the sample data (Model 1c). These modifications produced an additional pathway and deleted two nonsignificant effects, clarifying relationships and offering an interesting and parsimonious conceptualisation of Keery and colleagues' integrative model for young adolescent boys and girls. Direct and indirect pathways were explored within the final model when applied to the total sample, and separately to boys and girls. Multigroup analyses were conducted to explore whether the measurement and structural aspects of the model operated equivalently across gender. The final model was also compared to a partial version of Keery and colleagues' (2004) final model to determine its theoretical significance and whether the progressed model in the present study provided more explanatory power when both were applied to the total sample.

7.3.2.1 The Final Model

In terms of the direct and indirect associations that emerged from the final model with the total sample, sociocultural influences had significant direct effects on the three cognitive processing variables. Appearance comparison and appearance schemas were positively associated with negative body image evaluations. Both BMI and pubertal development revealed significant direct effects on negative body image evaluations, with a positive association for BMI and a negative association for pubertal development. Direct pathways from sociocultural influences and negative body image evaluations to problematic psychological functioning also emerged.

The associations between internalisation and negative body image evaluations, and between appearance comparison and internalisation were previously removed during respecification as the pathways were contributing very little to the model solution. These nonsignificant associations are inconsistent with Keery and colleagues' (2004) final model, and may be due to the inclusion of appearance schemas lessening the impact of internalisation and providing greater information about forms of appearance-related cognitive processing. The model applied to the overall young adolescent sample suggests, in support of the literature (e.g., Grabe et al., 2008; Smolak, 2009), that sociocultural influences and internalisation are positively associated. However, these adopted standards were not significantly associated with body dissatisfaction. This finding is unexpected considering the previous support for this association (e.g., Jones et al., 2004; Lawler & Nixon, 2011). It may be that internalisation is normative due to the pervasive messages in the current appearance culture. Thus, the processes of appearance-related comparisons and schematic processing may have a greater impact on body image evaluations. Furthermore, the nonsignificant pathway from appearance comparison to internalisation supports research where neither construct predicted change in the other (Jones, 2004). The high

intercorrelation between the two may be responsible and it is difficult to determine whether this is due conceptual or measurement issues.

The final model produced an acceptable fit to the sample data and was most appropriate based on previous research, theory and parsimony. Absolute fit indices were very good indicating that the model fit the data well based on the hypothesis of close fit. Incremental fit indices, although at an adequate level, did not meet the revised criteria (Hu & Bentler, 1999) with less proportional improvement over the baseline model than what was desired. However, fit indices inform on a model's poor fit rather than the credibility of the model per se, and even a good fit may merely reflect the model's lack of predictive ability (Nachtigall et al., 2003). Nevertheless, as in the present study, the judgment of model fit can have more accountability when the strengths and limitations of fit statistics are acknowledged and when evaluation also incorporates diagnostic information and the underlying theory (Kline, 2010). These are discussed further in **Section 7.4**.

7.3.2.2 The Final Model among Gender Subgroups in Relation to Previous Research

Applying the final model to males and females separately produced a number of similarities and differences that are noteworthy in relation to existing empirical research.

7.3.2.2.1 Cognitive Processing Variables

Sociocultural influences were strongly predictive of the three cognitive processing variables across gender. In accordance with social comparison theory, the tendency to compare one's appearance with desirable others in the sociocultural environment stems from the perception of these attributes as personally relevant for self-evaluation and social positioning (Suls et al., 2002; Wood, 1989). This is especially likely in adolescence coinciding with the process of identity construction (Myers & Crowther, 2009; Striegel-Moore et al., 1986). Much research supports this link (Hargreaves & Tiggemann, 2004; Jones, 2004) and comparison processes appear to be more regularly adopted by girls (Jones, 2001; Jones, 2004). Internalised appearance-related ideals represent personal goals stemming from societal ideal standards that are again associated with self-evaluation in early adolescence (Thompson & Stice, 2001), and the association between sociocultural influences and internalisation have generally been strong across gender (e.g., Lawler & Nixon, 2011). Similarly, if appearance is perceived to be important for self-evaluation and social standing in adolescents, appearance schematic processing will follow (Cash, 2002, 2005). The association between sociocultural influences and appearance schematic processing supports previous experimental findings with girls (Hargreaves & Tiggemann, 2004; Groesz et al., 2002) and boys (Hargreaves & Tiggemann, 2004). The endorsement of expectancies associated with the ideal body portrayed by society was evident in the focus group study, particularly regarding social rewards, and much

information from the appearance culture will be assimilated to reinforce these perceptions. The present findings highlight the importance of including these forms of cognitive processing in aetiological models of body image.

However, it must be noted that measurement issues possibly inflated the strength of association between sociocultural influence and cognitive processing constructs. Measures of appearance-related cognitive processing have been purported to confound sociocultural influences and associated cognitive mechanisms, with the SATAQ-3 included (Smolak et al., 2005). Similarly, items from the ACS-YA, particularly items reflecting perceptions from the peer acceptance construct, possibly tapped cognitive processes stemming from the norms transmitted within the appearance culture. Attempting to capture the perceptions and viewpoints shaped by sociocultural contexts and the everyday individual-environment interactions that emerged from the focus group study possibly resulted in unintentionally confounding sociocultural influences with related cognitive processing.

While both appearance comparison and appearance schemas had significant positive associations with negative body image evaluations when the model was applied to the total sample, important differences emerged when tested separately with boys and girls. For the girls, only the pathway from appearance comparison produced a significant effect while amongst the boys, only the pathway from appearance schemas was significant. These findings imply that girls are more likely to make upward appearance comparisons with similar others, negatively impacting body image evaluations (Thompson, Heinberg, et al., 1999). Indeed, Myers and Crowther's (2009) meta-analysis also revealed that comparison tendencies were more prevalent and damaging to body image among female adolescents. A possible reason for this gender difference may be due to girls feeling their bodies are more strongly validated in the appearance culture than males (McSharry, 2009; Heinberg & Thompson, 1992). Alternatively, as suggested by Ricciardelli and McCabe (2011), boys may utilise their self-serving bias, protecting against problematic upward comparisons related to bodily issues, coinciding with the focus group findings where boys only discussed comparisons related to clothing trends and sports products. The nonsignficant pathway from appearance schemas to negative body image evaluations was surprising for the girls, as this pathway has been previously supported both cross-sectionally and longitudinally (Hargreaves & Tiggemann, 2002; Tiggemann, 2006). The inclusion of appearance comparison within the same model suggests that comparison tendencies are more detrimental to female body dissatisfaction. The significant pathway between appearance schemas and negative body image evaluations amongst the boys provides much needed information on the role of cognitive processing in relation to body dissatisfaction as previous

research assessing this association has been scarce with inconsistent findings (Hargreaves & Tiggemann, 2002; Ricciardelli & McCabe, 2003b).

The indirect effect of sociocultural influences on negative body image evaluations and problematic psychological functioning also corresponded with this gender pattern. The significant indirect effect through appearance comparisons has been previously noted in the literature for girls (Jones, 2004; Keery et al., 2004), although mediation has not been supported prospectively (Jones, 2004). The significant indirect pattern of association with negative body image evaluations through appearance schemas for boys but not girls is again surprising, particularly in relation to experimental research where appearance schematic processing strengthened the association between sociocultural influences and body dissatisfaction in girls (Groesz et al., 2002), and did not affect the association with adult men (Agliata & Tantleff-Dunn, 2004). The present findings contradict Agliata and Tantleff-Dunn's suggestion that males do not filter information from the sociocultural environment through schematic processes and highlight the need for future investigations with adolescent boys. Interestingly, this indirect effect did not extend to problematic psychological functioning for the boys, while a direct association between sociocultural influences and problematic psychological functioning emerged. Overall, findings are noteworthy as they suggest gender differences in psychological reliance on appearance-related cognitive processing. Specifically, vulnerability to appearance-related sociocultural messages appears to rely on appearance comparisons for females and appearance schemas for males. However, issues with the measurement of appearance schemas emerged for the male sample and so findings regarding appearance schemas among the boys must be cautiously interpreted (see **Section 7.4.2** below for further details).

7.3.2.2.2 Individual Characteristics: Physical

For both boys and girls, BMI produced significant positive associations with negative body image evaluations. This is consistent with previous research (Woodruff et al., 2008), although is somewhat surprising considering the confounding role of BMI in relation to the male muscular ideal and previous findings where both high and low BMI was associated with greater body dissatisfaction in males (e.g., McCabe & Ricciardelli, 2005). It may correspond to the increasing rates of overweight and obesity reported in Irish adolescents (Currie et al., 2012), and indicates that despite the high prevalence of body image concerns amongst adolescents, greater levels are present among those with higher BMIs (Neumark-Sztainer, 2011). The present findings support previous research (Jones, 2004; Lawler & Nixon, 2011) and the recommended inclusion of the direct pathway between BMI and negative body image evaluations in integrative models (Keery et al., 2004). However, age-adjusted BMI scores were not calculated, possibly affecting the accuracy of the findings (see **Section 7.4.2**). For the girls, pubertal

development did not produce a significant association with negative body image evaluations while a significant negative association emerged for the boys. One reason for this surprising result among the girls may be that levels of body image concerns are highly prevalent among this age group regardless of pubertal status as previously noted (Stice & Whiteton, 2002; Williams & Currie, 2000), possibly due to the strong influences from the appearance culture. Additionally, responses to the PDS were generally below the mid-point indicating that early maturation was not highly prevalent and timing may be a more important factor to consider (Wertheim et al., 2009). For boys, the physiological changes of puberty may be slower (Tanner, 1989), maintaining the disparity to muscular ideals (Ricciardelli & McCabe, 2011) and supporting research indicating greater body dissatisfaction among prepubescent boys (e.g., Ricciardelli & McCabe, 2009). In relation to the large-scale EPICA study in Ireland, the present findings are inconsistent with the positive correlation found between pubertal status and body dissatisfaction in girls, but consistent with the finding of greater maturity associated with lower levels of body dissatisfaction in boys (McNicholas et al., 2012).

7.3.2.2.3 Individual Characteristics: Problematic Psychological Functioning

Similarities were evident across gender with significant pathways from sociocultural influences and negative body image evaluations to problematic psychological functioning. In accordance with Keery and colleagues' (2004) model and previous applications of the tripartite influence model (e.g., van der Berg et al., 2002), problematic psychological functioning was represented by a composite latent variable with indicators representing self-esteem and negative affect. The significant pathways for both boys and girls in the present study is in accordance with the literature proposing that negative body image evaluations precedes problematic psychological functioning (e.g., Johnson & Wardle, 2005; Tiggemann, 2005), but the correlational nature of the data prohibits any conclusions regarding directionality. The competing model, proposing that sociocultural influences leads to problematic psychological functioning which precedes cognitive processing variables and negative body image evaluations, was rejected due to diagnostic problems. Nonetheless, the pathway from problematic psychological functioning to negative body image evaluations cannot be ruled out (Mond et al., 2011). Additionally, associations were stronger and mean scores on measures of low self-esteem and negative affect were higher among the girls, coinciding with the general findings in the literature (e.g., Dooley & Fitzgerald, 2012; Mäkinen et al., 2012).

The additional pathway in the model from sociocultural influences to problematic psychological functioning has been noted in the literature across gender, as maladaptive processing of information from the sociocultural environment has been proposed to affect psychological functioning (e.g., McNicholas et al., 2009; Ricciardelli & McCabe, 2001). Interestingly, the

rejection of the competing model for the sample in the present study indicates that influences from the sociocultural environment impact appearance-related cognitive processing and psychological functioning directly, thus self-esteem and mood can be affected without consciously filtering sociocultural information through appearance-related cognitive mechanisms. In summary, both endorsement of sociocultural influences and body image issues appear to be highly associated with problematic psychological functioning across gender.

7.3.2.3 Multigroup Analyses

A multigroup analysis provided further detail on the moderating role of gender in the model and indicated that the measurement and structural models were partially invariant. Three measurement parameters differed among boys and girls. At the measurement level, small differences in the factor structure of a model are often observed across gender, such as in one indicator on one factor, and can reflect construct bias or items operating differently across groups (Brunet et al., 2010; Ullman, 2001). The indicators not operating equivalently were: i) the PDS Q5 reflecting pubertal development which assessed the development of the menarche (for females) and change of voice (for males); ii) the second parcelled factor reflecting internalisation comprised of Internalisation-Athlete subscale items; and iii) the CAS Q8 reflecting appearance schemas which assessed a reverse-scored item "*I never think about how I look*". The difference noted in the pubertal development indicator probably reflects the gender specificity of the item, the difference noted in the internalisation indicator likely reflects the different meaning of items representing athleticism for boys and girls, while the difference found in the schemas indicator possibly reflects differences in the perception of the reverse-scored item.

Two structural parameters differed for the boys and the girls. The direct association between pubertal development and negative body image evaluations differentially operated across gender, with a significant negative association emerging for the boys and a nonsignificant association emerging for the girls. This pattern is consistent with the findings noted above when the model was applied separately to gender subgroups. Additionally, although the pathway from sociocultural influences to problematic psychological functioning produced a significant association across gender, the association was stronger for the girls. This coincides with previous research, where concerns about others' negative evaluation of one's body have shown strong associations with self-esteem among girls but not boys (Davison & McCabe, 2006). In fact, girls generally report these negative perceptions (e.g., Milkie, 1999), paralleling the third-person effect and the greater body-related scrutiny perceived by girls (McSharry, 2009). This pattern was also found when the model was tested on boys and girls separately, indicating that information from the sociocultural environment can have a direct detrimental impact on self-

esteem and negative affect across gender but with stronger effects on girls.

7.3.2.4 Theoretical Significance of the Findings from Phase Two

To date, little research in the area of body image has applied a comprehensive integrative theoretical framework in testing adaptations of the tripartite influence model on young adolescent boys and girls within the same study. The tested models were based on Keery et al.'s (2004) revised version of the tripartite influence model and contained components from cognitive-behavioural perspectives and the bioecological model, and the relative contribution of the chosen model to explain negative body image evaluations and problematic psychological functioning in early adolescence was evaluated. The final model explained a greater proportion of the variances in negative body image evaluations and problematic psychological functioning for the girls than the boys. The variances explained for negative body image evaluations and problematic psychological functioning for the girls (31% and 56% respectively) were greater than Keery et al.'s (2004) model but less than other integrative models (e.g., Jones et al., 2004). The variances explained for negative body image evaluations and problematic psychological functioning for the boys (14% and 21% respectively) were lower than path analyses studies with adolescent boys encompassing subsets of the variables used in this study (e.g., Jones et al., 2004; Jones et al., 2008).

The difference in the variances explained for boys and girls emphasises the complex nature of these issues across gender. Although the smaller amount of variances explained for the boys may be partially accounted for by measurement issues that emerged, the difference may also support the speculation that boys develop vulnerability to influences from the appearance culture later than girls (Jones, 2004; Jones & Crawford, 2005). The later onset of puberty delaying the focus on societal ideals in comparison to girls may be accountable; although, the present findings also indicated that early pubertal status is directly associated with negative body image evaluations in boys. The model produced favourable outcomes and explained good proportions of variance for the girls, but future research is certainly warranted to enhance our understanding of the contributing factors among boys.

The present findings support the use of this integrated theoretical framework for understanding the development of negative evaluative body image and maladaptive psychological functioning in young adolescents, since physical characteristic variables (e.g., BMI), sociocultural influences (e.g., subscription to the appearance culture), and cognitive processing variables (e.g., appearance comparisons) were all associated with the outcomes of interest. Additionally, the fit of the model was confirmed and replicated when applied to random split-halves of the data in the cross-validation procedure. The application of constructs reflecting an ecological

representation of sociocultural influences in an expanded version of Keery and colleagues' (2004) integrative model across gender is a novel aspect of the present study. Furthermore, the results support the inclusion of BMI, pubertal development and appearance schemas, as they differentially contributed to the outcomes across gender, and the final model produced an overall preferable fit to the sample data compared to Keery and colleagues' (2004) final model. However, with problematic psychological functioning as the outcome variable in the final model, the power of the model for explaining negative body image evaluations was impeded (see **Section 7.4.2**).

7.4 Strengths and Limitations of the Present Research

7.4.1 Strengths of the Present Research

There are several notable strengths in the design and methods of the present study. In devoting the first phase of the research to the development of an ecological reflection of the appearance culture in early adolescence using a rigourous mixed methods approach, meaningful inferences could be drawn. The use of a partial application of Bronfenbrenner's (2005) bioecological model as a basis for developing the quantitative measure is a strength of the study. Indeed, ecological approaches have been useful in understanding the aetiology of many health-related outcomes (Frohlich et al., 2001; Williams, 2003). The scale was developed through a series of clearly defined systematic steps (Creswell & Plano-Clark, 2007). The two-stage mixed methods process demonstrated methodological expertise and promoted the demonstration of content and construct validity, with major themes from the qualitative phase forming the basis for the quantitative follow-up, and a number of validation strategies conducted at each stage. Methodological triangulation was demonstrated as the use of varied research methods to understand the phenomenon using samples from the same population provided consistent information from alternative perspectives, providing an all-round understanding of the current appearance culture in early adolescence (Hayes, 2000).

Aspects of the samples recruited for each stage of the research process are also strengths of the present study. The sample size for the qualitative analysis ensured multiple viewpoints were gained. Although generalisability was not a goal, sourcing young adolescents from two geographical locations in Ireland contributed to the validity of the study as an investigation of the experiences of young Irish adolescents. To minimise validity threats, different samples were chosen for each stage of the research. The sample sizes for the pilot studies and main study were substantial and contributed to the power of the statistical tests. For the main study, the goal was to survey approximately 500 young adolescents to provide an adequate sample size for the CFA and SEM procedures, thus the recruitment of just below 800 participants exceeded expectations.

Participants were recruited from schools representing a range of urban and rural locations, gender compositions, and socio-economic classes. These procedures promoted the generalisability of the outcomes.

The strengths of the focus group study are fully discussed in **Chapter 4** and include the use of systematic procedures throughout the data collection and analysis process, the acknowledgement of how the social context can influence the meanings that are both constructed and derived in the focus group situation, and the continual reflexive practice acknowledging how social positioning and power imbalances contributed to the discourses produced. Exploring the collective experience of the appearance culture in a focus group format was considered an appropriate way to closely parallel real-world situations by obtaining shared accounts of the wide-ranging influential processes. Furthermore, the focus group approach appeared to be an impartial and enjoyable means for adolescents to have their voices heard and discuss issues that concern them.

The steps in developing the ACS-YA were also clearly identified and thoroughly considered to maintain rigourous research practice. Development was based on the qualitative study, key recommendations from the literature, expert advice from professionals in the areas of child and adolescent health psychology at national and international levels, and input from young Irish adolescents. The statistical procedures for refinement of the measure were creditable. EFA is recommended to explore the nature of latent variables when a number of dimensions are envisioned, while CFA is recommended to promote the psychometric properties of a scale and to further refine a model (Clark & Watson, 1995; Noar, 2003). Decisions throughout the statistical process remained conceptually and theoretically grounded to ensure an accurate reflection with the best-fitting structure was produced. Preliminary psychometric evaluation was thorough and the constructs that the ACS-YA was purported to measure produced convergent and discriminant patterns in the expected direction.

Testing two aetiological models based on an integrated theoretical framework in Phase Two of the research also carried a number of notable strengths. The use of a self-report survey package permitted the collection of data from a large sample and the assessment of a range of important constructs for the SEM testing. To support the reliability and validity of findings, assessments were chosen that were age, gender, and culturally appropriate. Pre-tests implied their suitability for the study's purpose and the low level of missing data confirmed the appropriateness of the measures chosen. Due to the large influence of gender on body image issues (Cash, 2011) and in accordance with many recommendations in the literature (e.g., Bardone-Cone et al., 2008; Yanover & Thompson, 2009), measures were chosen that were broad enough to encompass a

range of bodily concerns. Therefore, the use of consistent all-encompassing measures across gender permitted adequate comparisons and reduced the possibility of method variance (Rueger et al., 2010). Another notable feature was the objective measurement of height and weight to determine BMI. Many large-scale studies with young people have relied on subjective height and weight measurements, increasing the possibility of measurement bias, particularly among overweight and female adolescents (Sherry, Jefferds & Grummer-Strawn, 2007).

A further strength of the study is the wide range of variables that was tested within the same model, reflecting sociocultural, physical, and psychological risk factors for the negative evaluative body image outcome, all grouped into theoretically-relevant constructs. The final aetiological model was novel in that it encompassed three forms of appearance-related cognitive processing and provided an indication of the specificity of such processing across gender (Bardone-Cone et al., 2008). The large sample size permitted the application of the final model to gender-specific subsamples, whereas previous applications of integrative models have largely focused on adolescent girls (e.g., Keery et al., 2004), and investigations of the moderating role of gender have been scarce thus far (Lawler & Nixon, 2011). The systematic use of SEM procedures provided a wealth of information in generating the best fitting aetiological model with reasonable explanations for the patterns found in the data. For example, through the use of multigroup analysis, direct statistical comparisons between boys and girls could be conducted whilst acknowledging the underlying differences in how the measures were operating. Diagnostic information and underlying theory were consulted and strengths and limitations of fit statistics were acknowledged at each stage of the modelling process. Furthermore, the cross-validation of the model employing an invariance testing strategy on random halves of the sample data provided promising results and supported the appropriateness of the respecification procedure.

7.4.2 Limitations of the Present Research

Notwithstanding the use of rigorous research procedures in this study, there are also some inherent limitations to the approaches used and cautions to be acknowledged regarding some of the findings reported. Despite the large sample sizes, findings are limited by the confined ethnicity of the participants studied. Additionally, although the sample was diverse in terms of the social classes of the schools involved, the current study did not focus on any potential differences in these factors, which may have been important to consider in relation to the aetiology of negative body image evaluations. A diverse range of schools was recruited for the study but the selection was based on a convenience sample of 20 schools in Munster. In order to fully generalise findings throughout Ireland, a random sample of Irish schools would have been necessary. The generalisability of the findings is confined to young Irish adolescents and it is

unclear as to how findings would generalise to other cultural environments. However, since Ireland is considered a Western culture and patterns of findings are similar to other Western nations, it can be assumed that the approach is applicable to other Western environments.

In the application of the bioecological model for Phase One of the study, an important aspect was not fully addressed in that the cross-sectional nature of the analysis did not permit the examination of the development of body dissatisfaction as a process. Although the element of time was present in terms of the developmental stage under study and the investigation of processes occurring in the appearance culture during the current historical period, the study represents a snapshot of the appearance culture for young adolescents at a single point in time. Longitudinal research examining how processes from the appearance culture influence body image issues over time would greatly contribute to our understanding of the development of body image, and highlight changes that may occur as individuals progress through the adolescent period (Bronfenbrenner & Morris, 2006; Tudge et al., 2009).

The use of factor analysis on variables representing sociocultural influences has become increasingly popular (e.g., Keery et al., 2004; Jones, 2004) due to the infeasibility of assessing the vast number of forms and sources of influences from the sociocultural environment, and to ensure appropriate measures are employed for the target population. The approach was valuable in addressing the research objectives of the present study but certain limitations must also be recognised. It is difficult to compare the patterns of outcomes from the ACS-YA with previous research, as the items addressing influences from the family, peers and the media were not independent or parallel to the structures that form existing assessments. Thus, comparisons relative to forms of influence transmitted by various sociocultural agents cannot be made. However, as the ecological reflection of the appearance culture generated interactive patterns of influence, it suggests that previous measures were not adequately capturing contemporary sociocultural experiences. Moreover, the high correlations found between the ACS-YA and the cognitive processing measures suggest that many items were inadvertently tapping these dimensions. With a number of items reflecting perceptions concerning the social outcomes of attaining the ideal, the intention was to reflect the norms and expectancies stemming from the appearance culture. However, the items may have tapped bodily thoughts closely aligned with the cognitive processing variables. The inclusion of measures used to represent sociocultural influences from previous models in the second piloting stage would have possibly uncovered this issue at an earlier stage. Another key consideration relates to the inherent subjectivity of EFA and CFA procedures. Decisions were made regarding the number of factors to retain, and the amalgamation and omission of items. Although these were highly informed by the statistical outcomes and based on conceptual grounds, opportunities for subjectivity occurred which likely

impacted the final solution. Furthermore, the ACS-YA is gender appropriate and relevant for young Irish adolescents but the large input from the target population and the EFA procedures may have limited the effectiveness of the measure to an Irish context. Future research will be important to enhance the value of the ACS-YA by confirming its construct validity and determining its use with other populations.

Reporting biases must also be acknowledged in the present study, as all measures used in Phase Two of the research were self-report with the exception of BMI. Administering self-report surveys in school settings can produce context effects and influence the responses made (Borger et al., 2000). Moreover, the use of self-report methods for both the correlates and the outcome variables increases the chance of shared method variance inflating the strengths of association. While self-report of many variables was necessary (e.g., appearance-related cognitive processing), the incorporation of reports from significant others such as parents and peers regarding perceptions of the appearance culture could provide useful additions to the self-report measures in the future.

Despite the appropriate collection of BMI measurements from a large sample with precise equipment, the BMI scores applied to the model were limited in that age-adjusted scores were not calculated. Age-adjusted BMI scores can be determined by calculating BMI standard deviation scores (BMI-SDS) based on a large reference dataset such as the WHO growth reference charts (World Health Organization, 2007). The standardised BMI scores are based on the WHO categories, which indicate where an individual (aged 2 to 20 years) lies relative to others of the same sex and age, with scores over 1 and 2 denoting overweight and obesity, respectively. These adjusted scores are useful because they consider the physiological changes that occur across gender during adolescence. For example, a 12-year-old girl who is 164cm in height and 40kg in weight and a 14-year-old girl with the same measurements both have a BMI of 14.87. However, the 12-year-old girl has a BMI-SDS of -1.67 placing her in the *normal* category while the 14-year-old girl has a BMI-SDS of -2.38 placing her in the *thinness* category. Thus, failure to consider age-adjusted BMI during model testing may have impacted the associations found.

Additionally, a number of measurement issues from the assessments used in the present research warrant attention. Some of the measures were quite short due to the comprehensive nature of the survey package. For example the revised four-item PACS assessing appearance comparison was predominantly associated with comparisons in social situations. Since females have reported greater comparisons with peers and males with universalistic targets (McCabe et al., 2006), the measure may not have uncovered the extent of comparison processes across

gender. However, no differences have also been reported for comparison targets among boys and girls (Jones, 2001), and in accordance with social comparison theory, comparisons with similar others are more likely to be applied to the self (Festinger, 1954, cf. Thompson, Heinberg, et al., 1999).

As previously mentioned, a figural silhouette measure of body dissatisfaction was also included in the survey package to provide an additional indication of evaluative body image. The IBS was selected due to its incorporation of both adiposity and muscularity in the silhouettes of the male form. This was considered advantageous for the study's purpose in comparison to other more widely used figural scales (e.g., the Contour Drawing Rating Scale, Thompson & Gray, 1995). However, the IBS was only modestly correlated with the attitudinal measure of body dissatisfaction and was subsequently removed from the SEM analysis. The identified problems of confounding adiposity with muscularity in these scales for males may still have been present with the IBS (Abell & Richards, 1996). Additionally, figural scales are generally more easily applied with adults due to children's and adolescents' rapidly changing body shapes over time (Yanover & Thompson, 2009), and response biases have been noted when a number of figures were presented simultaneously (Cafri & Thompson, 2004). Thus, it has been recommended to present figures sequentially or to use computer software, where a digitalised image of an individual's body can be modified in size, to address some of the shortcomings of this form of assessment (Gardner & Brown, 2010).

In addition to the measurement properties, reporting biases were possibly present, particularly among the boys. Although some boys may have been open to expressing their body image concerns and experiences, many others may have felt uncomfortable in doing so (Hargreaves & Tiggemann, 2004). Indeed, emotional expression has shown a decline with age across adolescence for boys (Polce-Lynch et al., 2001), and so reluctance to report on such personal feelings is important to consider. Moreover, although height and weight measurements were obtained in a private setting during the study session from consenting participants, this may have increased awareness to body image issues and impacted the response process (Paxton et al., 2005).

Despite the interesting findings that emerged, the limitations of the SEM analysis must be acknowledged. Respecification of an a priori model results in the analysis shifting from a confirmatory to an exploratory mode. Consequently, outcomes from post hoc modifications must be interpreted as suggestive of hypotheses for future analyses with further samples drawn from the same population (Hoyle, 2011). The possibility exists that the improved outcomes may be attributable to the specific characteristics of the sample data. The statistical implications can

include the increased chance of committing Type I errors as the initially predetermined significance level for the statistical tests shifts, increasing the likelihood of falsely declaring significant effects (Raykov & Marcoulides, 2000). However, such processes are appropriate if findings are cautiously interpreted and cross-validation procedures are performed (Ullman, 2001).

Diagnostic evaluation of the final model from the SEM analysis indicated some problems, particularly with the indicators of appearance schemas and differences in how the measure operated across gender. The measure of appearance schemas, the CAS, is an 8-item simplified version of Cash, Melnyk, and colleagues' (2004) revised self-report measure of appearance schemas, the Appearance Schema Inventory Revised (ASI-R). The two components of appearance schemas, motivational salience and self-evaluative salience, are reflected in the two-factor structure comprising the ASI-R. Since the ASI-R was validated with adult samples, Clark and Tiggemann (2007) developed the CAS measure, reflective of the two appearance schema components. However, this measure was developed for, and psychometric properties were initially evaluated with, a sample of 9-12 year old girls. The present study indicated problems in applying the CAS to the male adolescent sample. The standard error for the pathway from appearance schemas to negative body image evaluations was quite large when the final model was applied to the total sample. When the model was applied to separate gender subgroups, it was clear that the problem lay with the male sample as the standard error was substantially reduced for the female sample. This indicates that caution is warranted when interpreting this pathway for males. Furthermore, the reverse-scored items in the CAS may have caused problems for the boys as the multigroup analysis indicated differences across gender in the interpretation of one of these items. The issues accompanying the CAS with the male sample may be responsible for the failure of the final model to reach the preferred proportional improvement over the baseline model. Indeed, standardised measures of appearance schemas appropriate for adolescent males and females are lacking, with much variability in its assessment within the empirical research base (Smolak, 2004).

In addition to the CAS, other measures that may not have exclusively assessed the construct of interest were the ACS-YA and the two SATAQ-3 Internalisation subscales. As previously noted, a number of the ACS-YA items may have unintentionally tapped appearance-related cognitive processing as well as influences from the appearance culture. Additionally, media influences are highly prevalent in the item content of the SATAQ-3 subscales and influences from the media were likely confounded with internalisation of them (Smolak et al., 2005). Although the measures used were specifically designed to assess the variables of interest, the sociocultural influence constructs were highly correlated with the cognitive processing

constructs. In the SEM analysis, the high beta weights found for the pathways between sociocultural influences and cognitive processing variables were possibly inflated as a consequence. Thus, these pathways must be interpreted cautiously. Undoubtedly, appearance-related cognitive processing is inherently interconnected with processes occurring in the sociocultural environment, and many of the measures assessing either sociocultural influences or appearance-related cognitive processing reflect this interconnection, causing difficulty in the determination of independent contributions.

As the variances explained in the final model were low for males and moderate for females, the model was not all-inclusive and other important factors that are influencing young adolescents' negative body image evaluations, particularly for boys, need to be considered. Moreover, as discussed in **Chapter 6**, it is important to acknowledge the presence of many equally plausible equivalent or near-equivalent models that could possibly be generated both conceptually and statistically (Hoyle, 2011). With problematic psychological functioning as the outcome variable in the final model, the proportion of variance accounted for by the other variables included in the model predominantly corresponded to this outcome rather than negative body image evaluations per se. Thus, the variance explained for problematic psychological functioning was much higher than that for negative body image evaluations across all samples. The measure of self-esteem reflecting an indicator of problematic psychological functioning is likely responsible, due to the strong associations often noted between self-esteem and the remaining model variables (e.g., McNicholas et al., 2009; Williams & Currie, 2000; Wojtowicz & von Ranson, 2012). As discussed in **Section 6.9.1**, an alternative model corresponding to Cash's (1996) cognitive-behavioural perspective, where problematic psychological functioning is placed alongside BMI and pubertal development as an exogenous variable and negative body image evaluations is the outcome, may provide more fruitful findings regarding the proportion of variance explained for negative body image evaluations.

A further point to acknowledge is the usefulness of self-esteem in representing problematic psychological functioning in aetiological models of negative body image considering the frequent strong associations found between self-esteem and body dissatisfaction among both boys (e.g., Davison & McCabe, 2006) and girls (e.g., Wojtowicz & von Ranson, 2012). Indeed, body esteem contributes greatly to global self-esteem and its relevance to body image has been comparable across gender despite differences in the strength of association (Davison & McCabe, 2006). However, since both self-esteem and negative affect have previously been employed as reflective indicators of problematic psychological functioning (e.g. Keery et al., 2004; Paxton et al., 2006), the use of these indicators provided the opportunity to compare pathways and associations with previous research using adolescent samples. Moreover, since

the associations found between negative body image evaluations and self-esteem were moderate across gender in this study (*r*s= 0.38–0.48), and the RSE (Rosenberg, 1979) reflects global self-esteem with items pertaining to a generally favourable or unfavourable attitude toward oneself, its use was considered appropriate in this study. Nevertheless, it may be worthwhile to further explore additional indicators of problematic psychological functioning that may be appropriate for use in this area of research, such as anxiety, social withdrawal, or emotional stability.

The significant pathways found in the model across groups are consistent with many directional effects but the cross-sectional nature of the research cannot definitively confirm causal relationships. In order to infer causality, the cause and effect must be isolated and alternative factors ruled out, and the effect must follow the cause in time (Hoyle, 2011). SEM analysis for cross-sectional research cannot resolve these issues. Future research employing longitudinal designs are warranted to reinforce the SEM findings but the difficulty of isolating the cause and effect relation in social psychological research remains. It may be useful to begin the research process in late childhood in order to uncover further risk factors and avoid confounding bidirectional relationships that are possible once body image concerns are developed. Despite these limitations, the present research can fruitfully inform our understanding of the associations and directional effects between the constructs.

7.5 Practical Implications

In light of the prevalence of young people in this country with high levels of body dissatisfaction, which can potentially lead to unhealthy body-change behaviours and obesity, a focus on the influencing factors has the potential to benefit primary prevention and intervention strategies aimed to alleviate negative body image evaluations and associated outcomes. Since the present research involved testing comprehensive aetiological models with a strong integrated theoretical and empirical basis, the outcomes have implications for the efficacy of these programmes.

The information gained from both phases of the research can be merged to inform the knowledge base upon which to build effective interventions and health promotion initiatives. Qualitative research as part of a larger study adopting a mixed methods approach can have similar implications to a needs assessment. Engaging with these young adolescents about the current appearance culture in Ireland produced important information that can inform programme development on relevant health issues in adolescence. These adolescents predominantly engaged in behaviours to uphold current appearance trends but had apprehensions regarding sociocultural pressures and increased preoccupation with bodily issues

as they progress through adolescence. This further highlights the importance of prevention and intervention before middle adolescence, where such concerns may become a more stable aspect of the self, possibly leading to more serious body-change behaviours (Paxton et al., 2006). Additionally, because young adolescents' appearance-related concerns and issues are influenced by the interactive effects of personal characteristics and sociocultural influences from both the immediate and distal environments, it is important to develop interventions that target the dynamic processes that occur within this complex and multi-layered appearance culture.

Additionally, aetiological research across gender can inform prevention and intervention initiatives that focus on the factors found relevant for both males and females. In accordance with aetiological models, many of these existing programmes have been targeted at addressing concerns particularly relevant to females (McCabe & Ricciardelli, 2004a). However, prevention strategies that meet the needs of both genders are likely to be more beneficial for an overall healthier perspective on bodily issues within the appearance culture. This study provides important information for developing these effective prevention strategies, by first exploring the perspectives of young adolescents, and identifying differences in the processes occurring across gender. Furthermore, the final aetiological model acknowledged the role of gender and explored how gendered definitions and standards constructed by sociocultural forces moderated the pattern of influences, and components were highlighted that are modifiable for improved outcomes.

There are a number of ways the findings from the present study can inform the focus of programmes. First, the patterns of influence found for both boys and girls can inform modules for programme material. Second, outcomes suggest that certain methods may be of value, such as a school-based interactive peer supportive environment to change peer appearance norms for the better. Moreover, since boys and girls are both affected by and are affecting the appearance culture, findings support an ecological approach to prevention and intervention that acknowledges the reciprocal processes involved, the multiple levels of influence to be addressed, and the involvement of significant others (O'Dea & Yager, 2011).

7.5.1 Implications for Programme Material

The central role of the peer group in relation to the transmission of appearance norms and pressures cannot be overlooked. The pervasive nature of media influences was also clearly evident, with both its independent impact and its interactive effects with more proximal contexts. These findings highlight the need to afford greater attention to helping young people understand the ways in which influences from the wider sociocultural environment serve to create appearance standards that are further reinforced through proximal means. Media literacy

would be an effective strategy as it encourages the critical analysis of inescapable media influences. Through identifying the intent of media messages, young adolescents can become skilled at decoding, critiquing, and refuting potentially harmful portrayals (O'Dea & Yager, 2011). The deconstruction of media messages would also encourage conscious processing of this form of influence, which may be important as both the focus groups and previous research have identified its potentially subconscious impact (e.g., Polce-Lynch et al., 1998).

Increased emphasis on how influences from the proximal environment encourage integration of societal standards with self-evaluations is also warranted in addition to the promotion of resilient strategies (Jones, 2001; Jones et al., 2004). Additionally, addressing these issues within the peer context in school can provide the opportunity for young adolescents to discuss and critically evaluate the impact of media messages, providing reassurance and increasing the chance of attitudinal change (Tiggemann et al., 2000). For example, *Media Smart*, a school-based media literacy programme utilising interactive strategies, has evidenced lower levels of bodily concerns and dissatisfaction across gender (Wilksch & Wade, 2009). Media literacy may be usefully addressed as part of the collective issues that arise in the overlapping and multifaceted appearance culture.

In addition to supplying young people with the skills needed to deconstruct pervasive media messages, programme developers can also look at using the media for communicating positive messages concerning health and wellbeing (McNicholas et al., 2009). The Internet, for example, has important implications for prevention and intervention. On the one hand, it will be important to increase awareness of its potential dangers in relation to body image (Tiggemann & Miller, 2010), but then again, its interactive features could also be used as a way of transmitting healthy messages to young adolescents and boosting their self-esteem. Internet-based intervention programmes are an interesting avenue to consider due to the rapidly growing power and popularity of online media (Smolak & Cash, 2011), and the possibility of creating interactive, individually-tailored programmes that can reach wide-ranging audiences (Weisman, Bailey, Winzelberg, & Taylor, 2011). For example, the *My Body, My Life: Body Image Program for Adolescent Girls* is an online psychoeducational and self-help intervention guided by a self-help manual and trained therapist. Evaluation showed improved effects on body image, related cognitive processing, disordered eating, and depressive symptoms that were evident at six-month follow-up (Heinicke, Paxton, McLean, & Wertheim, 2007). However, such programmes need to be further evaluated with adolescents and males. Additionally, they may best be used as a supplement to school-based approaches as, despite the supportive virtual environment, participants are disconnected from person-to-person contact (Weisman et al., 2011).

The interesting findings concerning the importance of appearance-related cognitions and the differential role of cognitive processing across gender point to the need to include cognitive-behavioural strategies in programmes targeted at young adolescents. These strategies could help to target comparison tendencies and beliefs surrounding appearance, and address the link between influences from the appearance culture, dysfunctional cognitive processing, and body image evaluations. Cognitive-behavioural therapy (CBT) has been applied to body image issues adopting therapeutic strategies such as psychoeducation, self-monitoring, desensitisation, and the restructuring of dysfunctional cognitions (Jarry & Cash, 2011). A meta-analysis of the effects of this form of treatment found improvements for body image variables, particularly attitudinal body image (Jarry & Ip, 2005). Although predominantly conducted with adult females in targeted programmes, some techniques from this approach may be useful for a young adolescent population. For example within the eight steps of *The Body Image Workbook* (Cash, 2008), useful techniques to target unhealthy cognitive processing include acceptance-promoting and dissonance-inducing approaches to address dysfunctional appearance-related cognitions and internal dialogues. Findings from CBT-based interventions also indicate the close relationship between body image, eating pathology, and psychological functioning, and suggest that progress in one area may lead to improvement in others (Jarry & Cash, 2011). However, further research is warranted to determine the appropriateness and effectiveness of these techniques for primary intervention with adolescent and male samples.

With respect to individual characteristics, findings indicated that BMI was positively correlated with negative body image evaluations in boys and girls, which in turn, was associated with problematic psychological functioning. This pattern supports assertions that addressing factors which negatively impact body image evaluations will likely target other undesirable outcomes, considering that body image issues appear inextricably linked to weight-related problems and psychological well-being (e.g., Neumark-Sztainer et al., 2006; Cafri, Thompson, et al., 2005). In the last ten years, there has been an increased emphasis towards the development of broader programmes that address shared risk factors for both obesity and eating disorders (O'Dea & Yager, 2011). Since negative body image evaluation is one such shared risk factor, prevention and intervention programmes could also indirectly address the prevention of this range of body image-related outcomes by promoting an appreciation for the body, and improving appearance-related norms and messages (Neumark-Sztainer et al., 2002). In prevention programmes, it will be crucial to direct attention toward a broad spectrum of weight-related problems, including body image concerns and unhealthy dietary practices. For example, in targeting obesity, it may be more appropriate to address body image issues and other associated behavioural outcomes as well as nutritional advice, so that the goals are to maintain a healthy lifestyle and respect the body rather than those of losing weight or 'fixing' the body. Neumark-Sztainer, Friend and

colleagues (2010) introduced the *New Moves* programme with a philosophy to make girls feel better about their bodies so they will be motivated to treat it well and care for themselves through healthy eating, physical activity, and positive self-talk. When evaluated, the programme improved body image, self-esteem and weight-related behaviours, although it did not affect weight status. More research is needed on such inclusive programmes with children and adolescents.

7.5.2 Interactive School-Based Approaches to Prevention and Intervention

Schools are an important area to target for prevention and intervention initiatives. Adolescents spend most of their waking hours there providing a consistently encountered peer context, and an environment is offered where learning is encouraged and expected. Promoting peer-supportive appearance contexts within the school setting has been highly recommended considering that the development and progression of appearance-related norms and values commonly occur among the peer group (Helfert & Warschburger, 2011). Phase One of the present study and other research (e.g., Schutz & Paxton, 2007; Wang et al., 2006) has also indicated the important role of peers regarding appearance issues for young adolescents, highlighting the need to focus on establishing supportive peer relationships and contexts in targeting body image issues. Peer discussions in the presence of a trained facilitator can provide more effective reassurances about adolescent feelings, experiences, and anticipations about body image issues and future physiological changes, in comparison to the didactic delivery of this information from educational or healthcare professionals (Price, 2009). With the assistance of the facilitator, participants can be empowered to develop individual- and school-based solutions that are more likely to be implemented and maintained (Piran, 2001).

The young adolescents in the focus group study often cited self-esteem and confidence as traits that promoted resilience to the persistent messages in the sociocultural environment. In addition, the opportunity to discuss the issues in a group setting, as in the focus group study, can provide reassurance that others have had similar experiences, and provide the opportunity for young people to collectively deconstruct societal messages. Interactive peer supportive programmes that focus on increasing self-esteem have shown improvements in body image without causing any inadvertent harm to young adolescents. For example, O'Dea & Abraham's (2000) *Everybody's Different* programme aimed to boost self-esteem in order to improve body image, eating attitudes and associated behaviours in young adolescents. The programme was based on educational theories of cooperative, interactive, and student-centred learning, and evaluation indicated its appropriateness for both males and females, particularly in a preventative capacity.

Nonetheless, in a recent systematic review of school-based programme evaluations in post-

primary school environments, 7 out of 16 eligible programmes were effective in improving body image at termination and less than 20% sustained the effects at follow-up (Yager, Diedrichs, Ricciardelli, & Halliwell, 2013). The most effective programmes targeted young adolescents, included media literacy, self-esteem and peer-focused content, and were at least five hours in length over multiple sessions. Surprisingly, improvements were noted exclusively among the boys in co-educational settings, while gender-specific programmes generally produced positive effects on body image.

7.5.3 Ecological Approaches to Prevention and Intervention

The development of the ACS-YA highlighted the complex and multidimensional nature of the appearance culture and how an ecological perspective can provide a reflection that is more representative of everyday experiences for young adolescents living in Ireland. Accordingly, ecological approaches to prevention and intervention with an increased focus on the school environment and policies, and the inclusion of parents and the community, are likely to be particularly valuable (O'Dea & Yager, 2011). Acknowledgement of the multiple levels of body image influences and how distal influences can shape more proximal social structures and norms, which in turn impact individual outcomes, will likely correspond to the effectiveness of prevention and intervention initiatives.

Input from young adolescents and responsible adults who are involved in their lives is needed to change aspects of the appearance culture that reinforce unhealthy body-related messages. Involvement from all of these sources can ensure programmes are adequately designed and administered to address the key factors associated with negative body image evaluations. In exploring the contribution of family influences, previous findings and the present research indicate that the influential role of the family in relation to appearance and body image issues is much lower than that of peers and the media. However, family influences were noted, particularly the modelling of behaviours and appearance-related discussions, and home environments represent contexts where many processes that transmit messages about appearance and bodily norms commonly occur. Thus, findings also have implications for increasing parents' awareness of their potential impact on their child's body image (Rodgers & Chabrol, 2009). Indeed, a collaborative approach encompassing the home, school, and community will permit the successful implementation of consistent policies and procedures and will promote healthier body-related messages to all involved (O'Dea & Maloney, 2000).

The WHO's HPS framework promotes a similar holistic approach, engaging health and education professionals to enhance health in general within school and local community settings through active collaborative engagement of all stakeholders involved. The Health Service

Executive (HSE) has recently published a document promoting a HPS framework entitled *Schools for Health in Ireland* (2013). It outlines an ecological, whole-school approach to healthy development with involvement from stakeholders through teacher training (e.g., SPHE support), links with the community, parent initiatives (e.g., mental health promotion programmes), and student participation. The introduction of the SPHE curriculum was an initial step of implementing a HPS framework in educational settings in Ireland. However, further execution of the ecological approach is required to adequately address issues that remain.

Findings from the present research can be used to identify aspects of body image issues and influencing factors to target. Further training in the area and in the appropriate administration of programme content can equip school staff with the much-needed skills and confidence to deal with these issues, such as recognising occurrences of appearance-related criticism and preventing them further through promotion of self-esteem and body satisfaction. Targeting concerns and influences across the curriculum can ensure that health-promoting messages are consistent and sustained, such as tackling peer pressure issues in SPHE, media literacy in English class, and normative physiological compositions in Biology (O'Dea & Maloney, 2000). The viewpoints of stakeholders can be systematically obtained to ensure programmes are addressing the key issues. The core values of equity, inclusion, and empowerment can be implemented through peer-supportive environments and systematic input from students and school authorities regarding the content of school curricula and ethos.

7.5.4 In Summary

The exploration of the appearance culture in the present study and previous findings (e.g., Mooney et al., 2009) highlight the need for proactive interventions in educational settings for young adolescents in Ireland, which promote an environment that embraces diversity regarding appearance, body shape and weight. A nationwide, universal school-based approach will extend the number of young people exposed to these initiatives and has the potential to help those considered 'at risk' while helping to prevent concerns in others (McVey et al., 2007). The development of engaging programmes in consultation with young adolescents can increase self-esteem and empower students to deal with these issues in an open manner allowing for critical thinking and debate. Such programmes would be suitable to the SPHE syllabus as they would coincide with the equal-participation and shared learning principles of the curriculum (Nic Gabhainn et al., 2010), as well as policies and legislation related to the welfare of children and young people (Kilkelly, 2007).

The findings of the present study suggested a number of content areas and strategies appropriate for the developmental stage of early adolescence from which to base programme material,

including media literacy, online components, cognitive-behavioural techniques, and interactive peer-led strategies. Online components may be particularly suited to boys as the social desirability pressures of "not being bothered" about bodily concerns may prevent them from actively participating in less discrete approaches for some topics (Grogan & Richards, 2002; Heinicke et al., 2007). It has been suggested that it may be more appropriate to address appearance ideals and social and physical developmental changes separately across gender (Currie et al., 2012; Yager et al., 2013). On the other hand, findings from prevention and intervention programmes suggest that mixed-gender programmes can be appropriately conducted (e.g., McVey et al., 2007). Since opposite-sex peers are omnipresent in the sociocultural environment and Phase One of the present study indicated their influence on body image concerns, an all-inclusive approach may be more appropriate in creating a peer-supportive environment. Perhaps a number of gender-specific components could be addressed in online supplementary activities, such as issues regarding pubertal development (McNicholas et al., 2012). Undoubtedly, universal school-based approaches will require careful planning of programme material to avoid causing inadvertent harm through normalising body image issues, and to ensure motivation to participate is sustained through student involvement in both planning and delivery (O'Dea & Yager, 2011; Yager et al., 2013).

Additionally, an ecological approach to school-based programmes can promote healthy and accepting attitudes to body image issues by changing the contexts in which these issues develop and progress. In order to achieve this, all stakeholders must be involved pursuing the common goal, to promote more positive proximal appearance contexts. Curricula must adequately address the multilevel influences including individual, social, environmental, and wider social factors. Experimental and evaluation studies could then determine the effectiveness of such programmes in changing attitudes, and provide further evidence supporting the need to target the multifaceted contexts of the appearance culture in order to fully address body image issues (Piran & Mafrici, 2011; Smolak & Cash, 2011). Cultural change is a daunting task but practical approaches such as these are achievable and can contribute to wider societal change over time.

Ongoing efforts are required to continually progress the HPS framework across post-primary schools in Ireland, and to ensure that body image issues are appropriately addressed. More attention needs to be directed at Government agencies highlighting the need to incorporate these programmes into the school curriculum. Recently, a parliament inquiry in the UK set forth the recommendation for the mandatory inclusion of evidence-based body image issues within the primary and post-primary school curricula (All Party Parliamentary Group on Body Image, 2012). The present findings indicate that Ireland needs to follow suit. Granted, both development and delivery of these programmes are considerable tasks, as they require careful

planning, consideration of the needs of the schools where they will be implemented, and training of school and community personnel (O'Dea & Maloney, 2000; Smolak & Striegel-Moore, 2004). For greater cost-effectiveness, it may be strategic to employ an integrated approach where body image, weight-related issues, and psychological functioning problems are simultaneously addressed (Neumark-Sztainer et al., 2007). Undoubtedly, careful planning and evaluation is required to ensure a coherent, health-promoting message is communicated, but may be worthwhile considering negative body image is a shared risk factor for these outcomes.

7.6 Directions for Future Research

The present study can contribute to the existing literature on the development of negative body image evaluations in young adolescents, and in light of the findings and methodological considerations, a number of directions for future research are presented below.

7.6.1 Future Investigations of the Appearance Culture and Testing of the ACS-YA

The previous section noted how Phase One of the research has important implications for health promotion initiatives in Ireland. The issues raised in the focus groups warrant attention as they are largely connected with contemporary adolescent health and wellbeing. However, there is a need for replication in other geographical areas of Ireland, as corroboration is needed for these qualitative outcomes to effectively contribute to the development of important health initiatives. Further theoretical work in understanding the appearance culture, incorporating both qualitative and quantitative approaches, is also needed to further investigate the key issues regarding the application of the bioecological model, and how influences from the sociocultural environment lead to appearance-related cognitive processing and body image outcomes.

The ACS-YA was developed using a mixed methods approach that encompassed a series of systematic, rigourous procedures. The findings suggest that the scale is suitable for further use, particularly in an Irish context, and is a practical and easily administered assessment of the everyday appearance-related influences in the sociocultural environment. Although brevity was especially sought for the use of the ACS-YA in the second phase of the research, there is scope for future applications and versions of the measure to address a variety of research objectives. Perhaps longer, more comprehensive forms of the ACS-YA can be validated for use when a thorough assessment of the constructs is of interest. Indications of reliability and validity are promising, however, the psychometric properties of the ACS-YA cannot be determined within this study alone but through further applications across many studies (Noar, 2003). Future research is also needed to verify the nature of ACS-YA with groups of various ethnic and socio-economic backgrounds, and in longitudinal studies, to determine the generalisability of the

current findings and contribute towards the on-going process of validation.

7.6.2 Future Investigations of Aetiological Models

The findings that emerged from testing the expanded aetiological models have several implications for future research. The prospective testing of the final model would be interesting to determine the consistency of the direct and indirect associations noted and whether directional effects can be postulated. For example, although findings support the pathway from negative body image evaluations to problematic psychological functioning, no firm conclusions can be made with correlational data. Attention also needs to be afforded to how levels of body image change over time as the roles played by the model's constructs can be further determined by controlling for baseline levels. Moreover, longitudinal studies will permit the comparison of the various trajectories and patterns of change over time across gender. This research is necessary to answer important questions that arise from the present study, such as how the patterns of association in male adolescents change over time and if the effects of emergent influencing factors become stronger or weaker throughout the adolescent period.

In order to strengthen the generalisability of the model, future research is needed to test the patterns of association among the variables with more ethnically diverse samples. Additionally, although the aim of this study was to focus on increasing our understanding of aetiological factors relevant in early adolescence, it would be of interest to test the final model with individuals before they enter adolescence. Beginning the investigations in late childhood and following participants as they enter the adolescent period may help to more fully understand the developmental process of body image concerns.

Associations found in the current study could be further explored using a multi-informant design. In assessing sociocultural influences, gathering information from a number of sources would provide further insight into the influences within the appearance culture. Differences in perceptions from multiple standpoints could be explored and the chance of shared method variance in the model would be reduced. Furthermore, the issues that arose from the present study regarding the measurement of appearance-related cognitive mechanisms warrant attention. The development of appropriate measures will first require work focusing on the conceptualisation of appearance-related cognitive processing, as contradictory opinions remain regarding the differentiation of the three forms explored in this study (e.g., Tiggemann, 2005; Yamamiya et al., 2005). The present study suggested independent contributions from each process but measurement issues limited the value of this outcome. There is a need for in-depth qualitative work investigating how boys and girls cognitively process messages from the sociocultural environment. Work of this kind can contribute to the development of urgently

required measures that adequately assess cognitive processing variables across gender (Smolak, 2004). Focusing on the development of assessment tools that provide an accurate reflection of the constructs to be measured, which are standardised with both male and female samples, are recommended prerequisites for future applications of the model.

The plausibility of many equivalent or near-equivalent models was previously acknowledged. Future investigations could examine these alternative models. Testing the final model in accordance with Cash's (1996) postulation with problematic psychological functioning placed at the beginning of the sequence as a historical influence would be a noteworthy focus for future research. An additional interesting avenue would be to explore the indirect effect of BMI on negative body image evaluations through sociocultural influences in addition to the direct pathway tested in this study. Although the present findings and previous research support the direct effect, the focus group study indicated that one's weight status would shape the experience of the appearance culture. Moreover, both qualitative and quantitative research has indicated that the higher incidence of appearance-related stigmatisation in relation to BMI is strongly associated with body dissatisfaction (Neumark-Sztainer et al., 1998; Ricciardelli & McCabe, 2009).

Past research has primarily focused on developing and testing aetiological models of negative body image in female adolescents. Indeed, with the present model explaining a larger proportion of the variance in both outcome variables for females, the relevance of female-based sociocultural models may be limited with males (Rodgers et al., 2009). However, given the increasing prevalence of body image concerns reported for males (Currie et al., 2012) particularly when both muscle and weight concerns are considered (Ricciardelli & McCabe, 2007), the increased portrayals of societal male muscular ideals (Leit et al., 2001), and the significant associations found in the present study, it is imperative that future research continues the quest of understanding the factors that influence body image in males. The next step could be to investigate the role of additional variables that were highlighted as potentially important in the focus group study and have shown previous associations with body image for males, such as the focus on sport, perceived physical competence, levels of gender-role orientation, and desired role models in the media (Field et al., 2001; Lyu & Gill, 2012; McCreary et al., 2005; Ricciardelli & McCabe, 2009). Additionally, the variance explained has been much higher in models where body-change behaviours represent the outcome of interest and suggest the inclusion of behavioural variables in future applications of this model, since many direct effects with the influencing factors have emerged (e.g., Neumark-Sztainer et al., 2003; Ricciardelli & McCabe, 2003b).

Finally, the relatively modest variance explained even when the model was applied to females suggests that there are other important factors to consider regarding young adolescents' body image. For example, in addition to risk factors, future research could also focus on the identification of protective factors as this could fruitfully inform prevention and intervention research (Wertheim & Paxton, 2011). Tylka (2011) has called for a paradigm shift in body image research, from that of generally focusing on pathological outcomes to the exploration of factors that promote a positive body image. Recent qualitative research has highlighted how the interpretation and cognitive processing of appearance-related information differs among those with a positive body image. Holmqvist and Frisén (2012) reported specific characteristics of the discourses, including thorough criticism of ideal portrayals and their respective underlying intentions, perceptions of ideals as unrealistic, and flexible definitions of beauty. Indications of these attitudes were also evident in the focus group findings here, indicating that these traits are present to some degree but may be overridden by other social- and individual-level influences. Programmes encouraging this protective filtering will be of value, including the acceptance of diversity regarding expressions of beauty and attractiveness through peer supportive strategies, and consistent application of media literacy strategies in real-world situations (Tylka, 2011).

7.7 Conclusion

The present study contributed to the existing body image literature in a number of ways. The mixed method approach in Phase One of the study provided important information on understanding the perceptions and experiences of the appearance culture in early adolescence across gender. The test of two a priori models in Phase Two produced a final model highlighting important direct and indirect pathways from sociocultural factors, physical characteristics and appearance-related cognitive processing to negative body image evaluations and problematic psychological functioning. The final model produced important gender differences among individual pathways. Significant pathways emerged from pubertal development and appearance schemas to negative body image evaluations for the boys but not the girls, while a significant association between appearance comparisons and negative body image evaluations was noted for the girls but not the boys. An additional pathway was added to the final model from sociocultural influences to problematic psychological functioning and this was stronger among the girls.

This study represented an important step towards identifying factors that influence negative body image evaluations in young adolescents by testing aetiological models that were comparable across gender. The study contributes to the literature supporting an integrative approach to understanding body dissatisfaction and extends previous research by providing an

ecological reflection of sociocultural influences and incorporating additional physical characteristic and cognitive processing variables. The cross-sectional design of the study limits the ability to infer causality, and future applications with prospective designs can strengthen the findings and determine directionality within the model.

To conclude, the large sample size, comprehensive range of influencing factors assessed, and extensive use of SEM procedures provided much insight, and it is hoped that the present study can contribute to prevention and intervention programmes in this field. Findings are relevant for a range of professionals working in areas of adolescent health and education, and can set the stage for school-based ecological programmes that are developmentally sensitive to young adolescents. The abundance of young people affected, the increasingly pervasive messages from the sociocultural environment, and the range of potential negative outcomes, all highlight the growing health problem of negative body image in Ireland. With these issues highlighted as an important public policy goal (O'Connell & Martin, 2012; Ombudsman for Children's Office, 2008), progress at this level, with a multi-faceted focus on both the individual and the surrounding appearance culture, is a necessary step in the uphill climb to sustainable change in the field of body image.

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Appendix A: Youth Club and School Recruitment Letter for the Focus Group Study



Dear _____

This letter is a request to carry out focus groups in your youth club/school involving members/students, aged between 12 and 14 years of age. The specifics of the research study are detailed below. Thank you for taking the time to read this information.

My name is Joanne Kierans and I am a PhD student with the Children's Research Centre and the School of Psychology in Trinity College Dublin. My supervisor for this project is Dr. Lorraine Swords, a lecturer in Child and Adolescent Psychology, also from Trinity College. Our research involves the investigation of factors influencing body image appraisals of young adolescents, particularly in relation to body shape/build, and overall appearance. Since research has shown links between a negative body image and a number of unhealthy outcomes, such as low self-esteem, depression, unhealthy weight-control behaviours, and levels of overweight and obesity, it is an important aspect of an adolescent's wellbeing.

For this part of the research project we would like to invite young teenagers to take part in a focus group discussion about the influences that they consider important for their body image appraisals. The focus groups are an opportunity for them to share their ideas and opinions with us so we can develop a comprehensive survey for addressing these issues.

The participation of your youth club/school in this phase of the research process would be very much appreciated. If you agree to allow us to invite youth club members/students to participate in this study, we will provide a more detailed written overview of the research project, and information packs for the youth club members/students and their parents containing research information sheets and parental consent forms. Those who return signed parental consent forms will then be presented with a participant consent form for them to sign if they are willing to take part.

We will contact you by phone in a few days to answer any questions you may have about the study. In the meantime, if you have any questions you can contact us by telephone or e-mail:

Joanne Kierans
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
01 896 2982
kieransj@tcd.ie

Dr. Lorraine Swords
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
01 896 3638
swordsl@tcd.ie

Thank you very much

_____
Joanne Kierans

The Study Procedure

Participants will be asked if they would like to take part in a focus group discussion exploring the factors that influence thoughts and feelings related to body image and appearance in young Irish adolescents. Ideally, the focus groups will take place in a small room in the youth centre/school. The focus group will include four or five members of the club/students and will last about thirty minutes. The girls and boys will be in separate groups and the researcher will guide the discussions in the company of a staff member. The aims of these focus groups will be explained to the participants beforehand and they are free to decide if they would like to take part. They will not be asked to share personal stories or anything they are not comfortable sharing. We will ask all group members not to discuss what was said afterwards in the club/school. However, confidentiality of what is discussed cannot be completely guaranteed. Additionally, if a participant discloses any information that causes the researcher to worry or be concerned for their safety, an appropriate 'duty to report' procedure will be followed. Participants will be informed that their participation is completely voluntary and that they are free to decline at any time even if their parent has given permission to participate. In order to carry out the focus groups we will be requesting approximately 30 minutes of youth club/class time for participation.

What will the information be used for?

All information from the focus group study will be stored on a confidential basis and used for the purpose of the research only. The information will be analysed in terms of the themes and main issues that emerge from the discussions. No participant will be identified in anything that is published from the study. We hope that the results of the study will make an important contribution to our understanding of young people's views and experiences on this important aspect of their lives and inform related policy decisions.

Appendix B: Letter Granting Ethical Approval to Conduct the Study

COLÁISTE NA TRÍONÓIDE, BAILE ÁTHA CLIATH | TRINITY COLLEGE DUBLIN
Ollscoil Átha Cliath | The University of Dublin

15th March 2011

F.A.O. Joanne Kierans

School of Psychology Research Ethics Committee

Dear Joanne,

I am pleased to inform you that your application entitled "Predicting disordered eating in early adolescence" has been approved by the School of Psychology Research Ethics Committee.

Yours sincerely,

SCHOOL OF PSYCHOLOGY
Aras an Phairsaigh
Trinity College
Dublin 2

Dr. Tim Trimble
Chair
School of Psychology Research Ethics Committee

Scoil na Síceolaíochta,
Dámh na nEolaíochtaí Sóisialta agus Daonna,
Áras an Phiarsaigh, Coláiste na Tríonóide,
Baile Átha Cliath 2, Éire

School of Psychology,
Faculty of Arts, Humanities and Social Sciences,
Áras an Phiarsaigh, Trinity College,
Dublin 2, Ireland

T 353 (0)1 896 1886
F 353 (0)1 671 2006
psychology@tcd.ie
www.psychology.tcd.ie

Appendix C: Information Sheets and Consent Forms for the Focus Group Study, Pilot Studies, and Main Study

The Focus Group Study

Trinity College Dublin
children's research centre
research for children & young people

Participant Information Sheet

You are invited to take part in a research project that is explained below. Thank you for taking the time to read this information.

What is the Research Project about?
The project aims to explore the many influences that young teenagers in Ireland face in relation to their thoughts and feelings about their appearance and body image. To do this we would like to invite young people, like you, to take part in a group discussion. We will be asking you about your views on these influences, such as discussions with friends, celebrities, and magazines. There are no right or wrong answers involved – it would just be great to hear your opinions and ideas.

Who are the Researchers?
I am a PhD student in Psychology and my supervisor is Dr. Lorraine Swords, a lecturer in Child and Adolescent Psychology from Trinity College Dublin.

What do I need to do to be in this research project?
If you choose to participate in this research project, you will be asked to take part in a group discussion in your youth club/school, with 4 or 5 others from your club/class. Boys and girls will be in separate groups and each discussion will take about 30 minutes.

Your parent may agree that you can take part in our study but that does not mean you have to if you don't want to. At any time you can tell us that you no longer wish to take part in the discussion and you do not need to explain why. Since the group discussions will involve a number of people telling us their opinions and ideas, we ask you not to talk about what other people said afterwards in school. We ask you to keep the information within the group. You may like to discuss your participation in this research project with your parents. We will not be sharing the information with youth club/school staff. Also, if you tell us something that makes us concerned or worried about you, we will want to tell your parent but we will tell you this first. This is to make sure that you are okay.

What will the information be used for?
All the information you give us will be kept private and confidential and only the researchers involved will have access to it. The information from these discussions will help to develop a questionnaire asking about these influences that is suited to young teenagers in Ireland today

If you have any questions you can talk to us before or after the research session or you can contact us by telephone or e-mail:

Joanne Kierans
Children's Research Centre
Trinity College
Dublin 2
01 896 2982
kieransj@tcd.ie

Dr. Lorraine Swords
Children's Research Centre
Trinity College
Dublin 2
01 896 3638
swordsl@tcd.ie

Thank you very much



Certificate of Consent for Participants

Please tick the boxes if you agree with the statements below

I have read the information sheet/the information sheet has been read to me ☐

I am happy to take part in a study involving focus groups where I will be discussing influences related to appearance and body image experienced by young teenagers in Ireland ☐

I understand that I am free to withdraw from participation at any time without explaining why ☐

I understand that other people in the group will also hear about my ideas ☐

I understand that if I say something that causes the researcher to worry about me, she will have to tell my parent, but will not do this without telling me first. ☐

I have been provided with the name of a researcher who can be easily contacted by phone or through email in case I have any questions about the study ☐

Print Name of Participant _____

Signature of Participant _____

Date _____



Parent Information Sheet

Dear Parent

This letter is a request to invite your son/daughter to participate in a research project that is described below. Thank you for taking the time to read this information.

My name is Joanne Kierans and I am a PhD student with the Children's Research Centre and the School of Psychology in Trinity College Dublin. My supervisor for this project is Dr. Lorraine Swords, a lecturer in Child and Adolescent Psychology, also from Trinity College. Our research involves the investigation of what influences positive and negative body image appraisals of young adolescents in Ireland. For this part of the research project we are asking parents for permission to invite their son/daughter to participate in a focus group to discuss the influences that they consider important for their body image appraisals. Your son/daughter's input will be valuable and representative of a present-day young Irish adolescent. The outcome of these discussions will help towards developing a questionnaire suitable to an Irish context for young adolescents, and our main study will use the developed questionnaire. It is hoped that the results of this research will make an important contribution to our understanding of young people's views and experiences on this important aspect of their lives, and inform related policy decisions.

The Research Procedure

The focus groups will take place in a classroom in your son/daughter's youth club/school. The focus group will include four or five other members of the club/class and will last about 30 minutes. The girls and boys will be in separate groups and the researcher will guide each discussion in the company of a staff member. The aims of these focus groups will be explained to the participants beforehand, they will be informed that their participation is completely voluntary and that they are free to decline at any time even, if their parent has given permission for them to participate. They will not be asked to share personal stories or anything they are not comfortable sharing. We will ask your child and others in the group not to discuss what was said afterwards in the club and the information will not be discussed with the school staff. You should know, however, that confidentiality of what is discussed cannot be completely guaranteed. Additionally, if something is said in the discussion that causes the researcher to worry about the safety or wellbeing of your child, the researcher will inform you, but not without telling your child first.

What will the information be used for?

The information that we collect from the focus groups will be kept confidential and will not be shared outside of the research team. The information will be stored on a computer and will be analysed in terms of the themes and main issues that emerge from the discussions. No participant will be identifiable from anything that is published in the study.

If you give consent for your son/daughter to participate in this focus group, the next thing we will do is ask for your son/daughter's agreement as well. Both of you will have to agree independently before participation. If you have any questions you can contact us by telephone or e-mail:

Joanne Kierans
Children's Research Centre
Trinity College
Dublin 2
01 896 2982
kieransj@tcd.ie

Dr. Lorraine Swords
Children's Research Centre
Trinity College
Dublin 2
01 896 3638
swordsl@tcd.ie

Thank you very much



Certificate of Consent for Parents

I have been asked to give consent for my son/daughter to participate in this research study which will involve him/her taking part in a focus group discussion.

I understand that he/she will also be asked to give permission and that his/her wishes will be respected.

I have been informed that my child can withdraw from the study at any time and that he/she does not have to participate in the discussion if he/she does not want to.

I am aware that participation in this study may not benefit either my child or me personally but that it can inform future research.

I have been provided with the name of a researcher who can be easily contacted by phone or through email.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate in this study and understand that I have the right to withdraw him/her from the study at any time.

Print Name of Child_____

Print Name of Parent or Guardian _____

Signature of Parent of Guardian_____

Date _____

The Pilot Studies and Main Study

Note: The references to height and weight measurements were not included in information sheets and consent forms for the pilot studies.

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research for children & young people

Participant Information Sheet

You are invited to participate in a research project that is explained below. Thank you for taking the time to read this information.

What is the Research Project about?
The project aims to explore the many influences that young teenagers in Ireland face in relation to their thoughts and feelings about their appearance and body image. To do this we would like to invite young people, like you, to fill out a survey. The information from the survey will help us to understand the influences that affect how young teenagers in Ireland feel about their appearance and body image, for example celebrities on TV.

Who are the Researchers?
I am a PhD student in Psychology and my supervisor is Dr. Lorraine Swords, a lecturer in Child and Adolescent Psychology from Trinity College Dublin.

What do I need to do to be in this research project?
If you choose to participate in this research project, you will be asked to fill out our survey. The survey will take about 40 minutes to complete. If there is a question that you do not wish to answer, you can skip it, and move on to the next question. Following this we will ask if we can measure your weight and height. This will be done privately and the researcher will keep the measurements private.

Your parent may agree that you can take part in our study but that does not mean you have to if you don't want to. At any time you can tell us that you no longer wish to take part and you do not need to explain why. You may like to discuss your participation in this research project with your parents. We will not be sharing the information you give with your teacher, school principal or parents. However, if you write something that makes us concerned or worried about your health in the survey, we may want to tell your parent but we will tell you this first. This is to make sure that you are okay.

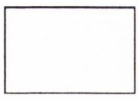
What will the information be used for?
All the information you give us will be kept private and confidential and only the researchers involved will have access to it. The information from this large study will be written about but we will not use any participant's name. It is hoped that the outcome of our study will help in our understanding of young people's views and experiences in this area of their lives and in the future design of support programmes related to appearance and body image.

If you have any questions you can talk to us after the research session or contact us by telephone or e-mail:

Joanne Kierans
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
01 896 2901
kieransj@tcd.ie

Dr. Lorraine Swords
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
01 896 3638
swordsl@tcd.ie

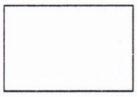
Thank you very much

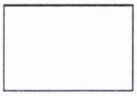


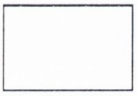


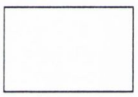
Certificate of Consent for Participants

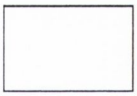
Please tick the boxes if you agree with the statements below

I have read the information sheet/the information sheet has been read to me 

I am happy to take part in a study involving completing a survey about influences related to appearance and body image. 

I understand that I am free to withdraw from participation at any time without explaining why 

I understand that if I write something that causes the researcher to worry about me, she may have to tell my parent, but will not do this without telling me first. 

I have been provided with the name of a researcher who can be easily contacted by phone or through email in case I have any questions about the study 

Print Name of Participant _____

Signature of Participant _____

Date _____

Trinity College Dublin
children's research centre
research for children & young people

Parent Information Sheet

Dear Parent

This letter is a request to invite your son/daughter to participate in a research project that is described below. Thank you for taking the time to read this information.

My name is Joanne Kierans and I am a PhD student with the Children's Research Centre and the School of Psychology at Trinity College Dublin. My supervisor for this project is Dr. Lorraine Swords, a lecturer in Child and Adolescent Psychology, also from Trinity College. Our research involves the investigation of what influences positive and negative body image appraisals of young adolescents in Ireland. For the first part of the research project a number of focus groups were carried out with young teenagers to discuss the influences that they consider important for their body image appraisals. The focus groups were an opportunity for them to share their ideas and opinions with us, and a comprehensive survey was developed based on the findings. For this part of the research project, participants will be asked to fill out the developed survey containing questions about the various influences.

The Research Procedure

The research will take place in your son/daughter's school in a classroom setting during the typical school day. Your son/daughter will be asked to fill out the survey provided by, and collected by, the researcher. If participants do not wish to answer any of the questions included in the survey they can skip them and move on to the next question. They will be informed that their participation is completely voluntary and that they are free to decline at any time even, if their parent has given permission for them to participate. Completion of the survey should take no more than 40 minutes. If something is written in the survey that causes the researcher to worry about the safety or wellbeing of your child, the researcher will inform you, but not without telling your child first. Height and weight measurements will also be recorded to determine whether an individual's body mass index plays an important influencing role. The measurements will be carried out in a private setting in accordance with the procedure used by the national *Growing Up in Ireland* study, and only the researcher will have access to them.

What will the information be used for?

The information that we collect from this research project will be kept confidential and will not be shared outside of the research team. Any information about your child will have a number on it instead of his/her name. Only the researchers will know what his/her number is and this information will be kept under lock and key. The information from this large study will be written about but no participant or school will be identifiable. We hope that the results of the study will make an important contribution to our understanding of young people's views and experiences on this important aspect of their lives and inform related policy decisions. We request your son/daughter's participation as their input will be valuable in representing the present-day young Irish adolescent.

If you give consent for your son/daughter to participate in this study, the next thing we will do is ask for your son/daughter's agreement as well. Both of you will have to agree independently before participation. If you have any questions you can contact us by telephone or e-mail:

Joanne Kierans
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
01 896 2901
kieransj@tcd.ie

Dr. Lorraine Swords
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
01 896 3638
swordsl@tcd.ie

Thank you very much



Certificate of Consent for Parents

I have been asked to give consent for my son/daughter to participate in this research study, which will involve him/her completing one survey and getting his/her weight and height measured.

I understand that he/she will also be asked to give permission and that his/her wishes will be respected.

I have been informed that my child can withdraw from the study at any time and that he/she does not have to answer any question in the survey if he/she does not want to.

I am aware that participation in this study may not benefit either my child or me personally but that it can inform future research and prevention programmes.

I have been provided with the name of a researcher who can be easily contacted by phone or through email.

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions and any questions that I have asked have been answered to my satisfaction. I consent voluntarily for my child to participate in this study and understand that I have the right to withdraw him/her from the study at any time.

Print Name of Child_____

Print Name of Parent or Guardian _____

Signature of Parent of Guardian_____

Date _____

Appendix D: Statement Addressing the Researcher's Subjectivity for the Focus Group Study

Firstly, as the moderator, I would like to describe my personal experience with the phenomenon under study in an attempt to set this aside somewhat from the experiences of the young adolescents, although I acknowledge that this is not entirely possible. As a female in my late twenties, I am acutely aware of the persistent influences from the notion of the appearance culture, the messages portrayed by the wider social environment and how these are further transmitted in more immediate social contexts. Although it was a number of years ago when I was a young adolescent, since beginning this research I have had a tendency to recollect my experience of the appearance culture and to compare the differences between the sociocultural environment then, at the turn of the new millennium, and now, at this present time. There appear to be many similarities, such as the importance of the peer group and social acceptance. Many differences are also evident, such as the increased access and use of mediums with the digital revolution, and the increased coverage of the appearances and personal lives of celebrities and sporting stars. It was these differences that elicited my curiosity about the influential processes occurring in present-day environments. Moreover, the need to understand experiences from the perspective of young adolescents led me to this qualitative stance.

The pervasive societal messages regarding the meaning of the culturally construed ideal body have undoubtedly shaped my interpretation and approach to the study and I hope that this self-awareness can help to position myself in the research. It is important that my inability to completely remove myself or my interpretation from this qualitative investigation is acknowledged. After each individual focus group, I considered my position and the positioning of participants, and the multiple contexts within the group situation. The presence of the moderator and other participants influence individual responses and this can threaten the credibility of the data, so it is important to be cognizant of this.

Appendix E: Draft 1 of the Scale Reflecting Influences from the Appearance Culture

Note: The gender-specific items contain the terminology for the female version in parentheses

The Appearance Culture Scale for Young Adolescents (ACS-YA)

Glossary *(please refer to this as you come upon these terms in the questions)*

An ideal body...

Many people like their appearance and many people would ideally like to change some things about their appearance. Consider an ideal body to mean a body that you ideally would like to have and believe is just right, based on gender, age, weight, and muscle tone.

Celebrities...

Celebrities are mentioned in a number of items below. When we refer to celebrities we mean to include famous people that are actors/actresses, popstars, models, and sport stars

Facebook...

Facebook is mentioned in some items as it is currently the most popular social networking site used by young people today. But if you are a member of any other social networking site like MySpace, Bebo etc please answer the item as if it refers to the one you are a member of. If you are not a member of a social networking site please indicate this when asked.

Please turn over to start...

*Below is a list of statements dealing with different things that may influence how you feel about your appearance and your body. Please read each statement carefully and place an 'X' in the **one** answer that best describes how **you** feel. If you strongly agree with the statement, place an 'X' in the box labelled 'Strongly Agree' or if you slightly disagree with the statement, place an 'X' in the 'Somewhat Disagree' box. There are no right or wrong answers.*

For example:

Summer holidays are lots of fun	Strongly Agree X	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

1. Nowadays how you look is important for both boys and girls	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
2. When I started hanging around with other people who were into their looks, I started to think about how I looked	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
3. I would like to be muscular (skinny) because that is what everybody likes	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
4. Having an ideal body and looking good is a big deal for my friends	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
5. Everyday I think about how I look because others my age are so judgmental	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
6. Whenever I meet other people with ideal bodies it makes me think about how my body matches up	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
7. I wouldn't care about my body weight and shape if other people around me didn't care	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
8. My body weight and shape has nothing to do with whether people my age will like me	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
9. If I had no friends I would try to improve my appearance	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

10. I want to have an ideal body to fit in with the popular people in my class	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
11. It is important for me to be a certain weight and shape to play sports with my friends	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
12. If my friends were doing things (eg. dieting/exercise) to change how they look I would too	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
13. Being teased about my appearance makes me want to change my body (eg. through dieting/exercise etc)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
14. Bullying over appearance can have a serious effect on teenagers	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
15. I am motivated to have an ideal body so I won't get teased or bullied	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
16. If I had an ideal body, I think people I fancied would like me more	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
17. I want to change my appearance to get attention from people I fancy	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
18. If someone I fancied wanted me to change my appearance I would not listen, it is my decision	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
19. I want the same body shape as famous people that girls (boys) like	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
20. Most girls (boys) only fancy boys (girls) because of how they look	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
21. It is important for the boys (girls) I know to look tough (slim and attractive) to impress the people they fancy	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
22. It is important to be a certain weight and shape in my family	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

23. I wouldn't care about my body weight and shape if my family didn't care	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
24. I want to change my body so I will look more like celebrities	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
25. I try to dress like my favourite celebrity	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
26. If I looked like a celebrity, I would fit in with other people my age	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
27. Everyone my age thinks that celebrities have ideal bodies	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
28. It is unrealistic for me to have a body like a celebrity – they have ideal bodies because of their jobs (eg. models, sport stars)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
29. If I try really hard I can look like a celebrity	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
30. If a celebrity starts a fashion trend, everyone will want to follow it whether they like it or not	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
31. People my age judge me about my appearance	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
32. I feel pressure from my friends to change my body shape to get an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
33. Girls (boys) commonly tease boys (girls) about their body size or shape	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
34. When boys (girls) my age diet and exercise, it is mostly to improve how they look	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

35. I dress like the popular people in school to fit in, whether I like the style or not	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
36. It is common for me and my friends to discuss what we think is an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
37. It is common for me and my friends to talk about how to get an ideal body (eg. through dieting/exercise)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
38. I commonly see people being teased about the clothes that they wear	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
39. Lots of people I know follow a special diet and exercise plan to be fit and do well in sport	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
40. It is common for my friends to tease me about my body weight or shape	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
41. I commonly see people being teased about their bodies and how they look	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
42. If someone I fancied liked a male (female) celebrity, I would try and copy how that celebrity looks	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
43. If a celebrity starts a diet/fitness trend, everyone will want to follow it whether they like it or not	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
44. Images of celebrities on the Internet make me want to have an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
45. It is common for members of my family to discuss what they think is an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
46. It is common for members of my family to discuss what they can do to have an ideal body (eg. diet/exercise)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
47. It is common for members of my family to tease me about my body weight or shape	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

48. If members of my family were doing things (eg. dieting/exercising) to change how they look, I would too	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
49. Images of celebrities in posters make me want to have an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
50. Images of celebrities on TV make me want to have an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
51. Articles in magazines (eg. articles on how to get a celebrity's body) make me want to change my body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
52. I often look up websites related to appearance (eg. videos on YouTube, fashion websites)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
53. Images of celebrities in magazines make me want to have an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
54. When my friends put messages on Facebook about the latest fashion trends, it makes me want to follow them too	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
55. It is common for people to leave comments on Facebook about your appearance	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
56. If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
57. When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
58. If people left unpleasant comments about pictures of me on Facebook, I would do things to make myself look better (e.g. diet/exercise)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

53. Are you a member of Facebook? Yes __ No__

54. Are you a member of another social networking site? Yes __ No__

(If you answered 'Yes' above) which site? _____

Appendix F: School Recruitment Letter for the Pilot Studies and the Main Study

Note: The references to height and weight measurements were not included in information sheets and consent forms for the pilot studies.

Trinity College Dublin
children's research centre
research for children & young people

Dear _____

This letter is a request to carry out a research study at your school involving some first and second year students. The specifics of this research study are detailed below. Thank you for taking the time to read this information.

My name is Joanne Kierans and I am a PhD student with the Children's Research Centre and the School of Psychology at Trinity College Dublin. My supervisor for this project is Dr. Lorraine Swords, a lecturer in Child and Adolescent Psychology, also from Trinity College. Our research involves the investigation of factors influencing body image appraisals of young adolescents in Ireland, particularly in relation to body shape/build and overall appearance. Since research has shown links between a negative body image and a number of unhealthy outcomes, such as low self-esteem, depression, unhealthy weight-control behaviours, and levels of overweight and obesity, it is an important aspect of an adolescent's wellbeing. For the first part of the research project a number of focus groups were carried out with young teenagers to discuss the influences that they consider important for their body image appraisals. The focus groups were an opportunity for them to share their ideas and opinions with us, and a comprehensive survey was developed based on the findings. For this part of the research project we would like to invite young teenagers to complete our survey. This will take place in a classroom setting during the typical school day and should take no more than 40 minutes. Height and weight measurements will also need to be recorded to determine whether an individual's body mass index plays an important influencing role. This will be carried out in a private setting in accordance with the procedure used by the national *Growing Up in Ireland* study.

The participation of your school in this phase of the research process would be very much appreciated. The research may fit nicely into the SPHE curriculum of first and second year students. Additionally, following completion of the research, if you wish I could return to share the findings and discuss the implications with pupils. If you agree to allow us to invite students to participate in this study, we will provide a more detailed written overview of the research project, and information packs for students and their parents containing research information sheets and parental consent forms. Those who return signed parental consent forms will then be presented with a participant consent form to sign if they are willing to take part.

Please find further details of the research enclosed. I will contact you by phone in a few days to answer any questions you may have about the study. In the meantime, if you have any questions you can contact us by telephone or e-mail:

Joanne Kierans
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
0872253975
kieransj@tcd.ie

Dr. Lorraine Swords
Children's Research Centre
Trinity College
30 Angelsea St.
Dublin 2
01 896 3638
swordsl@tcd.ie

Thank you very much

_____
Joanne Kierans



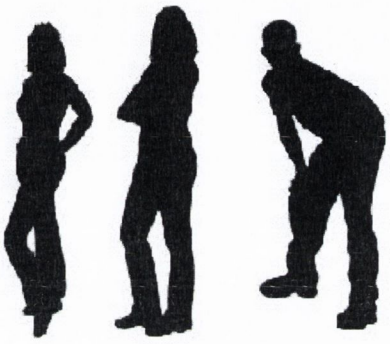
Study Procedure

Participants will be asked if they would like to take part in a study exploring the factors that influence thoughts and feelings related to body image and appearance in young Irish adolescents. Participants will be assured that their participation is voluntary and that they can withdraw at any time. The questionnaire will be administered to groups of consenting participants in a classroom setting. The questionnaire will take approximately 40 minutes to complete. Height and weight measures will also be recorded in a private setting. Participants will then be thanked for their participation and will receive a debriefing sheet.

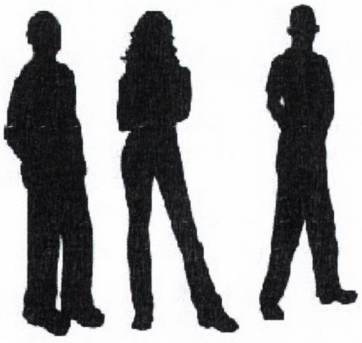
For the questionnaires and evaluation sheets, appropriate pseudonymisation methods will be employed: students will be assigned a number and will be identifiable only through these assigned numbers. If a participant discloses any information that causes the researcher to worry or be concerned for their safety, an appropriate 'duty to report' procedure will be followed. All information from the study will be stored on a confidential basis and used for the purpose of the research only. No participant will be identified in anything that is published from the study. We hope that the results of the study will make an important contribution to our understanding of young people's views and experiences on this important aspect of their lives and inform related policy decisions.

Appendix G: The Survey Package for the Main Study

Note: The gender-specific items contain the terminology for the female version in parentheses and both male and female figural scales are included for illustration purposes.



Body Image Influences on Irish Teens



TRINITY COLLEGE DUBLIN
COLÁISTE NA TRÍONÓIDE
THE UNIVERSITY OF DUBLIN

This survey contains a number of statements and questions about things related to your appearance and how you look, e.g. thoughts, feelings, and what influences them. The survey contains 9 sections and should take approximately 40 minutes to complete. Your responses will be kept confidential. Remember that your participation is voluntary, you do not have to answer every question, and you are free to withdraw from completing this survey at any time.

- *If you do not understand a question, please raise your hand and ask for help.*
- *Be as honest as you can throughout, and try not to let your responses to one question influence your response to other questions.*
- *There are no right or wrong answers.*
- *Try not to spend too long answering any one question.*

Glossary *(please refer to this as you come upon these terms in the questions)*

An ideal body...
Many people like their appearance and many people would ideally like to change some things about their appearance. Consider an ideal body to mean a body that you ideally would like to have and believe is just right, based on gender, age, weight, and muscle tone.

Celebrities...
Celebrities are mentioned in a number of items below. When we refer to celebrities we mean to include famous people that are actors/actresses, popstars, models, and sport stars.

Facebook...
Facebook is mentioned in some items as it is currently the most popular social networking site used by young people today. But if you are a member of any other social networking site like MySpace, Bebo etc please answer the item as if it refers to the one you are a member of. If you are not a member of a social networking site please indicate this when asked.

Section 1: Social influences

*Below is a list of statements dealing with different things that may influence how you feel about your appearance and your body. Please read each statement carefully and place an 'X' in the **one** answer that best describes how **you** feel. If you strongly agree with the statement, place an 'X' in the box labelled 'Strongly Agree' or if you slightly disagree with the statement, place an 'X' in the 'Somewhat Disagree' box. There are no right or wrong answers.*

For example:

Summer holidays are lots of fun	Strongly Agree X	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

1. It is important to follow the trends of popular people in school to fit in	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
2.* I would like to be muscular (skinny) because that is what everybody my age likes	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
3.* I often think about how I look because others my age are so judgmental	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
4.* Articles in magazines (eg. articles on how to get a celebrity's body) make me want to change my body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
5.* If I had no friends I would try to improve my appearance	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
6.* If my friends were doing things (eg. dieting/exercise) to change how they look I would too	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
7.* If I had an ideal body, I think people I fancied would like me more	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
8.* Whenever I meet other people my age with ideal bodies it makes me think about how my body compares	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
9. I want to change my body so I will look more like celebrities	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

10.* People my age judge me about my appearance	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
11.* It is common for me and my friends to talk about how to get an ideal body (eg. through dieting/exercise)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
12.* I want to have an ideal body to fit in with the popular people in my class	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
13.* If someone I fancied liked a male (female) celebrity, I would try and copy how that celebrity looks	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
14. Girls (boys) commonly tease boys (girls) about their body size or shape	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
15. It is common for members of my family to discuss what they think is an ideal body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
16. When I hang around with other people my age that are into their looks, I start to think about how I look	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
17.* If members of my family were doing things (eg. dieting/exercising) to change how they look, I would too	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
18.* I want to change my appearance to get attention from people I fancy	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
19.* I often look up websites related to appearance (eg. videos on YouTube, fashion websites)	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
20.* If people left unpleasant comments about pictures of me on Facebook, it would make me feel bad about my body	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree
21.* When my friends put messages on Facebook about the latest diet/fitness trends, it makes me want to follow them too	Strongly Agree	Somewhat Agree	Neither Disagree or Agree	Somewhat Disagree	Strongly Disagree

22. Are you a member of Facebook? Yes __ No__

23. Are you a member of another social networking site? Yes __ No__

(If you answered 'Yes' above) which site? _____

Items represent the ACS-YA

(*Note*: * denotes items that remained in the final version)

Section 2: Pubertal development

*Please read each statement or question and place an 'X' in the **one** answer that **BEST** describes your development. For example, if your development in an area is definitely underway, place an 'X' in the 'Is definitely underway' box. There are no right or wrong answers.*

For example:

Describe your secondary school education	Has not yet begun	Has barely started	Is definitely underway	Is completed
			X	

1. Have you had a very fast growth in height (a growth 'spurt')?	Has not yet begun	Has barely started	Is definitely underway	Is completed
2. Describe your pubic hair development	Has not yet begun	Has barely started	Is definitely underway	Is completed
3. Have you noticed or experienced changes in your skin (pimples etc)?	Has not yet begun	Has barely started	Is definitely underway	Is completed
4. Describe your facial hair (breast) development	Has not yet begun	Has barely started	Is definitely underway	Is completed
5. Has your voice changed (become deeper)? [Describe the development of your period (menarche)]	Has not yet begun	Has barely started	Is definitely underway	Is completed

Items represent the PDS (Peterson et al., 1988)

Section 3: Personal influences

*Below is a list of statements dealing with your general feelings about yourself. Please read each statement carefully and place an 'X' in the **one** answer that best describes how **you** feel. For example, if you strongly agree, place an 'X' in the 'Strongly Agree' box. There are no right or wrong answers.*

For example:

Summer holidays are lots of fun	Strongly Agree	Agree	Disagree	Strongly Disagree
	X			

1. I feel that I am a person of worth, at least on an equal plane with others	Strongly Agree	Agree	Disagree	Strongly Disagree
2. I feel that I have a number of good qualities	Strongly Agree	Agree	Disagree	Strongly Disagree
3. All in all, I am inclined to feel that I am a failure	Strongly Agree	Agree	Disagree	Strongly Disagree
4. I am able to do things as well as most other people	Strongly Agree	Agree	Disagree	Strongly Disagree
5. I feel that I do not have much to be proud of	Strongly Agree	Agree	Disagree	Strongly Disagree
6. I take a positive attitude toward myself	Strongly Agree	Agree	Disagree	Strongly Disagree
7. On the whole, I am satisfied with myself	Strongly Agree	Agree	Disagree	Strongly Disagree
8. I wish I could have more respect for myself	Strongly Agree	Agree	Disagree	Strongly Disagree
9. I certainly feel useless at times	Strongly Agree	Agree	Disagree	Strongly Disagree
10. At times I think I am no good at all	Strongly Agree	Agree	Disagree	Strongly Disagree

Items represent the RSE (Rosenberg, 1979)

*Below is a list of statements dealing with your general feelings about yourself. Please read each statement carefully and place an 'X' in the **one** answer that best describes how **you** feel. For example, if you definitely agree, place an 'X' in the 'Definitely Agree' box. There are no right or wrong answers.*

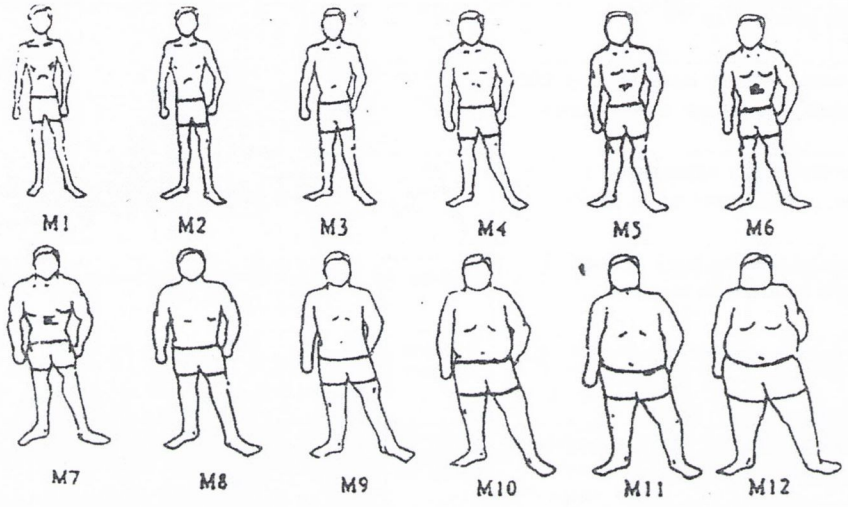
11. I do not care if my body looks like the body of people who are on TV	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
12. I compare my body to the bodies of people who are on TV	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
13. I would like my body to look like the models who appear in magazines	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
14. I compare my appearance to the appearance of TV and movie stars	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
15. I would like my body to look like the people who are in movies	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
16. I do not compare my body to the bodies of people who appear in magazines	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
17. I wish I looked like the models in music videos	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
18. I compare my appearance to the appearance of people in magazines	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
19. I do not wish to look as athletic as the people in magazines	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
20. I compare my body to that of people in "good shape"	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
21. I wish I looked as athletic as sports stars	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
22. I compare my body to that of people who are athletic	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
23. I do not try to look like the people on TV	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree
24. I try to look like sports athletes	Definitely Agree	Mostly Agree	Neither Agree nor Disagree	Mostly Disagree	Definitely Disagree

Items represent the Internalisation-General and Internalisation-Athlete subscales from the SATAQ-3 (Thompson et al., 2004)

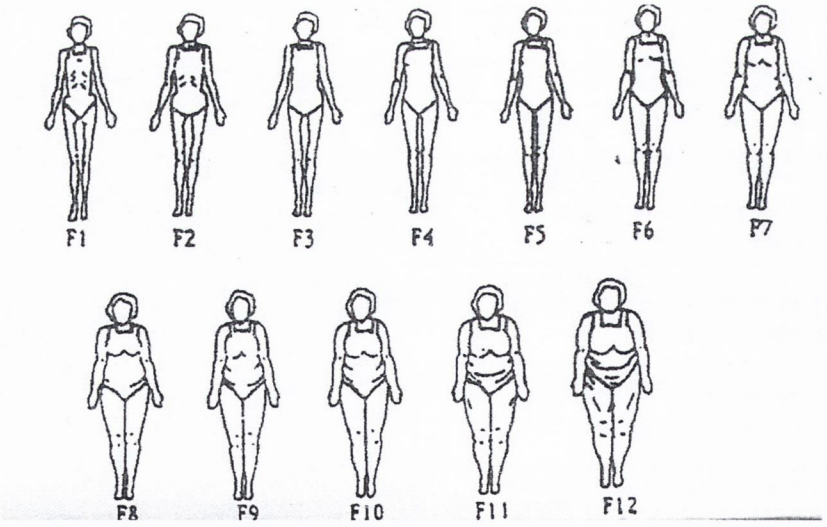
Section 4: Personal thoughts about your body and appearance

*Below is a series of 12 figures that differ from one another in terms of body weight and muscularity. Please indicate which figure best reflects what **you think** is **your own body shape** and what **you think** would be **your ideal body shape**.*

Male



Female



1. **Choose the figure you *think* is most like your *own* body shape _____**
2. **Choose the figure you *think* is most like your *ideal* body shape_____**

Items represent the IBS (Cogan et al., 1996)

Section 5: Personal feelings

*People sometimes have different feelings and ideas. Below is a list of feelings and ideas in groups. From each group of three sentences, pick one sentence that describes you **best** for the **past two weeks**. After you pick a sentence from the first group, go on to the next group.*

There is no right or wrong answer. Just pick the sentence that best describes the way you have been recently. Put a mark like this 'x' next to your answer. Put the mark in the box next to the sentence that you pick.

*In the box below, there is an example of how this section works. Try it. Put a mark next to the sentence that describes you **best.***

Example:

O I read books all the time
x I read books once in a while
O I never read books

Remember, pick out the sentences that describe you best in the PAST TWO WEEKS

1. O I am sad once in a while O I am sad many times O I am sad all the time	6. O Things bother me all the time O Things bother me many times O Things bother me once in a while
2. O Nothing will ever work out for me O I am not sure if things will work out for me O Things will work out for me OK	7. O I look OK O There are some bad things about my looks O I look ugly
3. O I do most things OK O I do many things wrong O I do everything wrong	8. O I do not feel alone O I feel alone many times O I feel alone all the time
4. O I hate myself O I do not like myself O I like myself	9. O I have plenty of friends O I have some friends but I wish I had more O I do not have any friends
5. O I feel like crying every day O I feel like crying many days O I feel like crying once in a while	10. O Nobody really loves me O I am not sure if anybody loves me O I am sure that somebody loves me

Items represent the CDI-S (Kovacs, 1992)

Section 6: Personal feelings about your body and appearance

*Below is a list of statements dealing with different things that you may do which influences how you feel about your appearance and your body. Please read each statement carefully and place an 'X' in the one answer (Never, Seldom, Sometimes, Often, or Always) that describes **you** best. There are no right or wrong answers.*

1. At parties and other social events, I compare my physical appearance to the physical appearance of others	Never	Seldom	Sometimes	Often	Always
2. The best way for a person to know if they are overweight or underweight is to compare their figure to the figure of others	Never	Seldom	Sometimes	Often	Always
3. At parties and other social events, I compare how I am dressed to how other people are dressed	Never	Seldom	Sometimes	Often	Always
4. In social situations, I sometimes compare my figure to the figures of other people	Never	Seldom	Sometimes	Often	Always

Below are a number of statements describing thoughts and feelings associated with how you look. Please mark an 'X' under 'Yes', 'Sometimes' or 'No' about whether you agree with these sentences.

5. What I look like is an important part of me	Yes	Sometimes	No
6. I'd rather think about other things than thinking about what I look like	Yes	Sometimes	No
7. Other things are more important to me than how I look	Yes	Sometimes	No
8. I spend time thinking about how I look.	Yes	Sometimes	No
9. I often think of ways to make myself look better.	Yes	Sometimes	No
10. I wonder how I look compared with other people.	Yes	Sometimes	No
11. It is a waste of time worrying about how I look	Yes	Sometimes	No
12. I never think about how I look	Yes	Sometimes	No

Items represent the PACS (Thompson et al., 1991) and the CAS (Clark & Tiggemann, 2007)

Section 7: Body Satisfaction

*Below is a list of questions dealing with how you feel about your appearance and your body. Please read each statement carefully and place an 'X' in the one answer (Extremely satisfied, Fairly satisfied, In between, Fairly dissatisfied, or Extremely dissatisfied) that best applies to **you**. There are no right or wrong answers. 'Extremely satisfied' means very happy, 'Extremely dissatisfied' means very unhappy.*

1. How satisfied are you with your weight?	Extremely satisfied	Fairly satisfied	In between	Fairly dissatisfied	Extremely dissatisfied
2. How satisfied are you with your body shape?	Extremely satisfied	Fairly satisfied	In between	Fairly dissatisfied	Extremely dissatisfied
3. How satisfied are you with your muscle size?	Extremely satisfied	Fairly satisfied	In between	Fairly dissatisfied	Extremely dissatisfied

The remainder of the questions in this section ask about your level of satisfaction with particular body parts

4. How satisfied are you with your chest (hips)?	Extremely satisfied	Fairly satisfied	In between	Fairly dissatisfied	Extremely dissatisfied
5. How satisfied are you with the size/width of your shoulders? (your thighs?)	Extremely satisfied	Fairly satisfied	In between	Fairly dissatisfied	Extremely dissatisfied
6. How satisfied are you with your abdominal region/stomach?	Extremely satisfied	Fairly satisfied	In between	Fairly dissatisfied	Extremely dissatisfied
7. How satisfied are you with your arms (legs)?	Extremely satisfied	Fairly satisfied	In between	Fairly dissatisfied	Extremely dissatisfied

Section 8: Background Information

Sex: Male O Female O **Country of birth:** _____

Age: _____ **Mother's country of birth:** _____

Year in school: _____ **Father's country of birth:** _____

Items represent the BIBCI-BS (Ricciardelli & McCabe, 2002) and demographic information

Appendix H: Height and Weight Protocol for the Main Study

Weight

- Instruct participants to remove any excess clothing e.g. coats etc. Ask participants to remove their shoes and empty their pockets if they contain keys, money, mobile phones etc. If wearing any heavy jewellery, also ask participants to remove.
- Instruct each participant to stand on the scales free of any objects and walls etc.
  Verbal instruction: "Please stand still with both feet in the middle of the platform"
- Record weight to one decimal point in kg
- Repeat to check accuracy

Height

- Wipe the head part of the measure with alcohol wipes between participants
- Ask participants to remove shoes. Hairstyles should allow height measure to fit comfortably on head. If not, ask participants if they can take their hair down.
- Ensure each participant is standing with their heels together against the heel backstop, and their hands at their sides. Feet should be flat on the floor with weight evenly distributed. The buttocks, upperback and shoulder blades should touch the upright beam.
- Ensure each participant is unsupported and clear of any furniture, his/her head should be parallel to the ground, and his/her eyes looking straight ahead.
  Verbal instruction: "Please take a deep breath in, keep your heels on the ground, look straight ahead, and stretch up as far as possible."
- Lower the headpiece until it firmly touches the crown of the head and is at a right angle with the measurement surface.
  Verbal instruction: "Is the height measure comfortable against your head?"
- Check to ensure that the lower body stays in the proper position and the heels remain flat
- Record height in cms to one decimal point
- Repeat to check accuracy

"That's great, thank you very much"

Note: Make a notation if: (i) the measurement is compromised due to hair accessories/hairstyle; (ii) the participant has an abnormal condition that may interfere with measurement.
If the difference between the 2 measurements is greater than 0.5kg or 1cm then take the measurement again. If the difference is less than 0.5kg or 1 cm then calculate the mean of the 2 measures.

Appendix I: Intercorrelations among Observed Variables for the Boys and Girls

Variable	PDS1	PDS2	PDS3	PDS4	PDS5	PIB	PA	ASM1	ASM2	ASM3	ASM4	ASM5	ASM6	ASM7
PDS1	----	0.39***	0.35***	0.35***	0.42***	0.04	0.04	0.03	0.09	0.01	0.03	0.10	0.11*	0.03
PDS2	0.25***	----	0.39***	0.43***	0.43***	0.09	0.04	0.07	0.00	0.01	0.11*	0.08	0.15**	0.02
PDS3	0.19***	0.32***	----	0.35***	0.38***	0.05	0.04	0.11*	0.02	-0.07	0.03	0.09	0.12*	0.04
PDS4	0.28***	0.30***	0.36***	----	0.49***	0.16**	0.07	0.04	0.11*	-0.04	0.02	0.14**	0.16**	-0.01
PDS5	0.27***	0.43***	0.34***	0.47***	----	0.07	-0.01	0.04	0.07	0.00	0.04	0.11*	0.05	0.02
PIB	0.06	0.15**	0.10*	0.04	0.17**	----	0.61***	0.29***	0.19***	0.25***	0.23***	0.38***	0.31***	0.22***
PA	0.06	0.09	0.06	0.01	0.13*	0.67***	----	0.42***	0.21***	0.23***	0.35***	0.49***	0.46***	0.33***
ASM1	0.03	0.05	0.03	-0.03	0.02	0.30***	0.43***	----	0.23***	0.17**	0.33***	0.38***	0.27***	0.34***
ASM2	0.03	0.09	0.05	0.04	0.06	0.18***	0.19***	0.31***	----	0.31***	0.20***	0.21***	0.10*	0.23***
ASM3	0.02	0.06	-0.01	-0.05	0.07	0.32***	0.31***	0.25***	0.34***	----	0.25***	0.24***	0.12*	0.22***
ASM4	0.05	0.09	0.12*	-0.01	0.09	0.43***	0.50***	0.37***	0.19***	0.25***	----	0.47***	0.37***	0.32***
ASM5	0.04	0.04	0.08	0.06	0.14**	0.45***	0.51***	0.36***	0.18***	0.20***	0.53***	----	0.43***	0.31***
ASM6	0.05	0.11*	0.11*	0.07	0.11*	0.43***	0.50***	0.31***	0.15**	0.22***	0.40***	0.50***	----	0.27***
ASM7	0.05	0.09	0.06	0.04	0.05	0.31***	0.30***	0.33***	0.32***	0.32***	0.28***	0.31***	0.25***	----
ASM8	0.20***	0.11*	0.11*	0.07	0.11*	0.28***	0.31***	0.25***	0.25***	0.20***	0.34***	0.23***	0.22***	0.29***
PACS1	0.05	0.09	0.10	0.08	0.24***	0.45***	0.57***	0.28***	0.15**	0.26***	0.38***	0.41***	0.45***	0.22***
PACS2	0.05	0.11*	0.07	0.03	0.14**	0.28***	0.28***	0.16**	0.04	0.16**	0.10	0.15**	0.21***	0.05
PACS3	0.09	0.04	0.05	0.01	0.02	0.36***	0.44***	0.30***	0.13*	0.15**	0.36***	0.25***	0.31***	0.20***
PACS4	0.07	0.12*	0.06	0.00	0.16**	0.43***	0.56***	0.27***	0.12*	0.22***	0.36***	0.43***	0.45***	0.27***
INTF1IC	0.12*	0.15**	0.14**	0.11*	0.26***	0.64***	0.63***	0.35***	0.17**	0.27***	0.44***	0.45***	0.47***	0.28***
INTF2IC	0.09	0.02	0.00	0.02	0.10*	0.39***	0.38***	0.24***	0.09	0.10	0.24***	0.33***	0.36***	0.17**
INTF3IC	0.04	0.10	0.05	0.01	0.17**	0.49***	0.42***	0.25***	0.19***	0.26***	0.28***	0.36***	0.31***	0.30***
BDWeight	0.07	0.14**	0.06	0.11*	0.22***	0.34***	0.32***	0.09	0.08	0.22***	0.12*	0.25***	0.33***	0.22***
BDMuscle	0.08	0.09	0.06	0.05	0.18***	0.29***	0.30***	0.03	0.03	0.19***	0.14**	0.20***	0.23***	0.14**
rRSE	0.02	0.03	0.03	-0.02	0.14**	0.40***	0.49***	0.16**	0.01	0.23***	0.31***	0.35***	0.37***	0.18***
CDIln	0.03	0.09	0.04	0.01	0.13*	0.40***	0.49***	0.22***	0.07	0.23***	0.40***	0.44***	0.43***	0.25***
BMI	0.13**	0.24***	0.22***	0.30***	0.31***	0.18***	0.08	-0.10*	-0.02	0.10*	-0.04	0.07	0.07	0.05

Note: Correlations for boys are reported above the diagonal; correlations for girls are reported below the diagonal; *= $p< 0.05$; **= $p< 0.01$; ***= $p< 0.001$

Variable	ASM8	PACS1	PACS2	PACS3	PACS4	INTF1IC	INTF2IC	INTF3IC	BDWeight	BDMuscle	rRSE	CDIln	BMI
PDS1	0.08	0.07	0.03	0.18***	0.12*	-0.01	-0.03	-0.03	-0.04	-0.18***	0.03	0.07	0.22***
PDS2	0.06	0.11*	0.04	0.16**	0.14**	0.06	0.07	-0.06	-0.14**	-0.14**	-0.01	0.05	0.08
PDS3	0.05	0.09	0.10*	0.18***	0.09	0.03	0.05	-0.02	-0.04	-0.12*	0.10*	0.14**	0.12*
PDS4	0.07	0.10*	0.11*	0.06	0.10	0.02	-0.01	0.07	-0.06	-0.07	0.05	0.11*	0.11*
PDS5	0.04	0.05	0.06	0.10	0.06	0.01	0.02	-0.06	-0.14**	-0.18***	0.03	0.05	0.11*
PIB	0.17**	0.33***	0.23***	0.23***	0.38***	0.57***	0.45***	0.29***	0.10*	0.05	0.22***	0.12*	0.15**
PA	0.30***	0.38***	0.28***	0.42***	0.46***	0.48***	0.47***	0.29***	0.23***	0.23***	0.29***	0.27***	0.11*
ASM1	0.33***	0.22***	0.19***	0.25***	0.30***	0.30***	0.30***	0.20***	0.05	0.04	0.13*	0.10*	0.05
ASM2	0.19***	0.18***	0.10*	0.10	0.16**	0.27***	0.22***	0.19***	-0.02	0.00	-0.06	0.02	-0.01
ASM3	0.17**	0.28***	0.06	0.14**	0.21***	0.28***	0.24***	0.14**	0.09	0.13*	0.07	0.06	0.03
ASM4	0.42***	0.23***	0.08	0.25***	0.24***	0.28***	0.22***	0.20***	0.15**	0.15**	0.07	0.12*	0.02
ASM5	0.33***	0.30***	0.17**	0.31***	0.34***	0.42***	0.39***	0.25***	0.23***	0.11*	0.20***	0.24***	0.18***
ASM6	0.25***	0.29***	0.23***	0.38***	0.46***	0.32***	0.35***	0.22***	0.21***	0.17***	0.25***	0.23***	0.07
ASM7	0.40***	0.19***	0.16**	0.17**	0.21***	0.25***	0.29***	0.24***	0.16**	0.14**	0.20***	0.12*	0.00
ASM8	—	0.20***	0.05	0.25***	0.20***	0.23***	0.21***	0.16**	0.02	0.02	0.06	0.09	0.01
PACS1	0.20***	—	0.23***	0.30***	0.49***	0.30***	0.36***	0.22***	0.15**	0.08	0.18***	0.17**	0.11*
PACS2	-0.01	0.27***	—	0.27***	0.37***	0.19***	0.19***	0.17**	0.00	0.08	0.14**	0.08	-0.06
PACS3	0.26***	0.42***	0.22***	—	0.49***	0.26***	0.33***	0.12*	0.05	0.06	0.09	0.19***	-0.07
PACS4	0.22***	0.57***	0.30***	0.44***	—	0.40***	0.44***	0.18***	0.16**	0.06	0.17**	0.15**	0.05
INTF1IC	0.23***	0.48***	0.27***	0.40***	0.49***	—	0.61***	0.39***	0.14**	0.08	0.15**	0.13**	0.10*
INTF2IC	0.08	0.31***	0.18***	0.19***	0.29***	0.43***	—	0.23***	0.10*	0.13*	0.07	0.11*	0.04
INTF3IC	0.16**	0.36***	0.21***	0.35***	0.46***	0.63***	0.26***	—	0.18***	0.15**	0.14**	0.06	0.03
BDWeight	0.11*	0.29***	0.23***	0.15**	0.33***	0.29***	0.09	0.32***	—	0.52***	0.34***	0.32***	0.35***
BDMuscle	0.06	0.24***	0.24***	0.14**	0.33***	0.29***	0.10*	0.27***	0.72***	—	0.30***	0.24***	-0.13*
rRSE	0.17**	0.42***	0.19***	0.23***	0.38***	0.39***	0.20***	0.32***	0.46***	0.40***	—	0.56***	0.13*
CDIln	0.18**	0.37***	0.18***	0.25***	0.40***	0.37***	0.17**	0.31***	0.42***	0.36***	0.67***	—	0.16**
BMI	0.02	0.15**	0.05	-0.09	0.08	0.08	0.04	0.07	0.39***	0.27***	0.11*	0.12*	—

Note: Correlations for boys are reported above the diagonal; correlations for girls are reported below the diagonal; *= $p< 0.05$; **= $p< 0.01$; ***= $p< 0.001$