

Development of the RISKRES: Screening for risk factors and resilience contributing
towards suicidality in adolescents and young people

By

Megan E. Gaffney

Supervised by

Timothy Trimble

School of Psychology

University of Dublin, Trinity College

Dublin 2

Submitted for the degree of Doctorate in Philosophy in Psychology

June 2019

Declaration

I declare that this thesis has not been submitted as an exercise for a degree at this or any other university and it is entirely my own work. I agree to deposit this thesis in the university's open access institutional repository or allow the Library to do so on my behalf, subject to Irish copyright legislation and Trinity College Library conditions of use and acknowledgement.

Megan Gaffney

Summary

Suicide prevention in the young is a societal issue which warrants attention. The objective of this study is to develop a psychometrically sound screening method, taking into account risk factors and resilience as potential predictors of suicidality for young people. Previous screening methods have focused on psychiatric risk factors and not placed emphasis on tapping modifiable, psychological constructs. The research aims to inform screening methods in a manner which is non-pathologising, strength identifying, and can guide immediate safety planning and further intervention with young people.

A mixed method sequential design was employed to develop a screening tool for the initial stages of a screen. The first stage of data collection involved theory development on resilience to suicidality. During an iterative process guided by grounded theory methodology (Glaser & Strauss, 1967; Strauss & Corbin, 1990), data was collected from 4 focus groups of practitioners working with ‘at risk’ adolescents and young people ($N = 18$, 16 women, 2 men), concurrently with a review of the existing literature. Following the construction of a theoretical model, items for an assessment tool were generated based on major categories which emerged from the grounded theory analysis. Potential items were put forward for expert review with an additional group of clinicians working in a suicide and self harm crisis service.

A draft tool (RISKRES) was created and administered initially with a clinical sample of ‘at-risk’ youth in a suicide and self harm crisis service (Stage 2). The first version of the RISKRES comprised of 46 items, was given to 146 adolescents and young adults ($M_{age} = 16.46$ years, age range: 11 - 22 years, median: 16 years, $SD = 2.41$). Participants also completed a standardized screener for depression (PHQ-9), a standardized screener for suicidal behaviour (SBQ-R), and the standard assessment used within the service.

Internal consistency reliability, construct validity, concurrent validity, and dimensionality of the proposed tool were explored through item analysis, exploratory factor analysis, and correlation analysis. Initial item analysis, psychometric properties, and regression models for the 46-item and a reduced 29-item version of the RISKRES are presented in Chapter 4 for the ‘at-risk’ sample. Seven factors were extracted: Depression/ desperation; Anxiety/ agitation/ overwhelm; Autonomy; Disconnection; Capable/ future orientation; Connection; Bouncing back. Hypotheses put forward during Stage 2 of the research queried the role and contribution that the psychological model of suicide resilience put forward could play in identifying suicidal risk.

Items on the RISKRES showed high and statistically significant relationships with standardised risk screening questions for suicidality. Based on preliminary regression analysis, factors on the RISKRES did play a unique and statistically significant role in predicting risk outcomes based on cross-sectional data collection, including the resilience factors for some of the suicide ideation outcomes.

Screening assessments are relatively brief evaluations which are intended to identify those at risk (Sattler, 2008). Within the literature on risk assessment, there are typically three main approaches: unstructured clinical judgement, actuarial methods, and structured clinical judgement (Higgins et al., 2015). The current tool seeks to be the first stage in an overall process aligned with a structured clinical judgement approach to risk assessment. Development of the RISKRES is still exploratory. The RISKRES subscales show promise as very brief stand alone measures. The subscales and the measure as a whole need to be tested further with larger, more heterogeneous, and nationally representative samples and compared further to other measures. Further exploration of the subscales and their true predictive power with longitudinal samples of early onset risk is needed.

Acknowledgements

I would like to extend the utmost thanks and appreciation to:

Professor Tim Trimble for invaluable support and guidance with this endeavour over
many years

The services who assisted in making this possible and contributing their time and energy
to collaborate and share insights

The young people who generously gave their time to support the research

My husband Davin, my father, and other family and friends who have supported me
throughout this lengthy project

I would also like to thank the Irish Research Council for part funding Stage 2 of the
project through the New Foundations Grant

And finally, I would like to thank all those who have inspired this work to take place

Table of Contents

	Page
Declaration	1
Summary	2
Acknowledgements	4
Table of Contents	5
List of Tables and Figures	8
List of Appendices	10
Abstract	11

Chapter One

Introduction and Literature Review

1.1	Suicide in Ireland	12
1.2	Suicide prevention	12
1.3	Terminology	13
1.4	Suicide and resilience	18
1.5	Introduction to the current study	20
1.6	National context and strategy	22
1.7	International context and strategy	25
1.8	Risk prevention in educational settings	26
1.9	Screening in nonclinical contexts	27
1.10	Iatrogenic risk	32
1.11	Acceptability and feasibility	34
1.12	Challenges in the literature	35
1.13	Screening research in third level settings	39
1.14	Screening in primary care and community settings	40
1.15	Risk identification tools	43
1.16	Risk identification models	54
1.17	Screening based on tools and algorithms	56
1.18	Risk factors	62
1.19	Past and contemporary theoretical models	70
1.20	Adolescent normative developmental tasks	75
1.21	Theoretical models of resilience	78

1.22	Relationship between risk and protective factors, mental health outcomes and suicide	83
1.23	Methodological challenges	91
1.24	Gap in the knowledge base	94
1.25	Aims and objectives	97

Chapter Two

Methodology

2.1	Introduction and summary of methods	99
2.2	Stage 1 research paradigm and process	100
2.3	Participants stage 1	106
2.4	Ethical considerations	108
2.5	Data collection stage 1	109
2.6	Data analysis stage 1	111
2.7	Reliability and validity	112
2.8	Item writing	114
2.9	Methodological challenges	115
2.10	Participants stage 2	116
2.11	Ethical considerations	117
2.12	Data collection stage 2	119
2.13	Data analysis stage 2	123
2.14	Reliability and validity	125

Chapter 3

Analysis and Results Stage 1

3.1	Introduction and summary of analysis	128
3.2	Inductively developed hierarchy/ map of theory	129
3.3	Major categories	130
3.4	Static factors	140
3.5	Relationship between constructs within categories	141

Chapter 4

Analysis and Results Stage 2

4.1	Introduction and summary of analysis	142
4.2	Descriptive statistics	142
4.3	Internal consistency reliability	145
4.4	Validity 46-item RISKRES	146
4.5	Dimensionality 46-item RISKRES	147
4.6	Regression model 46-item RISKRES	148
4.7	Internal structure 46-item RISKRES	153
4.8	Dimensionality 29-item RISKRES risk scale	154
4.9	Concurrent validity 29-item RISKRES risk scale	158
4.10	Dimensionality 29-item RISKRES resilience scale	159
4.11	Internal structure 29-item RISKRES risk and resilience scales	163
4.12	Regression model 29-item RISKRES	163

Chapter 5

Discussion

5.1	Introduction and summary of discussion	172
5.2	Emergent theoretical model	172
5.3	Relationships between categories	180
5.4	Psychometric properties of the RISKRES	184
5.5	Regression models	189
5.6	Conceptual issues	196
5.7	Advantages of RISKRES initial design	200
5.8	Study limitations	203
5.9	Implications for applied settings	213
5.10	Implications for future research	217
5.11	Conclusion	220
	References	222

List of Tables and Figures

Table 1: Focus group participant characteristics	107
Table 2: Interview schedule: Stage 1 focus groups	111
Table 3: Theoretical concepts leading to category of relational...	130
Table 4: Theoretical concepts leading to cognitive and emotional...	133
Table 5: Theoretical concepts leading to skill based trajectories	138
Table 6: Distribution by age for ‘at risk’ sample	143
Table 7: Response to PHQ-9 item 9 risk screening item	143
Table 8: <i>M</i> , <i>SD</i> , and frequencies for PHQ-9 and RISKRES scales	146
Table 9: Correlations, PHQ-9, RISKRES risk and res scales	147
Table 10: Logistic Regression analysis of 13 factors on 46-item RISKRES with suicidal thoughts + method outcome	150
Table 11: Logistic Regression analysis of 13 factors on 46-item RISKRES with ‘serious’ suicidal ideation outcome	152
Table 12: Pattern factor loadings 29-item RISKRES risk scale	156
Table 13: Structure factor loadings 29-item RISKRES risk scale	157
Table 14: Correlations PHQ-9 total, PHQ-9 item 9, RISKRES	158
Table 15: Pattern factor loadings 29-item RISKRES resilience scale	161
Table 16: Structure factor loadings 29-item RISKRES resilience scale	162
Table 17: Logistic Regression analysis of 7 factors on 29-item RISKRES with suicidal thoughts + method outcome	165
Table 18: Logistic Regression analysis of 7 factors on 29-item RISKRES with ‘serious’ suicidal ideation outcome	167
Table 19: Logistic regression analysis of 7 factors on 29-item RISKRES with suicidal ideators vs. non-ideators	171

List of Figures

Figure 1: Theory diagram of three major categories	129
Figure 2: Scree plot for risk scale of 29-item RISKRES EFA	155
Figure 3: Scree plot for resilience scale 29-item RISKRES EFA	160

List of Appendices

Appendix A: Ethical Approval

Appendix B: Stage 2 Research pack

Appendix C: Item pool

Appendix D: Pattern factor loadings for 46-item RISKRES

Abstract

Youth suicide is a societal issue which warrants attention. The purpose of this study was to develop a psychometrically sound method to measure both risk factors and resilience as potential predictors of suicidality for adolescents and young people. A mixed method sequential design was employed, beginning with an iterative process guided by grounded theory methodology. Eighteen practitioners currently working with ‘at risk’ adolescents and young people ($N = 18$, 16 women, 2 men) participated in 4 focus groups. Following an iterative process of data collection and analysis, three major categories were generated as a theory of psychological resilience to suicidality. Results from the qualitative analysis, alongside review of the literature and feedback from subject matter experts guided item construction for the initial version of the RISKRES, which was further refined through statistical methods. An ‘at-risk’ sample of adolescents and young adults ($N = 146$, $M_{age} = 16.46$ years, age range: 11 - 22 years, median: 16 years, $SD = 2.41$) completed the RISKRES along with standardised screening tools for depression and suicidal behaviour (PHQ-9; SBQ-R). Following item analysis, the RISKRES was shortened to 29 items. Findings include an initial psychometric evaluation of the tool. Seven factors were extracted: Depression/ desperation; Anxiety/ agitation/ overwhelm; Autonomy; Disconnection; Capable/ future orientation; Connection; Bouncing back. While more complex, this may be preferable to measuring depression alone. The RISKRES subscales show promise as very brief stand alone measures. Development of the RISKRES will benefit from further validation with larger, more diverse samples and also from longitudinal data collection.

Introduction

1.1 Suicide in Ireland

Suicide has been identified as a worldwide problem by the World Health Organization and is one of the leading causes of death in adolescents and young adults worldwide. In Ireland, suicide is a leading cause of death in young people and has been identified as a particularly important area of risk for populations of men (National Office for Suicide Prevention, 2018). Since the beginning of the economic recession, significant increases have been observed in self harm in Ireland between 2007-2011, with a more than 20% increase for male self harm in 19 counties and cities (National Suicide Research Foundation, 2012). Suicide is the leading cause of death in young men age 15-34 years in the Republic of Ireland (McMahon et al., 2014). Suicidality is a societal issue which warrants attention.

1.2 Suicide prevention

Suicide research has traditionally fallen into one of three areas: prevention, intervention, and postvention. Prevention includes efforts made on various levels (individual, family, community, etc.) to reduce the incidence of suicide. Intervention research involves investigating efforts to stop or prevent suicidal individuals from the act of taking their own lives. Postvention (Schneidman, 1981) refers to efforts made to provide support, assistance, and crisis intervention in the aftermath of a completed suicide. It has been noted that screening exists somewhere between prevention and early intervention (Kaess et al., 2014). It could be suggested that the three domains feed seamlessly into one another. Essentially, all three areas aid prevention. While emphasising prevention, the current research aims to assist in all three areas.

Prevention strategies can be targeted, by attempting to reach populations who are at 'high risk' of suicide. They can also be 'population oriented' or universally targeted (Horowitz et al., 2012). The research is conflicted around so-called 'screening' for suicidality. Issues under examination are whether this should be a targeted or universal effort, in what context if any it should happen, and how it should be carried out and followed up (Pena & Caine, 2006). In a seminal review on the issue, screening was noted to be a promising intervention that needed further exploration of the questions posed above (Pena & Caine, 2006). Prior to examining these issues, it is important to first examine some of the linguistic and pragmatic barriers involved in suicide research.

1.3 Terminology

Contemporary suicide research is plagued with inconsistencies in terminology and in defining that terminology. Dating back to original operational definitions of suicidal processes, Aaron Beck (1979) clarified *suicidal intent* as a wish to die. He qualified this as the 'transformation' of a 'free floating' wish to die into a more concrete plan to kill oneself (Beck, 1979). This distinction is usually made in the more contemporary literature as *passive* vs. *active suicide ideation*. Passive ideation refers to a more general wish to die whereby active ideation suggests movement towards more conscious intent and concrete planning. During development of one of the original suicide risk scales, Beck (1979) defined *suicide risk* as a complex equation with many variables; he believed *suicide intent* was one such variable.

Definition clarification has occurred over the years. In 1994, the National Institute of Mental Health in the USA sponsored a workshop on communication about suicidality in the research literature (Goldston, 2003). As a result, a nomenclature was proposed, which was eventually adopted by the World Health Organisation. The system proposed

involved operational definitions of a number of key terms, such as *suicide* (death from injury, poisoning, or suffocation where there is implicit or explicit evidence that the injury was self inflicted and the person attempted to kill himself or herself); *suicide attempt* (a potentially self injurious behaviour with a nonfatal outcome where there is evidence, implicit or explicit, that the person intended at some nonzero level to kill himself or herself); and *suicidal ideation* (any self reported thoughts of engaging in suicide related behaviour) (O'Carroll et al., 1996; Goldston, 2003).

However, definition confusion still abounds. Reviewing the literature internationally on suicidality, one issue readily becomes apparent. The term *self harm* has different meaning in different contexts. According to Hawton et al. (2012), *self harm* refers to intentional self poisoning or self injury, regardless of the type of motive or the extent of the intent behind the act. Typically in UK based research, this term is considered preferable to the 'dichotomous separation of such acts into *non-suicidal self injury* ... and attempted suicide' (Hawton et al., 2012, p. 2373). Authors explain the above rationale based on the following: suicidal acts are regarded as existing on a dimensional continuum, the patient and practitioner's views might differ on the intent, and the National Institute for Clinical Excellence (NICE) guidelines focus on self harm (Hawton et al., 2012). This is in apparent opposition to the predominantly North American view on the matter, which contends that suicidal ideation is hierarchical (Posner et al., 2007). This alternative perspective contends that suicidality ranges on a continuum from less suicidal to more suicidal, which can be characterized as ranging from more passive to more active suicidal ideation. The essential difference is that the proposed hierarchical continuum excludes *nonsuicidal self-injury* (NSSI) which is carried out for reasons other than ending one's life (Posner et al., 2007). UK based research typically does not make this distinction.

The UK NICE guidelines refer to *self harm*, while the newest version of the Diagnostic and Statistical Manual for Mental Disorders (DSM-5) (American Psychiatric Association, 2013) refers to both *suicidal behaviour* and *nonsuicidal self-injury* as distinct entities. This differentiation appears in section III of the recently revised DSM, the emerging measures and models section describing newly proposed disorders (APA, 2013). In keeping with the UK stance, the National Self Harm Registry in Ireland maintained by the National Suicide Research Foundation (NSRF) logs individuals who present in hospital as a result of deliberate *self harm*, without distinguishing the presence or absence of intended fatality.

Geographical variation in conceptualisation and use of inconsistent terminology present a challenge to interpreting existing research. For example, in a recent large scale Irish study with adolescents, McMahon et al., (2013) defined *deliberate self harm* as a deliberate act with a non-fatal outcome. Research in UK and Irish settings likely examines people with and without suicidal intent under the umbrella term of *self harm*. This is in light of the abovementioned perspective that intent is a dimensional phenomenon. Said research is likely to include participants with varying levels of and perhaps without any suicidal intent. Other researchers (O'Neil et al., 2017) have noted the discrepancy in terminology and the complexities involved. Clinicians using the term *deliberate self harm* may be referring to what in North America would be considered *nonsuicidal self-injury*, as opposed to suicidal behaviour with the presence of intent. Therefore, the terms *self harm* and *deliberate self harm* may mean different things to different people. This is clearly a limitation to validity and to comparing processes and outcomes, even in seemingly similar populations.

It has further been noted that children and adolescents often have complicated intentions and that *self harm* behaviours, particularly in this age group, may have both

suicidal and nonsuicidal intentions (Posner et al., 2007) simultaneously. Therefore, the hierarchical perspective considers any amount of intent as no longer being nonsuicidal. This can of course be difficult to determine and there may be reluctance on the part of the young person involved to disclose true intent for a variety of reasons. There are also variations geographically in the need to inform parents when suicidal ideation/ intent is disclosed in research and in practice. This issue serves as a further barrier to validity which is noted throughout.

For the purposes of this study, the authors intend to study suicidality and thus are particularly interested in identifying young people ranging on the continuum between passive suicidal thoughts and active suicidal thoughts as opposed to identifying nonsuicidal self-injury. Both active and passive ideation have been found to be linked to completed suicide (Posner et al., 2007) and so both are of interest. While it is acknowledged that intent is complicated and likely dimensional, the authors also acknowledge that there are many young people who self harm for other reasons, such as numbing emotional pain (Walsh, 2007), and that these young people may not be suicidal.

Where other researchers have used the term *self harm*, this research has been included as the populations will likely include participants ranging from a high intent to low intent to die. The literature on *nonsuicidal self-injury* (in its pure sense of having no intent to die) has not been examined in detail, except for the purposes of repeated nonsuicidal self-injury being a significant risk factor for future suicide attempt. The complexities of this will be examined further below. In as far as possible, the terminology used by the original authors will be adopted and any inconsistencies highlighted where necessary. There is precedent for this approach in prior suicide research reviewing the literature internationally (Hawton et al., 2012).

Contemporary research often distinguishes between *suicide ideators* and *suicide attempters*. This distinction captures the difference between risk on a contemplation level and the action of that risk on a behavioural level. Suicide research has moved towards studying the mechanisms that translate *ideation* to action (O'Connor, 2011). It has however also been suggested that there is a strong need to investigate *suicide ideation* itself as an outcome variable (Johnson et al., 2011). This is in keeping with a recent trend in suicide research to focus on 'upstream approaches,' which are geared towards reducing risk factors and increasing protective factors prior to the actual onset of suicidal behaviour (Hill, Oosterhoff, & Kaplow, 2017; Singer, Erbacher, & Rosen, 2018).

Defining the period of adolescence for the purposes of the current study is perhaps a seemingly easier task. There is obviously the method of using chronological age ranging from 13 to 18 years, at which point young people in Ireland are legally considered adults. Psychological research varies at the upper age limit which is put on the maximum range of adolescence. The upper age limit typical in suicide studies varies between 18 and 25 years (Hawton et al., 2012) and is increasingly being cut off in studies on youth mental health at over 18 years (Dooley & Fitzgerald, 2012). Due to this apparent variation in the definition of adolescence and the pragmatic alignment with educational and community contexts in which a screening measure might be used, the current research has chosen to define an adolescent sample as those ranging from 12 to 21 years. This allows for the resulting measure to be circulated to populations in both second and third level educational settings and/ or community services available to those age groups if it is deemed as appropriate and helpful to do so.

Screening in the public health sense is a process of identifying individuals who have a high probability of pathology from those who do not. A typical *screening* programme for suicidality involves the use of a screening instrument designed to identify suicidal risk as

part of an overall screening/ intake process (Pena & Caine, 2006). This is often part of a 2-step process whereby the first phase is the completion of a self report instrument and the second part is a follow up interview which may or may not result in a referral for further assessment/ treatment (Pena & Caine, 2006). With a screening intervention, those who screen positive should be further assessed, and those who screen negative do not require further assessment (Bryan et al., 2009).

Much research exists on the psychometrics of suicide risk screening. It has been recommended that suicide screening instruments be evaluated in relation to sensitivity (ability of the measure to correctly identify those who are suicidal), specificity (ability to correctly identify those who are not suicidal), positive predictive value (the proportion of those who screen positive are truly suicidal), and negative predictive value (those who screen negative are truly not at risk of suicide) (Pena & Caine, 2006; Joe & Bryant, 2007; Horowitz et al., 2012). A main aim of screening is to identify ‘true positives and ‘true negatives’, thus minimizing the number of false positives and false negatives (Pena & Caine, 2006). When evaluating feasibility or success of a screening programme, it is important to also consider the positive predictive value of the programme (Trevethan, 2017). Positive predictive value (PPV) is the probability that all individuals with a positive screening test truly have the disease (Trevethan, 2017). The cut-off point for a so-called ‘positive screen’ for suicidal risk has been the subject of much debate and will be dealt with below.

1.4 Suicide and resilience

Historically, there has been a prolific amount of research on the epidemiology of suicide and associated risk factors. More recently, research interests have turned to prevention. Much research also exists in the area of suicide prevention. A ten-year

systematic review was published on suicide prevention in 2005. Another international review was published recently, building on the work of Mann et al.(2005), looking at the evidence basis from 1,797 studies internationally (Zalsman et al., 2016). Psychiatric paradigms and populations still dominate the literature. This has obvious limitations in relation to collecting data on the initial onset of suicidal distress. Additionally, the focus has been primarily on the pathological nature of suicidality. Even with the movement of positive psychology (Seligman & Czimihalyi, 2000) and subsequent focus on coping with adversity, very few studies have looked at what this perspective can lend to the study of suicidality and identification of risk. In a review of the literature on the subject, Johnson et al. (2011) calls for more research on theoretically driven conceptualisations of resilience to suicidality.

Educational and community based organisations have been urged to take steps to increase the resilience of young people in an attempt to mitigate risk. Despite this seemingly ‘common sense’ approach, relatively little is known about which factors actually ‘buffer’ suicidality and which moderators serve to give better estimation of risk (Johnson et al., 2011). This has resulted in interventions which have been created to increase resilience having unclear aims and potentially being evaluated with measures which have not been designed with these aims in mind. In a recent systematic review, it was noted that ‘resilience-focused interventions are based on the premise that strengthening resilience protective factors is an effective mechanism for positively influencing mental health in children and adolescents’ (Dray et al., 2017, p. 821). The review continues to conclude that the results of this hypothesis are unknown as very few studies actually measure levels of resilience protective factors, along with mental health outcomes (Dray et al., 2017).

1.5 Introduction to the current study

The current study is the beginning of an overall research aim to develop a practical tool for use in multiple settings to identify adolescents and young people prior to or early on in the onset of a suicidal crisis. Evidence based early detection tools and methods of evaluation are needed in this area. Screening methods to date have focused largely on the identification of depression, which while useful, may be reductionist in evaluating youth mental health and suicidal risk (Diamond et al., 2017). There has been a trend in the evidence over the last decade away from screening purely for suicidality and towards measuring risk and also associated risk and protective factors (Surgenor et al., 2016). This is likely due to the multidimensional nature of risk for suicidality, methodological limitations associated with asking young people about risk directly, and a pragmatic need for identification methods which can smoothly signpost safety planning and intervention. The trend is also in keeping with ‘upstream approaches’ which place an emphasis on early prevention (Hill et al., 2017). This is likely to take place in non-clinical settings, such as educational and community based settings where there is a clear need for the identification of vulnerable youth.

Screening assessments are relatively brief evaluations which are intended to identify those at risk or who may need a more comprehensive assessment (Sattler, 2008). The literature on the overarching area of risk assessment centres around three main approaches: unstructured clinical judgement, actuarial methods, and structured clinical judgement, or so-called ‘third generation’ risk assessment (Higgins et al., 2015). Unstructured clinical judgement has been criticised due to its lack of standardisation and reliance on clinical intuition. Actuarial approaches rely predominantly on the assessment of static factors with an emphasis on predictive accuracy (Higgins et al., 2015). This is problematic for numerous reasons which will be addressed in the review below. The

current tool seeks to be the first stage in an overall process aligned to the structured clinical judgement approach to risk assessment, which emphasises exploring both static and dynamic factors, as well as historical factors and service user perspectives (Higgins et al., 2015). As such, the tool is meant to be used as the first tier as part of a broader, collaborative process focused on identifying risk.

The research team aims to develop the tool in a manner which is non-pathologising, strength identifying, and can guide safety planning and appropriate referral with young people. Researchers have noted that screening tools are often created independent of the specific clinical decisions they will be guiding and without full consideration of the parameters that would be relevant to whether the instrument could be applied under routine “real-world” conditions (Bordeaux & Horowitz, 2014). The current project has thus endeavoured to collaborate at every step of the way with stakeholders who would likely be using the method. Potential uses of this tool are to screen for students and other young people at risk of developing suicidal tendencies, to identify schools and communities with high levels of suicidal risk, and to evaluate school based programmes aiming to increase coping skills and resilience with a view towards suicide prevention.

Literature review

1.6 National context and strategy

The literature review strategy was aligned with the different stages of this sequential mixed methods project, while also taking into account a pragmatic approach (Punch, 2005). Data searches included searches of Psychinfo, Psycharticles, PubMed, and Science Direct, using the following search terms: suicide screening, suicide prevention adolescents, suicide risk factors, suicide protective factors, suicide resilience, and screening psychometric validation. Particular attention was given to systematic reviews conducted within the last 10 years. During theory development, emphasis was given to: research identifying resilience factors for Irish youth with suicide ideation or behaviour; qualitative papers studying the lived experience of previously suicidal individuals; theoretically driven publications. During Stage 2 of the project, the literature on risk factors was revisited, along with the general resilience literature. During later stages of the project, the emphasis moved to psychometric validation of tests. In keeping with the mixed methods approach, methodological diversity was emphasised (Baumeister & Leary, 1997) and various types of evidence are considered in this narrative review.

Reach Out (National Office for Suicide Prevention, 2005), Ireland's previous national strategy for suicide prevention identified schools as places where suicide prevention and increasing resilience can be targeted. The strategy also identified primary care services as appropriate areas to target early intervention. The literature in the area of suicide prevention has developed rapidly over the last few years. Ireland published its new national strategy, Connecting for Life (NOSP, 2015-2020), which emphasises profiling risk and protective factors. This is one of the national aims for research and strategy for the next 5 years in the field of suicide prevention and parallels European priorities for suicide prevention. The current study is in keeping with these aims.

Current prevalence statistics on youth suicide from 2017 show 14.1 suicide deaths per 100,000 of the population for males in the 15-24 year age bracket, an increase from 13.3 in 2016 (NOSP, 2018). Prevalence for female youth suicide rates in the 15-24 year age bracket suggest 6.3 deaths per 100,000 of the population, an increase from 2.5 reported in 2016 (NOSP, 2018). These figures need to be interpreted with caution, as they are the most up to date figures accessed by the National Office of Suicide Prevention from the Central Statistics Office. However, late registered deaths have only been incorporated into the figures from 2013 onwards, so the figures for later years are subject to change (NOSP, 2018).

While not specifically suicide focused, the recent ‘My World’ study findings (Dooley & Fitzgerald, 2012) have much to add to knowledge base on Irish young people and the nature of risk and protective factors. A large cross-sectional study, the My World study collected data on over 14,000 young people consisting of a 12-25 year-old Irish sample. Study authors had difficulty obtaining permissions to survey risk behaviours in the younger cohort so risk data only apply to young people who are 17 years and over. The My World findings indicated that of the overall sample of Irish young people (17-25 years) that 51% have experienced suicidal thoughts at some point, 21% have engaged in deliberate self harm at some point, and that 7% have attempted suicide at some point during their lifetime. It is worth noting that in this case, the question that tapped deliberate self harm was more consistent with a definition of nonsuicidal self-injury. Data from the National Longitudinal Study of Children, Growing Up in Ireland (Greene et al., 2016) showed similar rates of self harm, citing lifetime prevalence of self harm of 17% and prevalence in the past year of 11% for the 17/18 year-old cohort. The study reported there were gender effects for self harm. Again, definitions used were more synonymous with nonsuicidal self injury. Of those who had attempted suicide in the My World study, 53% did not access support following the attempt (Dooley & Fitzgerald,

2012). Low rates of help seeking have also been documented in other national studies (McMahon et al., 2014).

European research also highlights the prevalence of self harm in young people. Yet another large scale cross-sectional survey was conducted on a sample of 3,881 Irish adolescents (age 15-17 years) as part of the Child and Adolescent Self Harm in Europe (CASE) study. One-third of the total sample reported knowledge of the suicidal behaviour of a friend or family member (McMahon et al., 2013). Nine percent of students in the sample reported self harming. This is consistent with UK research, which estimates that 10% of adolescents have self harmed, based on numerous community based studies (Hawton et al., 2012). Self cutting is the most common method of self harm for adolescents in the community, while self poisoning is the most common method for presentation to hospital services (McMahon or et al., 2014) Suicide is 6 times more common amongst adolescent males than females, while self harming in the community is more prevalent in females than males (McMahon et al., 2014). Growing up in Ireland data also reflect gender effects for self harm (Greene et al., 2016). The findings from My World indicated that while there were gender effects with deliberate self harm, there were no gender effects for suicidal ideation (Dooley & Fitzgerald, 2012). Males were less likely to report suicide attempts than females, but only slightly less likely at 6% and 8% respectively (Dooley & Fitzgerald, 2012). Suicide rates for young males age 15-19 in Ireland are the 3rd highest rates in the European Union (McMahon et al., 2014), although study authors reported a narrowing gender gap in the rates of hospital treated self harm.

Reported prevalence rates of self harm from national studies vary. The CASE study only gathered data from participants in 2 counties, which might account for the variation in numbers self harming (9%) as compared with the 21% reported as self harming in My World. Another explanation for the discrepancy may be that lifetime prevalence was

measured and the sample in the CASE study is younger. Representative data on younger adolescents from nonclinical populations for self harm and suicidality in Ireland is limited. Even internationally, there have been few studies in children under 12 years of age, making prevalence estimates for children self harming in the community impossible (Hawton et al., 2012). This is unfortunate considering that suicide and self harm are a reality in this age group.

McMahon et al. (2014) proposed a so-called ‘iceberg’ of self harm, whereby known suicide behaviour is the tip of the iceberg. Despite advanced monitoring systems for hospital presentations nationally through the self harm registry, study authors hypothesise self harm is an often hidden phenomenon which is not logged by the health services. Population based research estimates that for each 34 adolescents who present to hospital following incidents of self harm, that a further 555 adolescents have harmed themselves (McMahon et al., 2014).

1.7 International context and strategy

In 2005, the Centre for Disease Control in the United States conducted a large scale survey of US adolescents. Seventeen percent of adolescents had seriously considered suicide, 13% reported having made a suicide plan, and 8% had made an attempt at least once (Posner et al., 2007). It can be seen that the number of attempts is similar to the prevalence rate of 7% found in the My World study in Irish adolescents. While the number citing suicidal thoughts in My World is significantly higher (lifetime prevalence 51%) (Dooley & Fitzgerald, 2012), it is worth noting that the CDC asked about ‘serious consideration’ so the discrepancy may be down to the wording of the suicide ideation question. Consideration around language used in suicide ideation items is of primary importance to the current study.

As noted above, low rates of help seeking following suicide attempts have been reported with Irish cohorts (Dooley & Fitzgerald, 2012; McMahon et al., 2013). This is consistent with international research, which suggests that many suicidal young people never seek help. In North America, young people's and parents' attitudes about the need for treatment have been shown to be a barrier to accessing services (Gould et al. 2009). It can be seen from the data presented that suicidal ideation, behaviour, and completion is an unfortunate and significant reality for adolescents both in the Irish context and also internationally.

Similar to North American and Australian counterparts, mental health and wellbeing in the young has been identified as a European priority for the coming years, as evidenced by H2020 priorities. The research strategy specifically emphasises the mental health and wellbeing of the young. The Saving and Empowering Young Lives in Europe (SEYLE) research agenda funded suicide prevention studies prior to the release of the European H2020. This emphasis suggests that the issues surrounding self harm and suicidality in young people are and have been of primary research importance in Europe.

1.8 Risk prevention in educational settings

What can be done to address this crucial issue? Educational settings have been identified as suitable settings in which to target strategies in suicide prevention and intervention amongst young people (NOSP, 2005). Schools have been noted as 'an essential environment in which to identify and respond to youth suicide risk' (Singer, Erbacher, & Rosen, 2018, para. 3) in a recent review of evidence based practice. Many international studies have focused on this area. However, there is considerable variability in the types of strategies employed and emphasis needs to be placed on the evidence base for these interventions. Over the last 20-30 years, some types of interventions aimed at

prevention have been associated with increased suicidal ideation and distress in student populations (Ploeg et al., 1996). The research has concentrated on several strands of school based intervention including suicide education/ awareness programmes, gatekeeping programmes, suicide screening/ assessment programmes, peer leadership, and skills based programmes (Surgenor et al., 2016). There have been a large number of these studies since the 1980's, primarily in North America (Surgenor et al., 2016).

The evidence basis was not strong for the idea that addressing suicide directly through the curriculum decreases suicidal behaviour and in fact, this approach had been linked to increased harm and distress (Ploeg et al. 1996). Gatekeeping programmes and general whole school approaches have show some promising results, but require further empirical validation (Zalsman et al., 2016). In addition to screening, gatekeeping interventions have proved popular to manage risk in educational and community settings. Examples of gatekeeping interventions in Ireland are the widely subscribed Asist and Safetalk programmes. Other models are Question, Persuade, and Respond (QPR). While these have also been promising, no RCT has yet shown that gatekeeper training alone has impacted suicide rates (Zalsman et al., 2016). Despite the increase in research in this area, it has been identified that more school based approaches targeting adolescent self harm are needed (Hawton et al., 2012).

1.9 Screening in nonclinical contexts

Screening programmes have been popular in North America and sought to identify youth at risk of suicide. There was an initial research interest around screening in primary care and educational settings, essentially with nonclinical populations. As mentioned above, screening can be applied universally, or targeted to specific populations which are

hypothesised to be at risk. Screening is thought to be more sensitive than gatekeeper training and identification (Gould et al., 2009).

Internationally, there are numerous conflicts highlighted in the literature in relation to common practice around screening and assessment of suicidality. Contentious areas are where to carry out the screening, the acceptability and feasibility of the screening, and whether screening can accurately predict risk. In a seminal review on the topic, Pena & Caine (2006) noted that screening interventions showed promise in relation to risk identification for those who need treatment, but that the how, when, where, and for who needed to be examined in the research. Screening in educational settings has been tested as both a stand alone intervention and as part of a broader mental health awareness curriculum.

Screening research dates back to the 1990's. Shaffer et al. (1996) established the Columbia Suicide Screen based on a number of known risk factors, which gave rise to the Teen Screen process. The process involved 3 stages: 1. Screening instrument, 2. Diagnostic interview via computer, 3. Clinician interview. Screening has been trialled extensively out of Columbia University through various versions of the Columbia Suicide Screen (Shaffer et al., 2004). The original Teen Screen was developed as a rapid, 11-item self report screening questionnaire, which tapped suicidal ideation and attempts, depression, and alcohol and substance abuse (Goldston, 2003). The Columbia measures have evolved over the years and begun to include other risk factors. As noted above, most screening protocols are multi-step methods utilising an instrument as the first step towards screening a universal or targeted population and identifying those most in need of follow up (Pena & Caine, 2006). Screening has been administered both as a stand alone intervention, and also as part of an overall mental health awareness programme.

Many school based mental health awareness programmes exist, but few display robust evidence for outcomes of suicide prevention. One of the first to be trialled on a large scale which continues to show positive outcomes is the Signs of Suicide (SOS) developed by Aseltine & De Martino (2004). SOS is a programme with an educational and screening component, focusing on young people identifying signs of distress in themselves and their peers. Created in the USA, the programme was the first mental health and curriculum based programme combined with screening to be evaluated using a randomised controlled trial (Joe & Bryant, 2010). Initial evaluation of the SOS programme showed significantly fewer suicide attempts at 3 month follow up and higher levels of knowledge about depression and suicidality (Aseltine & De Martino, 2004). The programme promotes help seeking using the ACT model, which teaches students to Acknowledge signs of suicide, Care to provide support and offer help, and Tell (a responsible adult) who can help. The programme is based on the premise that psychological first aid is similar to medical first aid and that suicidal ideation is a medical emergency as opposed to a normative response to stress (Aseltine & DeMartino, 2004). The screening aspect of the programme uses the Columbia Depression Scale and is self scored by the students.

Evaluation of the SOS has been trialled through numerous RCT's with different populations (Aseltine & DeMartino, 2004; Aseltine, James, Schilling, & Glanovsky, 2007; Schilling, Aseltine, & James, 2016) and outcomes have consistently verified an effect of reduction of suicide attempts and greater knowledge and awareness of depression and suicidality. SOS aims to target 3 outcomes: self reported suicidal ideation and suicide attempts, knowledge and attitudes about depression and suicide, and help seeking behaviours. In addition to aiding suicide prevention by increasing education and awareness about resources, SOS aims to engage students with 'indigenous' care systems within the school, or their natural supports (Aseltine & DeMartino, 2004). As such, the

programme differs from other screenings such as the Columbia programmes which include parental notification and direct referral to mental health professionals.

In fact, SOS authors contend that the self scoring of the screening measures by the students themselves is essential for an honest assessment of their symptoms (Aseltine & DeMartino, 2004). As such, parental notification of risk is not usual in the programme. Even with the anonymous screening, the initial validation study did not see an increase in help seeking behaviours. During follow up data collection, it was noted that students reported they were unlikely to access supports from school staff due to confidentiality concerns (Aseltine & DeMartino, 2004). The issue remained in follow up cohorts with more diverse populations of students (Aseltine et al., 2007). Reasons hypothesised by the authors are concerns about confidentiality, the prevailing issues with stigma, lack of availability of mental health staff in schools, and the developmental preference of adolescents to confide in peers. SOS founders concluded that the programme can be administered while keeping stigma minimal due to the anonymity of the self screen. They also noted that by giving the students the responsibility for their own follow up and monitoring their peers, the programme does not place an increased burden on schools.

This dialogue poses a key challenge in youth suicide research. There is a complicated balance involved in managing ethical and statutory obligations while maintaining anonymity and rigour in research. Informing parents of minors where risk has been identified is likely to increase safety. It is also likely to reduce anxiety for researchers, schools, and university ethics committees. This condition may also compromise truthfulness and thus validity of response during the research. It may even be a barrier to some young people seeking help during screening processes.

Despite promising outcomes, school based programmes have been controversial for additional reasons. Surgenor et al. (2016) has expressed caution around programmes

which rely heavily on peer support. While these interventions are promising, the concern is that they place undue responsibility on peers who might also be vulnerable. Feasibility of screens which require parent notification and onward referral has also been a real issue which will be detailed below. The complexities of developing and trialling these types of interventions are evident.

While screening and mental health awareness in educational settings have not been commonplace in Europe, research has more recently moved into this area. The only large scale RCT (Wasserman et al., 2015) to date comparing school based interventions in Europe was conducted as part of the previous European FP7 SELYE research priorities. Irish schools were included in the RCT. The RCT included 10 European countries as part of a multicentre cluster-randomised controlled trial. A sample of 11,110 students in 10 European countries were allocated to 3 experimental groups: 1) gatekeeper intervention, 2) awareness of mental health intervention, 3) screening intervention, and a control group. Findings reported that screening alone did not show a significant decrease in suicide ideation or attempt (Wasserman et al., 2015) as compared to other interventions. The RCT showed positive results for the Youth Awareness of Mental Health programme (YAM) which showed a significant reduction in both suicide attempts and suicide ideation as compared to other school based interventions, including gatekeeping and screening alone (Wasserman et al., 2015).

This would suggest that the youth awareness of mental health programme was the most effective of the 3 interventions. It should be noted however in viewing the findings above, that all 3 groups in the trial were actually screened for suicidality prior to the intervention taking place. Students who were found to be suicidal at the outset were excluded from the study analysis and referred to local services (Wasserman et al., 2015). In essence, the mental health awareness group reported the most significant reduction in

suicidality. All 3 groups received an intervention identifying young people at risk which resulted in referral to services for those individuals. It could be suggested that all 3 groups actually received a screening intervention prior to the experimental intervention. This example illustrates the complexities of evaluating screening as an intervention. Is the desired outcome reduced attempts and ideation, or is it increased uptake of services? Based on the abovementioned issues about parental notification of risk, can we trust the results?

To date, only two school based programmes geared towards mental health awareness and suicide prevention have shown rigorous evidence at reducing suicide risk (Singer, Erbacher & Rosen, 2018). These are the Good Behaviour Game, a prosocial behaviour and communication skills enhancing programme targeting primary school students and the Signs of Suicide (SOS) (Anseline et al., 2004; Schilling, Anseline, & James, 2016) mentioned above targeting secondary school students. Through numerous RCT's, SOS has been shown reliably to reduce suicide attempts at follow up (Schilling et al., 2016). To our knowledge, this programme has not been trialed in the republic of Ireland. In reviewing the evidence, Singer et al. (2018) note that the SELYE results on the YAM trialed in Europe (including Ireland) (Wasserman et al., 2015) are very promising, but that the results have not been replicated to date.

1.10 Iatrogenic risk

Hold on - isn't increasing awareness of suicide amongst young people dangerous? In the most recent guidelines on the promotion of wellbeing in post primary schools, the National Educational Psychological Service urges schools not to engage in programmes which directly or 'indirectly' increase awareness around suicide (Department of Education and Skills, 2013). This is understandable, as the guidelines were published

prior to the SELYE trial, which included European and Irish schools. Anecdotal evidence suggests that screening might ‘introduce the idea’ of suicidality to students, or cause unwarranted distress for students, staff, or parents. However, current research suggests that the anxiety that asking about suicide increases the risk is contrary to international evidence. Evidence suggests that suicide screening measures have been shown not to cause significant distress to the majority of adolescents (Gould et al., 2005) and have been identified by adolescents and parents as acceptable ways of measuring and supporting those at risk (Robinson et al. 2011). In fact, there is a ‘growing body of research on suicide warning signs which suggests that exposure to suicide related content does not encourage individuals to consider attempting suicide’ (Joe & Bryant, 2007, p. 220).

This perspective has been affirmed by the only randomised controlled trial on the iatrogenic risk of suicide screening in educational settings, conducted in the USA by Gould et al. (2005). This study, which tested 2,342 students from 6 schools, assessed mood state following administration of a screening tool. The experimental group’s tool had suicide risk questions included, while the control group completed a version with the suicide risk questions omitted. There was no significant difference in mood state between the 2 groups and no elevated risk for the experimental group. Students who were deemed ‘high risk’ based on their self reported answers experienced less distress in the experimental group than the ‘high risk’ control students (Gould et al., 2005), suggesting that answering suicide risk questions was linked with lower distress, even for those deemed as high risk. The researchers concluded that asking about suicidal risk does not create immediate or persistent distress or increase suicidal ideation among universal populations of students or students who are deemed as ‘high risk’ in a US population of students (Gould et al., 2005).

Similar concerns have been expressed in the UK. A significant minority of GP's expressed concerns about suicide screening in primary care, wondering if asking suicide screening questions could induce suicide ideation (Crawford et al., 2011) in their patients. A similar RCT was conducted with an adult sample of primary care patients in the London area and also found that asking questions about risk of suicide does not have a detrimental effect (Crawford et al., 2011) in terms of increasing suicidal risk. The evidence internationally seems to suggest that iatrogenic risk is not an issue, although to date, this has not been trialled in Ireland. However, does talking about suicide increase distress?

1.11 Acceptability and feasibility

A study on the acceptability of suicide screening programmes conducted in Australia would suggest that the answer is no. The suicide screening intervention did not cause undue distress in an at-risk and a not at-risk group (Robinson et al., 2011) in samples of secondary students. Fears expressed during the study included that the students would find the screening intrusive and stigmatising and that it would be unacceptable to students and parents or cause undue distress in the student population. The authors concluded that 'when conducted carefully, early detection programmes can be an effective and acceptable method of identifying at-risk adolescents' (Robinson et al., 2011, p. 254). Similarly to Gould et al.'s (2005) study, the Robinson et al. (2011) study added 2 screening questions on the end of a general health questionnaire to create the screening measure. The questions focused on identifying recent suicidal ideation and recent deliberate self harm. The screening was a multi-step process which occurred alongside a mental health awareness programme.

Study recommendations suggested that a universal education programme on early detection of depression could be combined with the screening to create an integrated model and that this could be acceptable and effective for screening students at risk (Robinson et al., 2011). Evaluation at the end of the study concluded that both staff and parents considered schools to be appropriate places for identifying and managing students at risk (Robinson et al., 2011). Nevertheless, it may be of interest to replicate this type of study nationally to see if cultural factors influence distress following disclosure of suicidal risk.

1.12 Challenges in literature

Research on school based prevention programs with a view towards suicide prevention has been riddled with methodological challenges. Problems noted in the literature are the use of control conditions, defining and establishing suicide related outcomes, and identifying the precise mechanisms for change (Singer et al., 2018). Determining the efficacy and effectiveness of screening in educational settings depends in part on the outcomes which it seeks to achieve. While some studies consider the outcome ought to be a reduction in suicide attempts in the population at follow up (Wasserman et al., 2015), other studies look at the accuracy of the screening tool at identifying the risk vs. using other methods such as existing care paths of teacher identification (Scott et al., 2009). Yet another way of measuring outcome in the screening research is to look at service uptake following the screening intervention (Gould et al., 2009). Some programmes also look at secondary benefits, such as increased awareness of mental health in young people or an increase in help seeking behaviour. More recent research like the SELYE study (Wasserman et al., 2015) appears to suggest that help seeking and mental health

awareness should be the primary aim in educational settings, while screening may be a secondary aim.

Yet another issue is the validity of results on the risk items. Truthfulness of response is a real concern where parental notification is required for a 'positive screen'. This may be particularly relevant in educational settings, as the research is conducted in a context where students are not socialised around a culture of confidentiality. In fact, the usefulness of conducting suicide prevention programmes and suicide research in a non-anonymised manner has been seriously challenged (Aseltine & DeMartino, 2004). UK based research has reported young people worrying about a potential diagnosis of a mental illness or of rumours circulating around their school if they disclosed concerns about their mental health (Fortune, Sinclair, & Hawton, 2008). This is an obvious barrier to both research validity and also to conducting an effective screen. It is apparent how complicated it is to extract true findings in suicide research, while simultaneously balancing out the ethical obligations which are paramount with a vulnerable population.

In summary, evaluating evidence for screening in educational settings is complicated. This is due to issues with outcome measurement, and uncertainties surrounding acceptability and feasibility. RCT's have however shown that screening is safe (Gould et al. 2005) and does not increase risk (Crawford et al., 2011). Robinson et al. (2011) found combining a universal depression education programme with early detection and screening could be effective and acceptable in an Australian sample. Furthermore, research has shown suicide screening can identify students at risk, the majority of whom were not previously in treatment in Australian and American school based studies (Robinson et al. 2011; Gould et al. 2009). Research has suggested screening is effective to identify students at risk who were not identified through existing care pathways (Scott et al., 2009). However, screening programmes do present a variety of obstacles, such as

not being a funding priority for schools, lack of willingness among staff to implement programmes, and lack of adequate referral resources for follow up for youth identified at risk (Joe & Bryant, 2007). Without adequate referral pathways, screening is unlikely to make any real difference and could potentially leave school professionals and families even more anxious about the welfare of the young people involved. Feasibility issues and referral pathways have been a real problem highlighted in some contexts (Halfors et al., 2006; Hawton et al., 2012).

It has been suggested by North American researchers that targeted suicide screening in schools, and universal suicide screening in primary care clinics and emergency departments may be the most effective way to recognise and prevent self harm (Horowitz et al. 2009). Screening in addition to measuring psychopathology has also been shown to be valuable in European RCT's identifying mental health problems and the need for intervention (Kaess et al., 2014). In a recent systematic review of evidence internationally encompassing 1,797 studies in suicide prevention, it was noted that RCT's are increasingly showing reduced suicide attempts and ideation after school based mental health and awareness programmes, with or without screening as a component (Zalsman et al., 2016).

This is somewhat inconsistent with the caution expressed in relation to school based suicide awareness programmes in the 1990's (Ploeg et al., 1996). Despite previous findings in the 1980's and 90's, increasing evidence is pointing towards an alternative approach. It has been suggested that wholeschool approaches should target depression, help seeking, or well being, as opposed to purely suicide itself (Robinson et al., 2011). It may be that programme developers are getting better at tailoring mental health and suicide awareness programmes to be helpful. Content may be more focused on support

seeking, skill building, and more mindful of contagion in selecting programme content in recent decades.

Increasing wellbeing or resilience as a method of suicide prevention is an interesting and perhaps common-sense idea. In a recent review on school based interventions for suicide prevention, it was suggested that future priorities should reflect ‘the shift from the traditional focus on predicting risk to strengthening resilience and protective factors’ (Surgenor et al., 2016, ‘Conclusions’, para. 3). It has been suggested that resilience programmes should focus on building assets and resources. Fergus & Zimmerman (2005) suggest this can be accomplished through intervention such as teaching CBT skills, building effective communication, and providing family based interventions. This is in keeping with current initiatives being run by the Department of Education and Science and current delivery of the wellbeing curriculum. What does the research suggest about this approach?

The evaluation element to these mental health awareness/ educational components remains complicated. If schools are creating programmes aiming to build protective factors and resilience to risk outcomes, these constructs need to be operationalised and measured specifically. Wholeschool interventions such as Friends for Life or the new wellbeing curriculum in junior cycle may go some way to build resilience to suicidal risk. For example, a recent evaluation of Friends for Life showed positive outcomes in relation to the reduction of anxiety (Henefer & Rodgers, 2013) in Irish secondary school students. However, measuring the absence of depression or anxiety may not be the same as measuring an increase in emotional resilience or wellbeing. One major limitation which has been noted in the literature is the limited use of fit for purpose measures to study the mechanisms of resilience (Dray et al., 2017; Cosco et al., 2017).

It has been noted that to date, most resilience research has resulted in the administration of a large number of standardized batteries (Johnson et al., 2011). Authors noted the consequences of this to be increased participant fatigue and possibility of error. Ideally, to reduce the administrative burden on students one measure could provide a risk and mental health screen, while also looking at risk and resilience factors for suicide. The same measure could then provide outcome evaluation of school based intervention. The study of resilience has unfortunately not frequently crossed paths with studies measuring outcomes on suicidality or even associated risk factors. This is unfortunate, as the two fields have much to share with each other. Jakobsen, Larsen, & Horwood (2017) note the relative paucity of studies investigating the relationships between measures of suicidality and protective factors.

1.13 Screening research in third level settings

Screening has also been examined as a potential strategy for third level student populations. Suicidal ideation has been shown to be at a higher incidence in college students as compared to the general population, and screening at college entrance has been suggested as a promising strategy for identifying those at risk (Mortier et al., 2017). Study authors identify the time during university years as a life stage frequently associated with initial onset of suicidal thoughts and behaviours. Screening research in university settings has examined some psychological risk variables outside the traditional psychiatric classifications associated with suicide.

Range & Antonelli (1990) suggested a screening battery including 6 instruments could be useful to identify different aspects of suicidality in undergraduate populations. Screening in undergraduate populations has included both traditional approaches whereby depression and psychiatric risk factors were tested, and also looked at other methods of

screening. Suicidal ideation in university populations has focused on risk factors such as depression, and also shown to be associated with other emotional states, such as desperation. Similarly to secondary school age, reasonably large numbers of students reported not being in services even though they had screened positively for depression or suicidal ideation (85 % and 84 % respectively) following a large universal screen at Emory University (Garlow et al., 2008).

Other research has also supported the use of psychological constructs being included in university screens. The ‘Psychache’ scale was suggested to be preferable as a screen based on comparing results with the BDI-II and Beck Hopelessness scale in a sample of 7,522 undergraduates (Troisten, D’gata, Holden, 2015). Study authors also suggested that a scale with psychological constructs may be preferable to measuring risk in an undergraduate student nonclinical population.

Similarly to screening in secondary schools, a number of university screening studies have been conducted in North America, with relatively fewer in Europe and other parts of the world. After following 2,337 students as part of a Belgian longitudinal study, Mortier et al. (2017) concluded that risk screening at college entrance could be a promising and timely strategy, which could identify an unmet need and help to more effectively allocate resources.

1.14 Screening in primary care and community settings

In addition to educational settings, screening research has also been prolific in primary care and hospital settings. Screening in these settings presents different challenges. Primary care clinics, accident and emergency departments, and community agencies which work with people will already have protocols in place to initiate a mental health referral if one is needed. GP’s will be well versed at screening for depression but

may have reservations about how to evaluate suicidal risk (Crawford et al., 2011). NICE guidelines (CG 133, 2011) dictate that individuals in primary care be referred for a specialised assessment where there is a history of self harm and risk of repetition when:

- ‘levels of distress are rising, high or sustained
- the risk of self-harm is increasing or unresponsive to attempts to help
- the person requests further help from specialist services
- levels of distress in parents or carers of children and young people are rising, high or sustained despite attempts to help.’ (NICE CG 133, 2011)

Internationally, screening for depression and suicidal ideation has been prolific in primary care, with both adolescents and with adults. A large scale European study with adults focusing on suicidal ideation showed Ireland had the highest level of suicidal ideation of the participating 5 European countries (Casey et al., 2008). Study authors reported prevalence rates of 14.6% responding affirmative to some level of suicide ideation measured by the Becks Depression Inventory risk item. Participants were adults in the general population. Findings by the research team (Casey et al., 2008) in UCD did not support the proposed hypothesis that suicidal ideation would mirror depressive disorders. In fact, data did not support the trajectory that depression moving into ideation and more serious suicidality was actually the case (Casey et al., 2008). Study authors contended that a ‘one size fits all’ approach is unlikely to be helpful.

Recent research conducted in primary care has shown that risk behaviours and social stress can contribute towards suicidal risk above and beyond a diagnosis of depression (Diamond et al., 2017). A recent, large scale sample of primary care patients (age 14-24 years) were surveyed using a prospective cohort with a longitudinal design. Findings suggested that primary care screening include a more comprehensive range of domains

outside the diagnosis of depression (Diamond et al., 2017), including both psychiatric and social stress factors. This recommendation is in keeping with the NICE CG 133 (2011) guidelines for more comprehensive psychosocial assessments for community and specialist mental health services in cases where there is suicidal risk. This begs the question of whether a broader range of factors should also be looked at earlier in educational and community settings and before the person presents in secondary care.

Currently, there is no universal standard for assessing risk even in clinical settings, and certainly not one which takes resilience or protective factors into account in a structured or meaningful way. North American services are moving towards use of standardised tools as part of risk assessment. This is in opposition to the UK, whose NICE (CG 133, 2011) guidelines still favour clinical judgement, which has been reaffirmed recently in the literature (Quinlevan et al., 2017). In fact, the NICE guidelines list assessment tools in the DO NOT section in relation to predicting future episodes of self harm and to determine who should and who should not receive treatment or be discharged following an episode of self harm (NICE CG 133, 2011).

The guidelines for community mental health services include a caveat that risk assessment tools can be used as part of a broader assessment when managing presentations of self harm if they include the following:

- ‘methods and frequency of current and past self-harm
- current and past suicidal intent
- depressive symptoms and their relationship to self-harm
- any psychiatric illness and its relationship to self-harm

- the personal and social context and any other specific factors preceding self-harm, such as specific unpleasant affective states or emotions and changes in relationships
- specific risk factors and protective factors (social, psychological, pharmacological and motivational) that may increase or decrease the risks associated with self-harm
- coping strategies that the person has used to either successfully limit or avert self-harm or to contain the impact of personal, social or other factors preceding episodes of self-harm
- significant relationships that may either be supportive or represent a threat (such as abuse or neglect) and may lead to changes in the level of risk
- immediate and longer-term risks.’ (NICE CG 133, 2011).

NICE guidelines currently appear to acknowledge that standardised tools may have some role to play in the assessment of self harm, but contend that they should not be used to determine patient management following self harm episodes or to decide whether follow up is needed (NICE CG 133, 2011). The use of risk scales for identification and prediction of risk is contentious for many reasons, one of the primary being the difficulties associated with predicting a phenomenon with such a low base rate, such as suicide attempt and completion (Quinlivan et al., 2017). Advantages and disadvantages of using standardised methods for predicting risk are explored below.

1.15 Risk identification tools

In order to conduct screening, brief and accurate measures are required. Many measures exist to assess risk. Risk identification instruments can be categorised into

broad-band instruments, which include suicide screening questions or a suicide scale, and narrow-band instruments which focus specifically on suicidality (Goldston, 2003).

Broad-band instruments measure a variety of constructs, and include a suicide risk item or items. These measures do not seek to identify risk specifically, but score it as part of an overall mental health outcome. One commonly used measure is the Beck's Depression Inventory (BDI-II) (Beck, Steer, & Brown, 1996), a self report instrument geared towards depression which includes a suicide risk question. The screening item on the BDI-II is item 9. There are 4 statements on suicidal thoughts or wishes ranked by severity. The individual completing the scale chooses one item which rates the overall level of suicidality. There are nominal descriptors which indicate levels of severity and are allocated a numerical value. The item does not confuse passive thoughts of death with suicidal ideation (Goldston, 2003) and thus is reasonably specific. The BDI-II has been used widely to measure depression and suicidality and is suitable for use with adults and adolescents (Goldston, 2003).

Another example of a broad-band instrument, which is commonly used in community settings is the Young Person CORE (Clinical Outcomes in Routine Evaluation) (YP-CORE) (Twigg et al., 2009). The YP-CORE is a measure of general functioning and distress typically used as a pre- and post-therapy outcome measure. The Core-OM, the adult version of the CORE has 6 risk screening items in the full 34-item version, screening for risk of harm to both self and others. The screening items range from feeling better off dead (passive ideation), to the most severe having made plans to end their life (active ideation + plan). The youth version of the CORE is shorter and includes only one risk screening item, indicating thoughts of hurting oneself (YP CORE) (Twigg et al., 2009). The scale is rated on a 5-pt. Likert type scale which ranges from 'not at all' at one

end to ‘most or all of the time’ at the other. Ratings which combine intensity and frequency in the anchors selected are common in psychological self report measures.

There are marked differences in the information which can be gleaned by the screening items on the two versions of the CORE. Due to the specific nature of the 6 items on the adult version, information can be gleaned about the person’s risk level, whether or not they are suicidal, and if the ideation is passive or active. The one item used on the youth version ‘I’ve thought of hurting myself’ (YP CORE) (Twigg et al., 2009) is much broader. The item does not allow the ability to differentiate between thoughts of nonsuicidal self-injury and thoughts of suicide. Additionally, young people could possibly endorse this item if they are experiencing anxiety and fear about hurting themselves, rather than desire to do so. This leaves open the possibility that many more people will endorse the item than a more specific item that seeks to enquire about passive or active suicidal ideation, or indeed having a suicidal plan.

The Patient Health Questionnaire (PHQ) includes an overall screener for depression, the Patient Health Questionnaire-9 (PHQ-9) (Spitzer et al., 1999) which has been used prolifically in suicide screening studies. The measure consists of 9 items, which are self-report statements based on a Likert type scale. It has been used extensively in research and in screening in primary care due to its brevity and alignment with DSM-5. The PHQ-9 has been shown to have good construct validity (sensitivity 92% and specificity 80%) (Gilbody et al. 2007) for depressive episodes and also indicates subclinical depression for a broad range of ages in nonclinical and medical populations. The measure also includes one suicide screening item, item 9 which asks about thoughts of being better off dead or hurting the self in some way. PHQ-9 item 9 has been shown in previous research to identify outpatients in primary care of increased risk for suicidal behaviour in the future (Simon et al., 2013), including adolescents.

While the PHQ-9 item is a little more specific than the screening item on the YP-CORE, it still encompasses the range of suicidal ideation from passive to active and would possibly be endorsed by individuals who were self harming but had no intent to die (nonsuicidal self-injury). This endorsement also likely depends on the person's interpretation of the meaning of the item. Screening youth using a measure like the PHQ-9 tends to be augmented by including additional questions such as those below added onto the end of the instrument: 'Has there been a time in the past month when you have had serious thoughts about ending your life?'; 'Have you ever in your whole life tried to kill yourself or made a suicide attempt?' Thus, with the combined 3 questions, the measure taps a general risk indicator (item 9), plus 'serious ideation', plus a previous attempt. The Paediatric Symptom Checklist Youth Report (PSC-YSQ) is another screener for mental health commonly used in primary care which is also typically supplemented by the above screening questions.

In addition to self report measures, there are a number of clinician administered structured interviews. While some instruments exist with excellent psychometric properties and alignment to DSM-5 they are lengthy and resource heavy, so would be more suitable for the second phase of a screening method.

Additional measures which are commonly used in Irish contexts include the Achenbach Child Behaviour Checklist (CBC-L) (Achenbach, 1991). The Achenbach scales are broad band measures tapping behaviour problems and also narrow band measures for mental health and behavioural issues. While not specifically a suicide screening measure, the Achenbach includes 2 suicide screening items. The items are rated on a Likert type scale ranging from 0 to 2. The suicidal ideation item queries thoughts about suicide and the suicide attempt item asks about deliberate self harm and suicide attempt. Again, it can be seen that the items are quite broad. The suicide attempt

item is likely to elicit any self harming behaviour, including nonsuicidal self-injury (Goldston, 2003). An advantage of the Achenbach scales over other measures highlighted thus far is that it includes teacher and parent forms and thus provides a structure for obtaining collateral information.

However, research suggests that screening for suicide related constructs directly is preferable to administering general scales. This has been shown with adolescent samples for suicide specific screens vs. depression inventories (Gutierrez & Osman, 2009), as measured by the Suicide Ideation Questionnaire (SIQ) and the Reynolds adolescent depression scale (RADS-2).

Narrow-band instruments are more recent in their development and seek to measure suicidality as the direct outcome. The Scale for Suicidal Ideation (SSI) (Beck et al., 1979), one of the initial suicide risk scales is a 19-item scale designed to measure suicide ideation and intent in adults. The scale is completed by the clinician based on a semi-structured interview collaboratively with the patient. *Ideators* were described at the time as ‘individuals who currently have plans and wishes to commit suicide but have not made any recent overt suicide attempt’ (Beck et al., 1979). The scale has good psychometric properties including high internal consistency and high correlations with clinician and self ratings of self harm (Beck et al., 1979). The scale is lengthy and detailed in its language about suicide. The original validation paper itself acknowledges that the instrument was designed for conducting research on suicide ideators, rather than for use with particular populations for screening or clinical assessment.

The SSI was subsequently replaced by the Beck Scale for Suicidal Ideation (BSI) (Beck & Steer, 1991). The BSI taps wish to live, wish to die, reasons to live, passive ideation, and active ideation. If respondents endorse passive or active ideation, they are directed through a series of detailed questions tapping into more specifics about the

ideation and cognitions surrounding suicide. The scale has been suggested to be one of the more thorough instruments for assessing severity of ideation and specifically measuring important constructs such as thoughts of death, passive ideation, and active ideation. While the measure has been deemed more suitable for clinical settings than its previous version and is suitable for adolescents, (Goldston, 2003), it has largely been used with psychiatric populations.

The 1990's saw generation of many brief screening scales which are typically short and are designed to identify suicide ideation and behaviour. These scales are prevalent in both suicide research and have been used for screening in education and community settings. These narrow band scales may be used on their own or as part of a multi-step screening process. In a review for the national Institute of Mental Health in the USA, Pena & Caine (2006) identified the following suicide screening tools as brief and psychometrically validated screening measures: Columbia Suicide Screen (CSS), Risk of Suicide Questionnaire (RSQ), Suicidal Ideation Questionnaire (SIQ; SIQ-JR), Diagnostic Predictive Scales (DPS), Suicide Risk Screen (SRS), Suicide Probability Scale (SPS).

The Suicidal Ideation Questionnaire and junior version (SIQ and SIQ-JR) (Reynolds, 1988) has been used prolifically in school screening research. The SIQ includes 30 self-report items and the SIQ-JR has 15 items. The items are based on Reynold's (1988) hierarchical conceptualisation of suicidal cognitions. They are self report statements which are rated on a Likert type scale ranging from 0 to 6 which is anchored by frequency. The SIQ and SIQ-JR have been shown to have good internal consistency reliability and validity and have been used prevalently in North American school screening, with clinical and nonclinical and also urban and ethnic minority populations (Reynolds & Mazza, 1999). The measures show substantial data regarding concurrent validity as well as evidence for predictive validity of the SIQ-JR (Goldston, 2003).

The Child and Adolescent Suicide Potential Inventory (Pfeffer, Jiang, & Kakuma, 2000) was developed to try to measure risk prospectively. It taps 3 factors: anxious-impulsive depression, suicidal ideation or behaviour, and family distress.

The Suicidal Behaviours Questionnaire (SBQ-R) (Osman et al., 2001) is a brief self report questionnaire of past suicidal behaviour. It is based on the suicidal behaviours questionnaire (SBQ) developed by Marsha Linehan. It taps 4 dimensions: lifetime suicidal ideation and suicide attempt; frequency of suicidal ideation; threat of suicidal behaviour; self-reported likelihood of suicidal behaviour. The SBQ-R consists of 6 items, instructing participants to report on varying levels of past suicidal behaviour and intent to die. The SBQ-R has shown sensitivity levels of 93% and specificity of 91% (Osman et al. 2001). It has been used with both inpatient and nonclinical populations of adolescents and adults (Osman et al., 2001). Due to its brevity, the measure has been used prevalently in research. Both the total score and item 1 only have been validated for use in identifying suicidality and suicidal behaviour (Osman et al., 2001).

The Columbia Suicide Severity Rating Scale (CSSRS) (Posner et al., 2011) is another example of a narrow band scale which seeks to measure levels of suicidal ideation and intent. The CSSRS was developed primarily to address inconsistencies in suicide risk identification. The measure taps 4 domains: severity of ideation; intensity of ideation; behaviour; lethality. The behavioural domain is measured nominally, while scores on the other items are ordinal. The initial validation study found the instrument to show good convergent, divergent, and predictive validity, in addition to good internal consistency and sensitivity to change (Posner et al., 2011). The CSSRS was approved by the Food and Drug Administration in the USA as the 'gold standard' for measuring suicidal ideation and behaviour in research. It has also been recommended as a useful part of risk

assessment. The tool has however been criticised for being too reductionist (Giddens et al., 2014).

Yet another narrow band screener is the Ask Screening Questions Tool (Horowitz, 2012), promoted by the national Institute of Mental Health in the USA. This screening tool is targeted towards use by medical professionals in emergency departments, outpatient primary care, and specialist medicine. The tool consists of 4 risk screen and 1 acuity questions. All responses are dichotomous and it takes about 20 seconds to administer (Horowitz, 2012). The tool was created using samples of both general medical and psychiatric patients. Seventeen possible screening questions were reduced to the 4 target areas, based on the model which showed the highest sensitivity and specificity (Horowitz, 2012). The tool taps 4 constructs: 1. Current thoughts of being 'better off dead'; 2. Current passive death wish; 3. Current suicide ideation; 4. Past attempt and includes one acuity question at the end.

Difficulties with these so-called narrow band measures are that they focus exclusively on superficial risk factors. This may be important in the acute sense in that it is essential to know what level if any of intent a young person may have if there is suicidal risk. Aside from this however, they provide very little useful clinical information. Having a concrete structure within which to frame suicide ideation, intent, and plan is useful for clinicians, but what next? One might argue that the tools are only as good as the information which they provide. The brevity of many of the above mentioned tools allows for a calculation of suicide ideation, intent, and in some cases past behaviour. This is in the absence of any other risk factors, so there is no indication of the types of issues the individual is facing, or even information about the person's psychological state or support network. This is clearly a disadvantage for safety planning and onward referral. Dynamic factors may provide direction for further assessment and indeed useful

intervention. Research has identified ‘one barrier encountered by clinicians and prevention specialists is that the majority of clinical assessment methods focus on assessing suicide risk directly instead of using indirect methods or measuring characteristics or risk factors that may be associated with suicidality.’ (Lamis et al. 2010, p. 118).

Risk screening tools have evolved in this direction in recent years. The Columbia Suicide Screen, later replaced by the Columbia Health Screen are seminal screening tools used in North American settings. The Columbia Suicide Screen initially included 43 items with 32 general health questions and 11 questions on risk factors (Shaffer et al., 2004). The tool taps the constructs of depression, anxiety, substance use, current ideation, and past attempts (Scott et al., 2010). The CSS is reported to be more sensitive to suicide outcomes than the BDI (Shaffer et al., 2004). The Columbia Health Screen guides young people to report on mood, irritability, substance abuse, anxiety, and suicidal ideation based on a 14-pt. Likert type scale, over the past 3 months (Brown & Grumet, 2009). The Columbia screening tools serve as the initial measure in the Teen Screen process. They have moved outside of depression as the primary risk factor but are still largely based on psychiatric risk factors and behaviours.

Another recent development is the Behavioural Health Screen (Diamond et al., 2017) which attempts to tap a variety of domains which are suicide specific, including interpersonal, risk behaviours, stress, and psychiatric. The Behavioural Health Screen is a 61-item tool which is web based. It taps health behaviours as well as risk domains and is geared as a precursor to a well visit for adolescents in primary care. Based on a large scale longitudinal study, the scale authors concluded the best way to screen young people in primary care was to tap 4 risk areas: 1. Life not worth living, 2. Suicide ideation, 3. Suicide plan, 4. Previous attempt, in addition to a related high risk profile: 1. History of

sexual assault, 2. Same sex behaviour, 3. Unsafe sex, 4. Current substance abuse (Diamond et al., 2017). Study authors suggest that screening for risk behaviours may contribute towards screening in primary care and indeed in other settings, such as schools.

Not all screening tools designed with suicidality in mind have suicidal ideation as a significant feature in the measure. Many measures also tap into indirect risk factors. The Psychache scale, while shown to be effective over the BDI-II and Beck's Hopelessness Scale (Troisten, D'gata, & Holden, 2015), does not even directly about suicide at all, but is based on constructs underlying a psychological theory of suicide. Conversely, there is a Suicide Resilience Inventory (SRI-25) (Rutter, Freedenthal, & Osman, 2008). Primarily used as a research tool, the measure assumes the presence of suicidality and over half of the items reference suicide directly. Thus, it may not be suitable outside psychiatric and research contexts. Therefore, there are multiple ways of screening for suicidality, some of which are more specific to the issue at hand.

There have been some very recent developments in relation to incorporating interpersonal relational factors into school based screening methods. Despite significant evolution of risk screening tools and methods since the 1990's, Hilt et al. (2018) recently noted that school based screenings typically do not include some of the important risk factors. Many are still quite brief and assess only 1 or 2 risk factors (Hilt et al, 2018), such as depression or suicidal ideation. Hilt et al. (2018) propose an alternative to the Teen Screen called the Connected Community Wellness Screen. Study authors contend that an alternative to the Teen Screen is needed for 2 primary reasons: 1. Teen Screen tools do not incorporate interpersonal constructs. Hilt et al. (2018) note that this is understandable, as interpersonal risk factors were really only emphasised predominantly in the literature following Joiner's (2005) development of interpersonal theories and Teen Screen was created before that. Nevertheless, interpersonal factors are relevant risk

factors for suicidality in adolescents. 2. Teen Screen is not currently available. Hilt et al. (2018) note that while Teen Screen was previously supported by Columbia University it has been recently acquired by Stanford University, who has not yet begun to distribute it.

The Connected Community Wellness Screen (Hilt et al., 2018) is again a 2-step process which appears to build on prior learning from other screens. It includes stage 1. Administration of a screening tool via a computer and stage 2. Interview for everyone participating. The algorithm proposed for determining a positive screen includes a combination of scores on: the embedded Pediatric Symptom Checklist, internalizing pathology, substance use, lifetime history of nonsuicidal self-injury, constructs from the interpersonal theory of suicide (Joiner, 2005), suicidal ideation, and lifetime suicide attempt. The interview is a debrief for those who screened negatively and a more comprehensive assessment with a MA level clinician for those who screened positively. The programme suggests parent notification in the case of a positive screen within 24 hours and follow up case management for 90 days following the screen (Hilt et al., 2018).

As can be seen from the above, the pragmatics surrounding screening remain complicated. Furthermore, none of the abovementioned screening tools or methods tap into the construct of resilience, or even anything which could be considered as protective in a meaningful way. The exception are perhaps methods incorporating the interpersonal theory of suicide (Joiner, 2005).

In addition to specific tools, risk identification models have also been proposed to help identify those at risk. These tend to be more multidimensional in nature.

1.16 Risk identification models

Models from correctional risk assessment instruments can be applied to suicide risk assessment. Risk factors can be categorised into historical, personal, psychosocial-environmental, and clinical factors, and take into account acute and chronic states (Sanchez, 2001). Research has suggested that forensic screening questionnaires should ask for both static (historical and demographic) and dynamic (situation and person oriented) indicators (Mills & Kroner, 2005).

One of the earlier models used which was not created specifically for suicide assessment, but demonstrates a more multidimensional model is Lazarus's (1976) BASIC ID. The model assists clinicians in examining the client through a range of different dimensions guided by the acronym: Behaviour, Affective responses, Sensations, Images, Cognitions, Interpersonal relationships, and Drugs and biological influences. Paladino & Minton (2008) support the use of the BASIC ID in evaluating suicidal crises, advocating that it is more comprehensive than risk screening alone. Authors contend the model is useful in university counselling contexts, while simultaneously acknowledging that it has a lack of research support for suicide assessment.

A similar multidimensional model which was created specifically for assessment of suicidality is the SAD PERSONS and the Adapted SAD PERSONS (Juhnke, 1996), a youth version of the original scale created for adults. SAD PERSONS is an acronym for 10 different risk factors for suicidal behaviour: Sex, Age, Depression, Previous attempts, Ethanol-drug abuse, Rational thinking loss, Social support, Organised plan, Negligent parenting, family stress, and School problems. Each factor is rated on a scale from 0 to 10 with the exception of gender which receives an absolute score. While the measure was developed for screening in schools settings, its psychometric properties have not been evaluated (Goldston, 2003). The adult version received criticism in the literature.

ReACT (Steed et al., 2012), yet another acronym, was developed in the UK as a screening model for Emergency Departments. The acronym consists of primarily static factors: Recent self harm; living Alone or homelessness; Cutting as a method; and Treatment for a psychiatric disorder. The model has been evaluated and shows promise as a brief method for evaluating risk. The Manchester self harm rule (Cooper et al. 2006) is yet another model for evaluating suicide risk, again based on static factors: 1. Any history of self harm; 2. Previous psychiatric treatment; 3. Benzo used as self poison; and 4. Current psychiatric treatment. Risk models have been criticised for being reductionist.

What does the research suggest? A recent multisite prospective cohort study of adults in the UK who had been referred to hospital psychiatry following a self harm episode found poor performance of a number of risk scale models (Quinlivan et al., 2017). In this study, the models were directly compared. Unlike most screening research, the scales were measured not only on sensitivity and specificity, but also looked at the receiver operating characteristics. The area under the curve was compared for each scale to determine discriminant validity (Quinlivan et al., 2017). In this study, SAD PERSONS, Modified SAD PERSONS, the Manchester self harm rule, and global ratings taken by clinicians and patients were examined. The research found that the global rating of risk by the clinicians was the most accurate as a predictor of risk, followed by the Manchester self harm rule, and then by the patient global rating. Authors concluded that using the risk scale models tested to predict future self harm was a waste of time and resources and reaffirmed the NICE guideline (Quinlivan et al., 2017). The research team does however acknowledge that the clinicians assigned their global rating having seen client responses to all other assessment items on all of the risk scales, plus their own observations from assessment. Further criticisms have been levelled at risk models – the factors they identify are often so prevalent, it becomes pointless to measure them. This is in addition to the

issue surrounding static risk factors. Models which emphasise past attempts or psychiatric diagnosis for example, will always give the same results for the same individual. The models tested in the abovementioned research all include this type of static factor as the basis for prediction. However, even clients with psychiatric conditions can go through periods of elevated risk. More proximal warning signs have been identified in research as: substance abuse, communication of intent, severe anxiety, extreme agitation (Joe & Bryant, 2007). Collecting information which is not sensitive to change is problematic. It thus cannot provide nuanced information about an individual's state and corresponding risk level. Indeed in 1979, Beck et al. indicated that that demographic variables 'have little practical utility in the assessment of a specific individual, (p. 344).' Authors of the abovementioned study hypothesise that there is a possibility the current scales are missing crucial information, such as psychological amongst other types of processes (Quinlivan et al., 2017).

Clearly, some of these models presented above are more suited to psychiatric populations with ingrained patterns of self harm. These models are likely to be less useful for identifying risk at the early stages and in fact are most likely more appropriate to identifying risk for individuals in hospital settings, rather than school or community settings. They certainly are not looking at areas relevant to 'upstream prevention.'

1.17 Screening based on tools and algorithms

Most established screening methods do not rely purely on 'screening questions' or even a narrow band screening tool on its own. A positive 'screen' may be determined based on answers to items on a measure plus screening questions. In practice, this is often a measure designed for something else, such as depression or an overall mental

health symptom profiler. Some screening methods use a combination of risk factors based on an algorithm.

Accurate measurement during a screening process has been the topic of much debate.

Many algorithms have been proposed to predict risk, some of which have been tested with problematic results in the research literature. In the initial validation study of the Columbia Suicide Screen (CSS) (Shaffer et al., 2004), the scoring algorithm for a positive screen was any 4 of the following: 1. Suicidal ideation in the past month, 2. History of a suicide attempt, 3. Endorsement of 3 out of 5 emotional items, 4. The young person requested help. Measures such as the Columbia Suicide Screen and the Columbia Health Screen are well placed to provide baseline information for the calculation of these algorithms. Gould et al. (2009) suggested a cutoff score on the SIQ-JR, in addition to a positive endorsement on any of 6 critical items, or a positive on any critical BDI-II item (measure of suicidal ideation), a past suicide attempt, signs of depression as measured by BDI-II cutoff, or a substance problem as determining a positive screen. Brown & Grumet (2009), while implementing the Columbia Teen Screen set the following criteria as conferring a positive screen: 1. Endorsing 3 or more symptoms as severe; 2. Indicating help wanted; 3. Any suicidal ideation in the past 3 months or history of an attempt 4. Appearing distressed or asking for a follow up meeting. Issues with determining the cut-off for students being screened in educational settings have been noted in the literature. ‘Clinical suicidality’ has been defined by Bahiyi et al. (2016) as a combined index of hopelessness, subjective depression, and current suicidal ideation. Large percentages of students receiving a positive ‘screen’ during screening programmes has been documented to put an undue burden on schools, based on large scale reviews of preventive strategies (Pena & Caine, 2006; Hawton et al., 2012; Zalsman et al., 2016).

This could prove particularly problematic in situations where the screening method over-identifies so-called ‘false positives’ or where fluid referral pathways are not readily available. For example, in one study evaluating the feasibility of a suicide screen in a school setting, the risk criteria were suggested to need a revision following a feasibility analysis (Halfors et al. 2006) using the Suicide Risk Screen (SRS). The research was carried out using the following criteria for a positive screen: high suicidal ideation, serious depression, previous attempt in past year, or any 2 of the following: moderate suicidal ideation, moderate depression, indirect/ direct threat of suicide, high drug use. The algorithm created too many ‘false positives’ and thus placed a high burden on the system which was deemed unnecessary. Authors decided in the conclusions that the following algorithm could have been applied: attempt in past year, high ideation or high depression, current ideation (Halfors et al. 2006). Retrospectively, it was thought the simplified algorithm would result in less false positives and thus create a lower burden on the system facilitating referrals. Research has suggested that using screening measures with sensitivity levels which are high and specificities which are low are particularly fallible for creating false positives and overburdening the system (Halfors et al., 2006; Scott et al., 2010). As such, from a public health perspective, positive predictive value has been considered as important to evaluating the feasibility of a screening programme and has been suggested to be more relevant than sensitivity and specificity (Trevethan, 2017).

However, screening advocates have suggested that high sensitivity, compromising with a low specificity may be appropriate for an initial screening (McMillan et al., 2007), as a positive screen should be followed up by a more comprehensive method of evaluation. Indeed, European research affirms the perspective that increasing thresholds to reduce false positives means that many vulnerable young people will go undetected in a screen (Kaess et al., 2014). This coupled with the fact that screening is usually a two-

stage procedure is usually cited as a reason for relatively high sensitivity rates on screens (Kaess et al., 2014). Screening for suicidal ideation and behaviour will commonly reveal other mental health problems which have not been yet identified (Scott et al., 2010). As such, while many so-called false positives may not be actively suicidal, they are likely struggling with depression or other problems which may benefit from intervention. 'Because these conditions are potential precursors to suicide, early identification of these problems is also advisable from a suicide prevention perspective' (Scott et al., 2010, p. 1652). This approach is in keeping with 'upstream prevention.'

One possible workaround for the issue of sensitivity and specificity is the use of classification trees. Research using classification trees has attempted to create risk factor profiles which have known levels of sensitivity and specificity (Hill, Oosterhoff, & Kaplow, 2017). For example a tree with a good balance of sensitivity and specificity has been proposed to include history of suicidal ideation, depression, suicide attempts amongst family and friends, and social support (Hill et al., 2017). Alternatively, a tree with the highest sensitivity also includes school related factors and future orientation (Hill et al., 2017). The idea is that services can select a screening method based on the aims of the screen and the resources available to deal with potential positive screens.

Despite prolific research over the last two decades, predictive accuracy remains elusive for suicidal phenomena. It has been suggested that 'Because suicide is such a low base-rate phenomenon, it is not possible to predict its occurrence with any reasonable level of reliability or consistency ...' (Bryan et al., 2009, p. 73). UK research has also noted that prediction and diagnostic accuracy of scales tends to be poor, where phenomena are low base rate and this could be even more problematic in nonclinical populations (Quinlivan et al., 2017). A statistically strong and reliable method to distinguish those at high risk of suicide remains uncertain, based on longitudinal

metanalytic data attempting to categorise risk levels (Large et al., 2016). This is perhaps less of an issue when measuring suicidal ideation, although suicide prevention is ultimately about reducing deaths by suicide. Perhaps then suicide is not a predictable phenomenon? The unfortunate conclusion of the extreme end of that argument is a passive attitude towards risk identification and management.

The zero suicide movement is gaining popularity in recent decades. The movement maintains that the current state of care for people presenting at risk is inadequate (Hogan, 2016). The movement draws on research which suggests that a significant percentage of people who die by suicide had contact with either a GP or a mental health professional in the recent past prior to their death (Hogan, 2016). Zero suicide advocates support active intervention such as screening, direct treatment of suicidality, engagement with supportive contacts, and safety planning to manage suicidality. The movement advocates for the direct treatment of suicidality, rather than treating other related conditions which may be more typically regarded as entrance criteria to services. They maintain that 'usual care is not very good' for suicidal individuals (Hogan, 2016) The movement emphasises that there is much better research in recent decades on how to identify and assess risk and how to keep people safe in the community, but contend that this information has not trickled down into training and clinical practice (Hogan, 2016). Use of contemporary interventions are emphasised such as the use of safety plans where risk is identified.

The Zero suicide movement has its critics, but is potentially a proactive alternative to the ethos that risk prediction and management is an impossibility. Even if the aim of absolute prediction is not attainable, perhaps it is prudent to try?

To predict risk with absolute accuracy is perhaps an impossible aspiration which misses the mark. In light of the controversies outlined above, the current study aims to add to the knowledge base on risk identification, while also acknowledging that suicide is

a phenomenon which is not absolutely predictable. This however, does not mean that prevention and screening are not valuable aims. This includes being able to identify vulnerable youth who may be moving towards a trajectory of active suicidal ideation and behaviour in a strength identifying way. Systematic review in the UK has called for future research to focus on resilience factors amongst high risk populations (Johnson et al., 2011). A risk screener including this information would ideally also be useful for clinicians, giving information which is nuanced to the person and their current state, and sensitive to change. Even those sceptical of risk models for management of self harm (Quinlivan et al., 2017) acknowledge risk scales may be useful to ensure crucial information is not missed or to measure change. In fact, it was highlighted at a round table discussion at the European Symposium of Suicidal Behaviour in 2016 that screening and assessment should be moving away from risk prediction, and more towards the identification of modifiable risk factors. Clearly, this will be nuanced depending on the population being screened.

Currently, the most common structure of an initial screen is for risk screening items to be tacked on to another brief measure screening for depression or general health issues. The research team in the current study contend that this is unlikely to capture the myriad of factors which may be important at an initial screen.

In addition to the recommendations of NICE CG133 and other research (Diamond et al., 2017) calling for a more comprehensive range of domains to be explored in the case of suspected risk, current tools and algorithms are rudimentary and ad-hoc for this purpose. Returning to Beck's original sentiment in the 1970's, suicidal risk is a complex equation with many factors, suicide intent being only one of them (Beck, 1979). Additionally, it is readily apparent that none of the abovementioned tools or models takes protective factors or resilience into account in any sort of meaningful way. McMahon et al. (2013) called

for greater exploration of factors which can be considered ‘resilient’ in those at risk for self harm. But first, it is useful to briefly review the range of risk and protective factors which have been highlighted by the literature as associated with suicidality in light of the issues raised above.

1.18 Risk Factors

Prior suicide attempt and self harm. As highlighted above, there is significant controversy around suicide intent, self harm, and nonsuicidal self-injury among professionals. The relationships between these behaviours have been hypothesised to be both dimensional, and to be categorical and separate. Prior suicide attempt is one of the strongest clinical indicators of a further suicide attempt (Reynolds & Mazza, 1999; Posner et al., 2007; Hawton et al., 2012). Cross-sectional data from Irish adolescents shows that history of self harm is a major risk factor for future self harm and also suicide (McMahon et al., 2013). While there is little deliberation over prior suicide attempt as a predictor of future suicidal ideation and behaviour, there are complexities around evaluating other types of self harming behaviour, which may or may not be characterised as nonsuicidal self-injury. There is evidence that people self injure to regulate emotional distress and to regulate interpersonal relationships (Walsh, 2007). Not all of these individuals will be suicidal. However, the research also suggests that nonsuicidal self-injury has been shown to be a ‘strong predictor’ of future suicidal behaviour in longitudinal studies of adolescents (Tuisku et al., 2013). Furthermore, clinicians often view self harming behaviour as an attempt to control powerful feelings which may otherwise result in more serious suicidal impulses.

Reviewing the literature on adolescent self harm, Hawton et al. (2012) referenced a growing body of literature which identifies early self harm, particularly repeated self

harm, as a major risk factor for suicide. Furthermore, self cutting specifically has been identified as an emerging risk factor for suicidality (Steege et al, 2012). Despite clinical and anecdotal theories that individuals who engage in minor self harm (or nonsuicidal self-injury) do not wish to die by suicide or are making an attempt to stay alive by self harming, the fact remains that there is significant evidence that individuals who self harm are more likely to self harm in future. They are also more likely to complete suicide in the future than individuals who do not self harm. In fact, a meta-analysis examining 90 studies on the topic concluded that the suicide risk among people who self harm is hundreds of times higher than the general population (Owens, Harrocks & House, 2002). If we return momentarily to the issue to of whether suicidality exists on a categorical or dimensional basis, this evidence would suggest that a dimensional explanation is perhaps more plausible. However, it may also be that behaviour which begins as nonsuicidal self-injury progresses over time into behaviour which also has some level of suicidal intent.

An alternative way to conceptualise this is Joiner's (2005) idea that suicidal behaviour involves increasing an individual's acquired ability to inflict lethal self harm. The interpersonal theory of suicide (Joiner, 2005), which will be examined in detail below, hypothesises that this condition must be fulfilled in order to progress ideation into a suicidal act. While the theory hypothesises other conditions must also be fulfilled, continuous exposure to elevated pain tolerance is thought to be necessary to result in a suicide attempt as opposed to passive or active ideation (Joiner, 2005). This may be a useful conceptualisation through which to view repeated self injury which eventually results in suicidal behaviour.

Depression. There is a long established link between depression as a risk factor for suicidality, repeated self harm, and suicidal ideation (Lamis et al., 2010; Hawton et al., 2012; Dooley & Fitzgerald, 2012). Depression is the most common diagnosis in

adolescents who complete suicide in the USA (Schaffer et al., 1996). This link has been substantiated so significantly that suicidality has often been considered a symptom of depression as opposed to a mental health difficulty in its own right. This association is evident in suicide screening practices to date, which largely rely on depression scores. This conceptualisation is perhaps changing over time in light of the abovementioned addition of suicidality and nonsuicidal self-injury in section III of the DSM-5 (APA, 2013). Research has shown in Irish adults that suicidal ideation is more common than depressive disorder, suggesting a lack of clear linear relationship (Casey et al., 2008). While depression is an obvious and important correlate of suicidal risk, recent research has shown that it is important to also examine other factors particularly in the formulation and treatment of adolescents (Diamond et al., 2017), such as those listed below.

Exposure. Exposure to the self harm and suicide of others has been found to be linked to adolescent self harm (O'Connor, Rasmussen, & Hawton, 2009; McMahon et al., 2013). This has been shown for suicide attempt in the family in US samples (Resnick et al., 1997). A recent review on evidence based practice in school settings suggests that suicide contagion in the social group is a well supported phenomena (Singer, Erbacher, & Rosen, 2018). Based on samples of Irish adolescents (McMahon et al., 2013), young people exposed to the self harm of others were 8x more likely to report self harming themselves. The study identified that depression was only a significant risk factor for self harm in young people who had not been exposed to the self harm of others. Adolescents who had been exposed to the self harming of family or friends were more likely to self harm themselves, whether or not depression or anxiety was part of the clinical picture (McMahon et al., 2013). Depression and anxiety were significant risk factors for self harm in young people who had not previously been exposed to the self harm of others. The findings provisionally suggest that being exposed to self harm of others is a stronger

risk factor for further self harm than depression or anxiety in this relatively large sample of Irish adolescents (McMahon et al., 2013).

The study authors do question whether this finding is due to a true contagion effect, or whether some element of peer selection could be taking place, whereby vulnerable and self harming young people tend to seek each other out. This has been hypothesised previously (Joiner, 1999) as an alternative explanation for contagion and clustering in friendship groups. Joiner (1999) hypothesised that individuals vulnerable to self harm may form relationships assortatively, navigating towards other vulnerable young people who have serious problems, and thus cluster naturally rather than a social learning process taking place.

Other research has suggested it is exactly this type of social learning that takes place. An Australian review of four large international studies suggests that the exposure to the suicidal behaviour in family and peers plays more of a role than previously thought, and that while exposure is increased in adolescence it can have a latent effect into the adult years in relation to normalising a suicidal response to social stress (de Leo & Heller, 2008). Singer, Erbacher, & Rosen (2018) also maintain that exposure in the social group is linked with social learning, and possibly also PTSD for adolescents who have been bereaved by suicide. Adolescents who have lost a friend or acquaintance to suicide are 3.7x and 2.2x more likely respectively, to experience suicidal ideation themselves (Song, Kwan, & Kim, 2015).

However, other research has even suggested that exposure to suicide in family members can be protective against nearly fatal suicidal acts (Mercy et al., 2001). One plausible explanation which has been offered for the variation in the findings in this area is that social support in the social climate in question may be a mediating factor in whether the exposure is a significant risk factor (Joiner, 2005).

A significant body of research also exists on contagion based on exposure to suicide in media reporting. The type of media reporting has been identified as an environmental risk factor for suicide mortality (Milner et al., 2013). Unfortunately, examining the literature on exposure due to contagion through media is outside the scope of the current study.

Personality disorders. Houston, Hawton, & Shepperd (2001) state that personality disorders are reported in more than ¼ of young people who die by suicide. Authors contend that there are likely additional individuals who have traits of personality disorder which do not reach clinical levels for diagnosis. This is further complicated by the fact that clinicians may be reluctant to diagnose personality disorders while young people are still developing (Houston, Hawton, & Shepperd, 2001). Van Heerigen (2000) suggested a diathesis of trait-like vulnerabilities which interact with life events to express suicidal behaviours. The hypothesis states that there are 2 clusters of personality related characteristics which result in suicidality: sensitivity for adverse events and behavioural reactions towards such events (Van Heerigen, 2000). An alternative to the traditional psychiatric classification of ‘personality disorder’ could be to view these adolescents as having heightened vulnerabilities, resulting in frequent emotional problems and relational problems, as outlined below.

Hopelessness. Hopelessness is a major risk factor for suicide ideation and behaviour (Shaffer, 1996). Hopelessness is one of the most widely investigated future related beliefs in suicide research (Johnson et al., 2011). In a review of the literature examining 14 studies which looked at hopelessness as an interactional effect with suicidal risk, research suggests that hopelessness may moderate some of the most ‘deleterious’ risk factors, including for those at high risk of suicide (Johnson et al., 2011). Hopelessness

has been shown to correlate significantly with a lack of generating positive future events (Van Heerigan, 2000), a key factor in suicidal processes (O'Connor, 2011).

Anxiety. Research also suggests that anxiety is a more proximal risk factor, in that severe anxiety or extreme agitation often immediately precipitates a suicide attempt (Joe & Bryant, 2010). The authors make a distinction between general risk factors and extreme anxiety/ agitation as a more imminent warning sign of suicidal behaviour. In a review on psychiatric conceptualisations, Van Heerigen (2000) notes that depressive conditions with heightened suicide risk are commonly characterised by anxiety-related processes.

Emotional problems. Recent and acute emotional problems have been found to be significant risk factors in both American (Resnick et al., 1997) and Irish samples (Dooley & Fitzgerald, 2012) for suicidal ideation. Mitrou et al. (2010) found emotional problems to be a significant factor in Australian adolescents requiring a hospital admission for self harm. Other research has shown 'mental pain' mediates self destruction and loss with suicidal tendency (Nahaliel, 2014). Slee et al. (2008) found emotional regulation to be a mediator between self harm and psychiatric disorders. In contrary to the perspective outlined above, Slee et al. (2008) suggest that deliberate self harm intervention should not primarily focus on mental disorders, and as such should be specific and target emotion regulation problems.

Negative thinking. In a longitudinal study, Burke (et al., 2015) predicted suicidal ideation prospectively based on negative adjectives used to describe the self, rumination, and a negative inferential style.

Educational context factors. Longitudinal research has suggested that there is an association between perceived academic performance, self esteem, and suicidality (Martin et al., 2005). This research suggests that specifically the perception of 'failing' predicts

suicidality. Hawton et al. (2012) have also identified restricted educational achievement as a risk factor for suicide. Poor school performance was also shown to be a risk factor in a large scale cross-sectional American study (Resnick et al., 1997). Problems in school were also found to be a risk factor for deliberate self harm in a large Irish sample (McMahon et al., 2013).

Impulsivity. Impulsivity has been linked to self harm in Irish adolescents (McMahon et al., 2013). Impulsivity is a key factor hypothesised to be associated with attempt rather than just ideation of suicide (O'Connor et al., 2011). Research has shown that attempters differ from ideators on a number of factors, including impulsivity (Dhingra et al., 2015).

Drug and alcohol usage. Alcohol usage is yet another frequently cited risk factor, which has been established as a significant risk factor for suicide in adolescents (Hawton et al., 2012) and university students (Lamis et al., 2010) and linked to increased suicidal ideation in a large sample of Irish young people . (Dooley & Fitzgerald, 2012). From a socioenvironmental perspective, Milner et al. (2013) suggest that suicide and alcohol consumption may be more highly correlated in societies where alcohol consumption is high.

Relational problems. Risk factors arising in relationship have been frequently noted in the literature. In a review of the literature, Posner et al. (2007) cites non-intact families, families with heightened conflict, poor attachment, and poor communication as being significant risk factors for suicide. In a large scale Australian study of deliberate self harm resulting in hospital admission, Mitrou et al. (2010) also found step/ blended families and inconsistent parenting as risk factors. In a relatively small sample, Freudenstein (2011) found the quality of maternal bonding to be a correlate of suicidal behaviour, particularly less caring and more overprotective parenting.

Mental health problems with parents, parental separation/ divorce loss, and other types of interpersonal problems have been noted in large scale reviews as significant risk factors for suicide (Hawton et al, 2012; Milner et al., 2013). A large cross sectional study sampling 6 European countries found early experience of violence to be an important risk factor for suicidality (Hardt et al., 2015). Both violence from parents towards children and violence between parents are risk factors (Hardt et al., 2015). Problems with or between parents were shown to be linked with self harm in Irish adolescents (McMahon et al., 2013).

In addition to family problems, low levels of perceived peer support have been shown to be predictive of suicide attempts based on longitudinal data with adolescents (Tuisku et al., 2013). As noted above, social stress and risk behaviours have been identified as contributing to suicidal risk above and beyond a diagnosis of depression in adolescent cohorts (Diamond et al., 2017). It has been noted through systematic review that numerous RCT's have also shown that family intervention with suicidal adolescents shows a decrease in suicidal risk and other associated risk factors (Zalsman et al., 2016).

This list is not exhaustive. Other risk factors have strong associations with suicide and self harm, adverse life events, such as history of sexual abuse (Hawton et al., 2012; McMahon et al., 2013), bullying, concerns about sexual orientation (McMahon et al., 2013), and psychosocial stress and trauma (Diamond et al., 2013). Overall, there has been a trend particularly in the UK literature over the last decade towards trying to distinguish between factors which are associated with thoughts of self harm, such as interpersonal problems and entrapment, and factors associated with the translation of thoughts into action, such as impulsivity (Hawton et al., 2012). This evolving theme will be explored in more detail in the section below.

1.19 Past and contemporary theoretical models

Social-environmental approach. Durkheim (1897) was one of the first so-called suicidologists, advocating a social-environmental approach to suicide. Durkheim believed that suicide in a society reflects the political, religious, economic, and social context in which it is embedded. He thought that a substantial change in any of these areas may disrupt the existing norms in the society and thus increase levels of suicide (Durkheim, 1897). While more sociological in its essence, this theory is interesting in light of rapid social change that has occurred over the last few decades. It is in keeping with the reported heightened suicide rates nationally during the economic recession (NSRF, 2012). Durkheim's ideas are perhaps an interesting lens through which to view adolescents and their place in a rapidly advancing world which is changing politically, socially, and technologically.

Suicide as psychache. Edwin Schneidman (1993) eminent suicidologist coined the term 'Psychache' to describe the suicidal state. He was one of the first scholars to focus exclusively on the psychological and emotional state of the suicidal person. 'Psychache refers to the hurt, anguish, soreness, psychological pain in the psyche, the mind ... suicide occurs when the psychache is deemed by that person to be unbearable' (Schneidman, 1993, p.51). Schneidman believed that suicide is contemplated when there is unbearable psychological pain, and that suicide is an act that ultimately seeks to stop that pain. As such, Schneidman is largely influential in the commonplace clinical assumption that suicidal individuals are overwhelmed by their feelings and do not see any other option to relieve their psychological distress.

The suicidal body. Israel Orbach extensively researched suicidality in children and adolescents, exploring how psychological dynamics such as rejection and attachment can impact suicide risk. He hypothesised suicide ideation in young people related to fantasies

about death and seeing suicide as an escape. Orbach's (1984) ideas emphasised cognitive rigidity, attraction to the idea of death, and inability to perceive death as final (particularly in younger age ranges). Building on the role of psychological processes which are inherent in evolution of suicidal ideation, Orbach was also interested in the role of shame and body protection in suicidality in children and adolescents. In keeping with more psychoanalytic and also attachment based thinking, Orbach (1984) emphasised that the relationship with body first arises in the dyad with primary carer. Orbach (2006) wrote about the 'suicidal body' a process through which early deficiencies in care such as touch deficiency, trauma, and neglect lead to destructive body care as the child develops. Orbach (2006) posits this process leads to destructive body care, lack of healthy self preservation, dissociation, and eventually suicidality. Orbach emphasised the association with trauma and focused on role of dissociative processes in suicidal acts

Interpersonal theory of suicide. Joiner has also made a significant contribution to the knowledge base on psychological processes which contribute towards suicide ideation and behaviour. Joiner (2005) developed the interpersonal theory of suicide. According to this theory, the combination of 3 psychological states result in suicidality: 1. perceived burdensomeness, 2. thwarted belongingness, and 3. acquired ability to inflict lethal self harm (Joiner, 2005). According to the theoretical hypothesis, perceived burdensomeness and thwarted belongingness are enough to create passive ideation (wish to die). Simultaneous presence of these plus hopelessness about this changing result in active ideation (movement into planning stages). According to Joiner (2005), this coupled with continuous exposure to elevated pain tolerance and reduced fear will eventually result in suicidal acts.

The interpersonal theory of suicide has been undergoing evaluation over the past 2 decades. Chu et al. (2017)'s meta-analysis of articles published on the interpersonal

theory (Joiner, 2005) found modest support for the theory itself. This was measured by testing the three states, which were found to have significant correlations with attempt history (Chu et al., 2017). However, the conclusions were that not enough evidence has been gathered for the specific hypotheses. Thus, fine tuning of the process from passive to active ideation still needs further examination.

Collaborative assessment and management of suicidality. David Jobes (2006) developed an integrated and innovative model for both the conceptualisation and intervention with suicidality, the Collaborative Assessment and Management of Suicidality (CAMS). The CAMS model aims to be both an assessment and a therapeutic intervention. CAMS helps to identify underlying ‘drivers’ for suicidality and also helps the suicidal individual to identify ‘reasons for living’ (Jobes, 2006). The CAMS based on 5 suicide markers: Agitation, hopelessness, psychological pain, self hate, stress. Jobes acknowledges that the model builds on prior work in the field of suicidology and integrated concepts from the work of Back, Orbach, Schneidman, and others. CAMS claims to be transtheoretical, and is focused on risk factors and problem solving. Within the model, there is a strong emphasis on collaboration, creating a therapeutic alliance, and motivation for change (Jobes, 2006). The assessment scale is written like a self report, but is completed alongside the clinician so the ratings are discussed and collaborative, although ultimately assigned by the client.

Like the interpersonal theory of suicide, the CAMS model has been subject to vigorous testing over the last 2 decades. CAMS has been shown to provide improved outcomes over treatment as usual (Camtois, 2011). A slightly underpowered Danish RCT showed similar outcomes to DBT for suicidal behaviours (Andreissen et al., 2016). This is significant as DBT is widely considered the gold standard treatment for suicidality in

individuals with personality disorders, but is very resource heavy. A large scale RCT on CAMS is currently being trialled in Norway (Ryeberg et al., 2016).

Integrated motivational volitional model. Yet another recent development in the area of suicidality is Rory O'Connor's (2011) Integrated Motivational Volitional Model of Suicidal Behaviour (IVM). The IVM is based on tenets that suicide is a complex interplay of biological, psychological, environmental, and cultural factors. Like other psychological models highlighted above, IVM attempts to move away from psychiatric categorisation or disorder-specific explanations. Similarly to the interpersonal theory, the IVM also attempts to capture the nuances of how suicidal thinking evolves into action. Even more so with the IVM, the emphasis is on suicidal behaviours as opposed to ideation. O'Connor (2011) developed IVM as a 3-part Model: 1. Background Factors (Pre-motivational phase; the context in which suicide may occur), 2. Development of Suicidal Thoughts (Motivational phase; how/why suicidal thinking emerges), and 3. Attempting Suicide (Volitional Phase; factors associated with acting upon one's thoughts of suicide). The model is presented as a visual diagram with the suicidal individual moving across the model as the suicidality becomes more active and eventually enters the volitional phase, where there is risk of an attempt. Within the model of IVM, there is focus on entrapment and a feedback loop with negative appraisals/ emotional experiences.

Central to the theory of IVM are the maintaining factors of defeat, humiliation, and entrapment in a cycle, which when further reinforced socially and cognitively move towards increasing levels of suicidal ideation and intent. The model clearly builds on Joiner's (2005) prior work as it integrates the interpersonal processes outlined in the theory above. In the IVM, impaired positive future thinking is key to the suicidal process in the motivational stage (O'Connor, 2011). The model is quite specific and seeks to identify factors particularly which are hypothesised to move an individual from the

contemplation phase of ideation to the volitional phase of taking an action. Volitional moderators are important in determining who will cross the thought-action line (O'Connor, 2011). These are hypothesised as factors such as: capability, access to means, impulsivity, intentions, imitation, and planning. This area is an evolving focus in the risk literature. Although there are considerable tools available, those which are able to distinguish between those at risk of attempting suicide and those who are not is still an absolute priority (Nelson et al. 2010).

Similarly to the aforementioned theories, IVM has been subject to rigorous research evaluation since its development. The volitional stage has been shown to distinguish between ideators and attempters in a large scale cross sectional study of adults in the UK (Dinghra et al., 2015). Practical application of the theory is still under development. There is a Volitional Help Sheet which has been created as an adjunct to usual care. A recent RCT yielded encouraging findings on the use of the help sheet among those with a previous history of self harm hospitalisation (O'Connor et al., 2017) but noted further investigation is necessary. Recent research has suggested that there is a relationship between suicidal ideation, suicidal behaviour, and entrapment and that this appears to be transdiagnostic (O'Connor & Portzky, 2018). The need for further research on the relationship between entrapment, negative mood, stress, sleep problems, and positive future thinking has been identified (O'Connor & Portzky, 2018).

Interestingly, none of these contemporary theories incorporates the construct of depression and thus can be seen as a departure from traditional psychiatric classifications. This is in keeping with an increasing focus on suicidality as a primary difficulty, rather than a symptom of depression. Additionally, no current theoretical model on suicide takes a multidimensional approach and maps onto a specific risk screening method in a way that incorporates any significant protective factors, such as resilience or attachment.

The suicide status form recommended by Jobes (2006) is perhaps the exception in that it does include reasons for living, but not in the main risk evaluation section. One might argue that contemporary theory on suicidality is an emerging synthesis of the interplay between risk factors. This is without significant development of what is protective. The apparent gap in the knowledge base clearly merits attention, particularly as intervention can happen early during screening. Knowing something about protective factors not only enhances the risk screen, but would clearly be an advantage to early safety planning. ‘An assessment tool that does not consider resilience factors in addition to risk factors is clearly missing a large part of the picture - ...’ (Nelson et al. 2010, p. 20).

1.20 Adolescent normative developmental tasks

So what, we might ask, should a tool measuring characteristics or skills which make an adolescent resilient to suicidality measure? Masten (2010) suggested that resilience in adolescence is based on so-called ‘ordinary magic.’ She notes that the study of positive development in school age children only dates back to the 1970’s. Prior to that, the study of pathology dominated the psychological literature. Masten (2010) proposed that resilience is positive adaptation. This she suggests, occurs in the form of normative development in the face of risk, and that it is conferred by ‘competence of age-salient developmental tasks’ (Masten, 2010). While this is not the only definition of resilience as we will see below, in order to consider what makes adolescents resilient, it is useful to first briefly explore normative adolescent development.

Adolescence is a time of rapid change. It is also a time of increased complexity in cognitive function, the beginning of the ability to hypothesise one’s own actions and of increased personal agency and skill development. Adolescents experience increases in executive functioning, and the diversity of abilities varies more than in earlier childhood

(Kuhn, 2009). Executive functioning involves development of higher level cognitive processes, such as the ability to engage in goal directed behaviour and exercise self control. To some extent, these are core tasks for adolescents as they grow. In order to develop their executive function, adolescents increasingly develop skills such as monitoring and managing cognitive resources, engaging in critical thinking, and problem solving and decision making. Adolescence has been considered a time when certain skills are mastered, and feelings of competence and optimism have been suggested to indicate resilience and normative development (Prince-Embury & Courville, 2008).

Adolescence has long been regarded in the psychological literature as a turbulent time. It is a time of identity exploration and creation (Erikson, 1951) and of negotiating separation and relatedness within the family and other important relationships. While adolescence was previously hypothesised to be a turbulent time fuelled by conflict and isolation, contemporary theory takes a different view. Santrock (2014) refers to the 'Old model' of parent-adolescent relationship which focused on intense conflict and development of autonomy. He also references a 'New model' which recognises that attachment to parents is still of primary importance in adolescence and sets the foundation for adolescents to explore a wider social world. This is in keeping with traditional attachment theory, which hypothesised in early childhood the child uses the caregiver as a secure base from which to explore the world (Ainsworth, 1979). Masten (2010) emphasises that maintaining this balance between attachment and autonomy continues to be prominent in adolescence. The new model still acknowledges that moderate conflict is normal at this stage, particularly in early adolescence (Santrock, 2014). There is a delicate balance between maintaining trust and closeness with parents, gaining autonomy, and navigating increased reliance on peer relationships.

Prince-Embury & Courville (2008) also hypothesise that emotional reactivity is of primary importance to adolescent resilience. Similarly to Masten (2010), their view is that resiliency is a characteristic of normal development. In their 3-factor model difficulties with emotionality are emphasised such as emotional sensitivity, recovery, and impairment. They contend that children and adolescents who are less likely to effectively manage emotions are more at risk.

Masten (2010) suggests that very little has changed over the years in relation to what makes children and adolescents resilient and proposes the following list of factors: 'Positive attachment bonds with caregivers (attachment; family); Positive relationships with other nurturing and competent adults (attachment); Intellectual skills (integrated cognitive systems of a human brain in good working order); Self-regulation skills (self-control systems and related executive functions of the human brain); Positive self-perceptions; self-efficacy (mastery motivation system); Faith, hope, and a sense of meaning in life (meaning-making systems of belief); Friends or romantic partners who are supportive and prosocial (attachment); Bonds to effective schools and other prosocial organizations (sociocultural systems); Communities with positive services and supports for families and children (sociocultural); Cultures that provide positive standards, rituals, relationships, and supports (sociocultural)' (p. 29). It can be seen that the factors take into account a broad range of influences on a young person's life.

In relation to suicidal behaviour, the development of self harming behaviours is common between the ages of 12 and 15 years (Hawton et al., 2012), with authors noting a marked association between self harm and puberty. This is hypothesised to be related to increased vulnerability with emotional regulation and navigating increasing risk taking behaviours developmentally around this life stage (Hawton et al., 2012). The age range

also corresponds with the range during which contemporary theory suggests is the most conflictual in the family unit (Santrock, 2014).

So what then, we might ask, makes adolescents resilient to suicidality, particularly during this vulnerable stage? First, it is helpful to further consider the construct of resilience, and what that actually means.

1.21 Theoretical models of resilience

A relatively new construct in psychological research, the literature on resilience is plagued with inconsistencies in relation to its definition. As recently as 2017, Lui et al. noted that there is concern expressed in the literature about the lack of a clear operational definition and measurement tool for resilience. Rutter (1987) initially defined resilience as protective factors which modify an individual's reaction when exposed to an event which carries risk for a pathological outcome. Resilience has frequently been described as the ability to 'bounce back.' Some researchers have indicated resilience is a recovery to previous baseline following a trauma (Bonnano, 2004). Others have suggested that it is a positive adjustment following exposure to stress (Masten, 2010). Luthar et al. (2000) suggested that the adversity needs to be significant. Other researchers contend that the term resilience can be applied to individuals who successfully deal with any stressor. The American Psychological Association (2016) defines resilience as the ability to adapt to stress and adversity. Thus, there is significant debate around the extent of adversity that needs to be associated with the said event or risk factor(s) to identify an individual as resilient.

In a seminal review of the literature on resilience, Fletcher & Sarkar (2013) attempt to reconcile some of these issues. Authors contend that despite variation most definitions of resilience focus around two concepts: adversity and positive adaptation (Fletcher &

Sarkar, 2013). So now, we might ask, what is positive adaptation and how is that measured? Based on the above, it is clear that the outcome for some scholars is bouncing back to baseline, while others emphasise 'positive adjustment.' In some research, a so-called 'resilient group' is defined by lack of pathology in groups who are at high risk of pathology. So again, it is difficult to disentangle whether so-called resilient individuals have suffered significant adversity vs. more normative stress. Furthermore, there is lack of clarity about whether resilient individuals return to their prior baseline following an event, or whether there is some element of a positive adaptation or even growth following the stressor.

An additional issue in relation to conceptualising resilience is whether resilience is a trait or a state. Historically, research on resilience has focused on the construct as more of a trait consisting of personal qualities (Connor & Davidson, 2003). It has also been hypothesised that resilience can better be described as a dynamic process which occurs in the context of a situation (Luthar et al., 2000). Furthermore, there is frequent confusion with hypothesised and also elusively defined constructs which are thought to be related to resilience, such as traits of 'hardiness' and 'grit' (Lui et al., 2017). In fact, there is considerable debate within the literature about whether resilience is a developmental trajectory, a coping outcome, or a personality trait (Lui et al., 2017). Fletcher & Sarkar (2013) again attempt to reconcile this issue by suggesting that resilience is 'the interactive influence of psychological characteristics within the context of the stress process.' This description goes some way to operationalise Lui's (2017) critique that conceptual models are inadequate for capturing the multidimensional nature of resilience.

Numerous theoretical models have been proposed in relation to resilience. These models have been hypothesised through many means: factor analysis, regression analysis, other quantitative methods, qualitative methods, and particularly grounded

theory (Fletcher & Sarkar, 2013). These models emphasise varying aspects of resilience such as appraisal processes (Mancini & Bonnano, 2009), meta-cognition (Fletcher & Sarkar, 2012), coping and interpersonal processes (Brennan, 2008) and are often conducted with specific vulnerable populations (Fletcher & Sarkar, 2013).

There is some debate around how many factors are involved in resilience, or if it is a unidimensional or multidimensional construct. Yet another issue is the mechanism through which resilience occurs. This would depend to some extent on whether it is viewed as a personality trait or a dynamic process, or something in between. One suggestion has been that it is related to the stress inoculation model (Michenbaum, 1985), which would suggest that resilience emerges in the context of cumulative and moderate stressors. There have however been difficulties with this explanation holding up in research (Fletcher & Sarkar, 2013).

One well known theory of resilience involves reduction of the construct into promotive factors, which are known as resources and assets (Fergus & Zimmerman, 2005). Fergus & Zimmerman (2005) define assets as positive factors which reside within the person, such as self efficacy, while resources are positive factors that are external to the person, such as parent support. Nationally, the Growing Up in Ireland research team took a similar approach, noting that resilience research converges on two areas: resilience is positive development despite adversity; resilience is the result of a combination of internal characteristics and the context the child is in (Greene et al., 2010).

Fletcher & Sarkar (2013) further differentiate between protective factors, or those that shield an individual from a negative event, and promotive factors, or those which build psychological capital, such as frequent successful experiences. It has been suggested that in the research literature on promoting resilience, factors looked at fall into 3 areas: individual, family, and external or community (Kelly, Fitzgerald, & Dooley, 2016). One

adolescent specific model of resilience suggests there are 3 types of resilience factors: protective, risk, and outcome (Haase, 2004). Yet another youth specific model suggests that there are 2 factors: social support and community agency (Brennan, 2008). Yet other researchers claim there are 5 factors (Hjemdal, 2006), or 4 factors (Ungar & Leibenberg, 2011). It is evident that there are a range of personality related, environmental, and other factors included.

There is confusion in the literature about whether resilience is a purely psychological construct. Protective factors have typically been divided in the literature into 2 types, intrapersonal and social support (Min et al., 2015). Others have suggested that resilience factors are purely psychological and do not include environmental circumstances (Johnson et al., 2011). Prince-Embury & Courville (2008) looked at 1, 2, and 3 factor models of resilience through psychometric testing. In the end, their model resulted in the Child and Adolescent Risk and Resiliency Scales. The battery is comprised of 3 separate subscales and is in keeping with psychological definitions of resilience. The subscales are: Sense of mastery, sense of relatedness, and emotional reactivity. As such, the model takes into account the ecological aspects of other-related beliefs, but the measurement of the constructs remains psychological.

Other resilience measures take a different stance. The READ (Hjemdal et al., 2006) is another commonly used scale to measure resilience. There is an adolescent version which is based on an adapted version of the Adult Resiliency Scale. It measures 5 factors: 1. Personal competence, 2. Social competence, 3. Structured style, 4. Family cohesion, and 5. Social resources. It can be seen that the READ is in keeping with a broader definition of resilience, which includes both internal and environmental aspects of the construct.

The Connor-Davidson Resilience scale (CD-RISC) (Connor & Davidson, 2003) is yet another scale to measure resilience. The full version of the measure is 25 items loading

on 5 factors and shows good psychometric properties. There is also a shortened 10-item version and 2-item version. The scale has been tested widely on a broad variety of populations, including adolescents (Campbell-Sills & Stein, 2007). The CD-RISC has been criticised (Windle, 2011) as it only looks at individual disposition and attitudes and excludes interpersonal relations and other types of social supports. Particularly, the 10-item version CD-RISC is largely consistent with trait theories of resilience and may not represent the myriad of relevant influences.

Considering the extent of lengthy debate in relation to whether resilience is a trait or a process or indeed a behavioural outcome, it may be more pragmatic to consider which explanation adds to the dialogue on suicide prevention. It is also prudent to consider which of these domains gives the most meaningful input to intervention. The authors of the current study contend similarly to Lui (2017) that resilience is likely complex and multidimensional. Therefore, a measurement method emphasising the dynamic, process oriented, and skills based aspects of resilience is most prudent to assist with suicide prevention. As we have seen, a significant failing of risk models thus far is that they are static in nature; they measure historical, constant, or unchangeable variables. This means that these models and algorithms are not sensitive to change and may be unable to guide intervention.

To date, no model of suicidality has incorporated resilience in a meaningful way. Previous research has highlighted that ‘new theories of resilience, grounded in, and supported by original data are required...’ (Fletcher & Sarkar, 2013, p. 17). National research has called for identification of factors which help those at risk of suicide to be ‘resilient’ (McMahon et al., 2013). Johnson et al. (2011) have suggested 2 potential hypotheses: that resilience to suicidality specifically is a composite of several psychological constructs; that resilience is multifaceted, and that particular psychological

constructs may buffer particular risk factors. There are however some related research streams which are explored below.

1.22 Relationship between resilience, risk and protective factors, mental health outcomes, and suicide

Resilience enhancement has been promoted for suicide prevention (Min et al, 2015). Is that an evidence based aim? In the first review on the subject of psychological resilience to suicidality, 77 studies were examined by Johnson et al. (2011). Rather than viewing resilience as a construct in its entirety, the authors view resilience as more of a method and describe a ‘buffering hypothesis’. Johnson et al. (2011) contend that resilience to suicidality is defined as ‘a perception or set of beliefs which buffer individuals from suicidality in the face of stressors’ (p. 563). It can be noted that the above definition appears more in keeping with the domain of resilience as a psychological and intrapersonal construct, although the research includes other-related beliefs. This distinction is key, as the objective status of environmental variables is not included. According to the ‘buffering hypothesis’ put forward by Johnson et al. (2011), resilience variables need to a) comprise a separate dimension to risk (and not merely the opposite), b) they need to exist on a bi-polar continuum, and c) the variable must be a psychological construct.

The statistical study of resilience variables is a complex area within itself. Johnson et al. (2011) have noted there is a lack of clarity in the literature surrounding the criteria a variable should meet to be understood as being resilient to suicidality. According to Johnson’s proposed ‘buffering hypothesis’ (2011) resilience can be viewed as a separate dimension to risk, which it interacts with when the risk is high to reduce the impact. As

such, Johnson (et al. 2011) contend that to confer resilience, that an interaction effect must be present and not just an inverse relationship.

While the literature on resilience to suicidality specifically is limited, there is a wealth of literature on resilience in the general sense, which can inform methods of measuring the construct. Fergus and Zimmerman (2005) identified 3 different models which can be used to investigate resilience:

1. Compensatory – variables can be investigated by looking at unique, direct effects of different independent variables on an outcome variable using multiple regression
2. Protective factor model – variables investigated using an interaction term in multiple regression or through structural equation modelling
3. Challenge model – effect examined through a curvilinear relationship, where low levels of risk are hypothesized to be beneficial and high levels are hypothesized to be detrimental, investigated through using polynomial terms in multiple regression

Cosco et al. (2017) has also noted that methodology for studying resilience can be

1. Psychometric, whereby resilience is measured directly as a construct;
2. Definition driven, where it is not measured directly but there are a priori groups where certain criteria are assigned (presence of absence of self harm); or
3. Data driven where resilience is not measured directly but determined by an algorithm of other factors based on latent variable modelling or other statistical procedures.

While the above mentioned ‘buffering hypothesis’ is certainly taken into account, the literature highlighted below has also included factors which have shown an inverse relationship with risk, as well as those which have been shown to be more ‘true’

moderators, or show unique direct effects on risk outcomes, to incorporate the range of approaches prevalent in resilience research.

Reasons for living. The Reasons for Living Inventory was originally created by Linehan, Goodstein, Nielsen, & Chiles (1983), who hypothesised that suicide resilience might be a promising alternative to suicide risk assessment. Significant work has been done on the inventory which was originally geared towards psychiatric patients. The idea behind the inventory was that vulnerable individuals may be more likely to discuss other related states, rather than suicide ideation or plans which could be stigmatised, particularly for cultural contexts where suicidal behaviour is especially stigmatised. There are also 2 versions of the Reasons for Living Inventory which are geared towards use with adolescents (Osman et al., 1996, 1998).

Johnson et al. (2011) suggest that the Reasons For Living measure designed by Linehan et al. (1983) encompasses some already established protective factors, such as: coping style/ problem solving, goal adjustment, self esteem, agency, life evaluation, social support, religious beliefs, future related beliefs, and suicide related beliefs. In a systematic review of the literature including 39 studies, Bakhiyi et al. (2016) found that so-called 'reasons for living' may protect against suicidal ideation and suicide attempt. It is hypothesised by the authors that the reasons for living may weaken the association between risk factors and suicidal ideation and therefore act as a 'buffer.' Bakhiyi et al., (2016) found that reasons for living may be protective against suicidality, particularly moral beliefs and survival and coping beliefs. Reasons for living are incorporated into the Jobes (2006) suicide status form, although there is no metric to evaluate them.

Coping style. Many studies have looked at problem solving as a potential buffer for suicidal risk, both through subjective and objective means of measurement. Burke et al. (2015) suggest that the use of problem solving buffered risk of suicidal ideation in young

adolescents experiencing negative affect. McMahon et al. (2013) also found that coping mediates mental health factors and deliberate self harm for Irish adolescents, and that problem focused coping is associated with better mental health than emotion focused coping. The 'My World' study indicated that 'avoidant coping' was associated with higher levels of risk and more significant problems (Dooley & Fitzgerald, 2012). Johnson et al. (2011) suggest that the evidence is mixed about problem solving being a buffer, and hypothesise it might be strongly related to another stronger buffering factor.

Relational connectedness. Factors such as parent-family connectedness and perceived school connectedness have been shown to be protective against suicidal behaviours (Resnick et al., 1997). Additionally, interpersonal connectedness (Dooley & Fitzgerald, 2012) has been identified in an Irish population as protective against risk. In fact, one of the major findings of the initial 'My World' study was that 'one good adult' in a young person's life improved mental health outcomes overall. Based on 18 studies reviewed, Johnson et al. (2011) reported that the majority of studies showed a 'buffering effect' of family support on suicidal risk.

Optimism. Optimism has been identified in Irish young people as protective against risk (Dooley & Fitzgerald, 2012). This is consistent with other research, which suggests that optimism may buffer against self harm, particularly for adolescent girls (O'Connor, Rasmussen, & Hawton, 2009). Impaired positive future thinking has been suggested to be a key factor in suicidal processes (O'Connor, 2011); lack of generating positive future events correlates significantly with hopelessness (Van Heerigan, 2000). An optimistic attributional style has been shown to 'buffer' against hopelessness and stressful life events based on the results from 5 studies showing a moderating effect (Johnson et al., 2011).

Support. Social support has been hypothesised as a potential ‘resilience’ factor dating back several decades. Beck et al. (1979) suggested social support systems may diffuse the intensity of suicidal wishes and described this as an ‘intangible’ factor. It was hypothesised that social support may offset risk for family members who are bereaved by suicide (Joiner 1999) and thus may mitigate risk in populations at high risk. Stress ‘buffering’ effects of social support were hypothesised by Neelman (2002). Based on the analysis of 18 studies for moderating effects, Johnson et al. (2011) concluded that there may be a ‘buffering effect’ of perceived social support against suicidal risk, but that further investigation was needed in the areas of family support, support from a partner, and attachment. This was in part based on the inconsistency in measurement used between the studies to determine social support. The My World study found use of social support, both formal and informal to be protective against risk generally in adolescent samples nationally (Dooley & Fitzgerald, 2012).

Self esteem. Johnson et al. (2011) reference a ‘considerable body of research’ citing self esteem as a buffering factor against risk. They note this relationship needs further investigation in broader populations. McMahon et al. (2013) investigated this factor in a sample of Irish adolescents and did not find self esteem to confer resilience for groups at-risk for self harm.

Agency. Personal agency is seen to be a resilience factor which is supported by robust evidence, as reported by Johnson et al. (2011). However, upon examination of the individual metrics used, there seems to be some confusion between how agency is defined. Some studies are measuring autonomy, while others are measuring confidence, social desirability, and others looking at ‘bouncing back’ which is more typically associated with an overall construct of resilience.

Resilience overall. In adult populations, higher resilience can differentiate between groups of suicide attempters and non-attempters and has been shown to correlate highly and negatively with humiliation, interpersonal sensitivity, and depression in samples with a past suicide attempt (Rosetti et al., 2017). Again in adult research, resilience has been shown to be associated with suicidality across the lifespan (Lui et al., 2014) (also in inbox) Again in a relatively small sample of adult abstinent substance users, those who had attempted suicide in the past had significantly lower resilience as measured by the CD-RISC than those who had not attempted suicide (Roy et al., 2007). In yet another adult sample of Korean adults, higher resilience was shown to moderate risk of depression and anxiety symptoms on suicidal ideation (Min et al., 2015). Resilience has been shown to moderate symptom severity of depression with adults exposed to childhood trauma (Wingo et al., 2010). Resilience was measured by the 10-item version of the CD-RISC.

The relationship between suicidality and resilience with adolescents and young people yields mixed results. Recent research on undergraduate students has shown resilience has shown to be a ‘potent’ variable in predicting suicidal ideation based on a cross-sectional data collection (Gautam & Nagle, 2016). Study authors suggest that resilience as measured by the Resilience Scale (Wagild & Young, 1993) moderated thwarted belongingness and perceived burdensomeness, constructs emphasized in the interpersonal theory of suicide (Joiner, 2005). Resilience as measured by the READ showed significantly higher scores in nonclinical as compared to suicide clinic and psychiatric groups of adolescents in Denmark (Jakobsen, Larsen, & Horwood, 2017). The READ scores were similar in the 2 clinical samples, except the family cohesion scale was lower in the suicide clinic sample (Jakobsen et al., 2017) further affirming the influence of relational factors on suicidality. Other longitudinal research has suggested that although there was an association between resilience and suicidality at time point 1, that there was

no association by time point 2 once other factors were controlled for (Lui et al., 2016). The interpretation of this is complex, as resilience was measured by the CD-RISC which is primarily trait based. Factors which were controlled for included mastery and support, which begs the question of whether the definition of resilience employed was too narrow to capture a meaningful effect.

Resilience research has also investigated its relationship with mental health outcomes. While authors have noted a paucity of literature on evaluating resilience outcomes with actual resilience measures with adolescents, Dray et al. (2017) were able to conclude that school based resilience programmes have been effective at reducing 4 mental health outcomes vs. control based on an analysis of RCT's conducted on the subject. These outcomes are: depressive symptoms, internalizing problems, externalizing problems, general psychological distress (Dray et al., 2017). While the study did not emphasise resilience to suicide specifically, based on the discussion above it can be seen that many of the mental health outcomes measured are associated risk factors for suicidality with young people. While the authors were not able to link specific resilience factors with outcomes, they note that most of the programmes were targeting cognitive competence, problem solving skills, cooperation and communication skills, and general coping skills (Dray et al., 2017).

'Resilience focused interventions are based on the premise that strengthening resilience protective factors is an effective mechanism for positively influencing mental health in children and adolescents' (Dray et al., 2017, p. 821). Targeting these types of interventions is characteristic of 'upstream prevention' for suicidal outcomes according to Singer et al. (2018) who also suggest that positive school climate and school connectedness be targeted to prospectively reduce risk. Dray et al. (2017) concluded that to actually test the mechanisms responsible for positive results, that school based

programmes actually measure resilience as part of an evaluation in addition to testing mental health outcomes. Other researchers looking at resilience methodology also suggest that measuring resilience psychometrically as a specific construct is optimal (Cosco et al., 2017).

While Irish research has attempted to examine resilience to suicidality with adolescents, findings in this area are limited. In the abovementioned study by McMahon et al. (2013) resilience factors were hypothesized and not found. The study authors note that most of the measures were looking for absence of depression, impulsivity, drug use, etc. Measuring the absence of pathology is common in the literature (Dray et al., 2017) and goes back to definitional confusion as to whether resilience is a construct in its own right, or rather it is defined by the absence of pathology. The authors of the McMahon et al. (2013) study defined resilience as youth who were exposed to self harm (a well established risk factor) but had chosen not to do it themselves. This is more consistent with Luthar et al.'s definition (2000) of resilience which suggests that adversity has to be significant, and the idea that resilience is a return to baseline, (Bonnano, 2004) as opposed to positive adaptation. Interestingly, McMahon et al.'s (2013) study hypothesised resilience but did not use a fit for purpose measure of resilience to look at the outcomes. The analysis used what has been referred to as a definition driven criteria rather than a psychometrically driven criteria to study resilience (Cosco et al., 2017). This is one of the only Irish studies to date looking at resilience to suicidality specifically with adolescents.

The issue with measuring resilience using a fit for purpose measure is understandable in that the first normative data for a specific resilience measure on a nationally representative sample of Irish adolescents was only reported on in 2016 using the READ (Kelly, Fitzgerald, & Dooley, 2016). The study was the first validation of the English version of the READ outside of Norway, and confirmed the 5-factor model originally

hypothesized by the scale authors (Hjemdal, 2006). 1 and 3- factor models were investigated with the Irish sample, but the 5-factor model was the best fit (Kelly et al., 2016). This supports the notion that resilience is a multidimensional construct and also the idea that it draws on multiple salient areas: individual, family, and community (Kelly et al., 2016).

Qualitative research has suggested that there are 4 domains of resilience for adolescents overcoming suicidality (Everall et al., 2006). Authors conceptualise these as: social processes, emotional processes, cognitive processes, and purposeful action (Everall et al., 2006). This is perhaps one of the few published studies citing the subjective experiences of adolescents who had previously been suicidal and overcame the crisis. It is worth noting that resilience is defined in this group as adolescents who were suicidal but overcame the suicidality. Sampling was different to the McMahon et al. (2013) study, who defined adolescents as resilient if they were exposed to self harming of others (a major risk factor) but were not self harming themselves. Fergus and Zimmerman (2005) have suggested that qualitative research may be most helpful in looking at resilience for particular risk outcomes.

1.21 Methodological challenges

Conducting suicide research is anxiety provoking for researchers, participant sites, and ethics committees (Gould et al., 2005). Thus, much of this research has been carried out on psychiatric populations. Clearly, there are limitations to the knowledge that can be gleaned from these populations of young people, and it is known that suicidal ideation is common in the nonclinical population in adolescence.

While acceptability and feasibility of screening interventions have been trialed on large scales in the US and Australia, no data has been published on these issues in the

Republic of Ireland or even in Europe in relation to school based screening. Conducting screening research is resource heavy. Robinson et al. (2011) determined that screening in an Australian setting was acceptable and effective if conducted carefully. In this instance, students identified as screening positively were asked by the school counsellor to attend a meeting with a qualified psychologist who was a member of the research team. The meetings took place within 2 days of the initial screen and referral pathways for follow up assessment were in place. In a similar study, Gould (et al. 2009) conducted a safety review on students with a positive screen. They were referred for a safety interview and if the results were substantiated, parents were contacted by phone. During the phone contact, results of the screen were provided, referrals were made or in the case of current ongoing treatment, reflection around recommendations for further treatment were made, in addition to an offer to share results with treatment providers. Similar protocols were used for the European study which compared screening with 2 other school based interventions (Wasserman et al., 2015). A screening must be systematically planned with timely coordination to adequately trained professionals and referral services (Gould et al., 2009).

Joe & Bryant (2007) address some of the ethical issues on conducting suicide research in schools, such as the necessity for active written consent, the presence of risk in the population, and the access to follow up care. They also highlight additional best practice considerations, such as knowing who are the mandated reporters, who can access student records, and whose role is it to collate student information in relation to the screening. Additionally, they reflect on the criteria for parental notification.

As noted by the authors of SOS (Aseltine & DeMartino, 2004), additional issues exist in relation to the truthfulness of adolescents and the potential stigma of disclosing when there is parental or school notification. UK studies have confirmed that adolescents

worry about help seeking for self harm due to issues around confidentiality and stigma if they disclose they are at risk (Fortune, Sinclair & Hawton, 2008). Adolescents have reported worries about a potential diagnosis of a mental illness or of rumours circulating around their school if they disclosed concerns about their mental health (Fortune et al., 2008). Thus, statutory limits on confidentiality and perhaps also young people's perception of these pose a barrier to conducting rigorous research in the area and bring some difficult issues to the fore.

In light of the findings from SOS in addition to young people's worries acknowledged in UK research (Fortune et al., 2008), there are significant complexities to screening for risk in schools and indeed in other settings, particularly with under 18's. This pertains most specifically to the accuracy of the answers to the suicide related questions. Confidentiality, legal and ethical obligations and notification of parents all enhance safety but present a significant barrier to accessing truthful information. Young people may be likely not to disclose actual risk on direct risk items due to fear of stigmatisation, rumours, parents finding out, and/ or being obliged to interact with mental health services. These issues are not examined in any great detail in the recent European RCT writeup (Wasserman et al., 2015).

Development of the current tool is one part of a much wider research aim of establishing a screening method suitable for a variety of contexts. While some promising data exists on acceptability of screening in North America and Australia in secondary educational settings, feasibility issues have been reported as ongoing (Halfors et al., 2006). Before conducting the acceptability research, Robinson et al. (2011) noted common fears about suicide screening were that it might be intrusive and thus unacceptable for students, parents, and staff. Other fears noted were that the programme would be stigmatising and cause undue distress. North American studies have noted

challenges of using widely accepted screening programmes such as Teen Screen even in other contexts within North America, such as areas which are predominantly urban or African American (Brown & Grumet, 2009). Authors note that the validation samples for the Columbia measures were predominantly middle class, Caucasian, and suburban. These issues need to be examined further in the cultural context to see whether they are or are not present in Ireland. Acceptability and feasibility of targeted or universal screening have not been reported in Europe at all and indeed not in Ireland. Culturally, would a tool with an emphasis on resilience and more indirect risk factors and warning signs be better?

1.21 Gap in the knowledge base

In conclusion, significant research exists in the area of suicidality and associated risk factors. Relatively less exists on how to protect adolescents from risk. Resilience in a general sense has a substantial, albeit relatively recent research base. There are still issues with operationalising exactly what resilience is. For the purposes of the current study, it seems pragmatic to consider that individuals who are resilient can encompass those dealing with both day to day and significant stressors. Thus, resilience to suicidality can be defined as factors which make a young person less likely to seriously consider suicide. It will be helpful to know these factors, both for groups who are undergoing significant adversity and those who are dealing with the more normative strains of living teenage lives. Research has identified a need for development of a better understanding of factors that contribute towards suicide in young people (Hawton et al., 2012).

Most existing screening methods have used the construct of depression as the foundation for the screen. This means that the screen fundamentally measures depression

and then adds extra risk questions on at the end. Based on the abovementioned issues with this approach, it is prudent to consider that screening methods should consider more comprehensive explanations for risk, particularly interpersonal explanations in light of both contemporary theory (Joiner, 2005) and research (Diamond et al., 2017). In addition, the current study seeks to integrate measuring the construct of resilience into the initial screening tool. Therefore, a screening method is needed which takes into account dynamic factors which are multidimensional and strengths based, alongside traditional risk factors. A theoretical context and backdrop are needed to ground the domains and associated items which will be on the measure administered at the initial stage of the screen.

It has been suggested by experts (Posner et al., 2007) that the use of a self report questionnaire can be particularly valuable for adolescents who find it difficult to talk to professionals, or have problems expressing themselves verbally. It has been suggested that formal, highly structured clinical interviews can be ‘off-putting and disempowering’ for adolescents (Walsh, 2007) in the assessment of self injury. Furthermore, research has consistently suggested that self report taken from a young person is likely to be reliable, and more reliable than information taken from parents, as parents are often unaware of the suicidality of their children (Velez & Cohen, 1988). It has also been suggested about Irish adolescents following the My World Study: Adolescents are generally self aware and reliable sources of whether they have significant problems and need help (Dooley, 2012) Posner’s (2007) seminal study also recommended that tools were needed, not only to look at suicidal ideation, but also assessing factors that are associated with risk which includes not only ideation, but also related constructs (Posner et al., 2007). This is in addition to a need for tools which take account of resilience (Nelson et al., 2010) in a meaningful way.

As noted above, the accuracy of risk identification has been the subject of much controversy. Rather than aiming for absolute accuracy, the current research seeks to take a pragmatic approach. Recent research nationally has noted the low rate of help seeking from adolescents who self harm in the community (McMahon et al., 2014). Furthermore, the research recommends ‘school based interventions to identify young people at risk and to provide appropriate support and referral’ (McMahon et al., 2014, ‘Discussion’, para. 7). The main aim of the proposed screening method is to determine what the modifiable risk factors are, and what can be done to promote current strengths and improve resilience. Having this information at the outset of a screen would assist immediate safety planning and guide onward referral. The current research attempts to develop a theoretical framework to achieve this aim which is based on practise insights gleaned from experts in their professional practice with young people at risk. Development of the current tool seeks to create a theoretical integration whereby the risk and protective factors are measured. The items can subsequently be verified and tested as to whether they serve as predictors of an overall outcome variable of suicidality. This is with an acknowledgement that the evidence will not be complete and accepting that this is not a phenomenon which is absolutely predictable.

The current study is one strand of an overall aim to develop a practical tool for use in a variety of settings to identify adolescents and young people prior to or early on in the onset of a suicidal crisis, and to measure both risk factors and resilience to suicidality.

Research questions.

How can we identify young people with the potential for suicidal behaviour early?

Can resilience make a contribution to suicide risk identification?

1.25 Aims and objectives

The objective of this study was to develop a psychometrically sound tool to measure both risk and resilience as potential predictors of suicidality for adolescents and young people. From a suicide prevention perspective, it has been noted that there are many advantages to strengths based assessment, along with new opportunities for intervention and change (Jakobsen et al., 2017). This study will serve as the foundation for the long term aim of establishing predictive validity for this tool for suicidality and standardisation with a nationally representative sample. The tool aims to capture the multidimensional nature of suicidal risk (ie. not measuring low mood only) and to be able to signpost towards appropriate intervention, while remaining brief. In order to be of any use in programme evaluation in suicide prevention, it needs to measure not only deficits, but also resilient characteristics, or those which would help to ‘buffer’ (Johnson et al., 2011) risk. Real-life applications were particularly emphasised during the development process. This included consultation with stakeholders and participants who would be using the tool and an emphasis on gleaning useful information for safety planning and signposting follow up. The researcher aimed to develop the tool in a manner which is non-pathologising, strength identifying, and can guide intervention with young people.

Potential uses of this tool are to screen for students at risk of developing suicidal tendencies, to identify schools and communities with high levels of suicidal risk, to evaluate school based programmes aiming to increase resilience and well being with a view towards suicide prevention, and could potentially extend to screening groups of at risk youth such as those entering the care system or those in a postvention environment.

Hypotheses for Stage 2.

H₀: Scores on risk items will demonstrate no significant relationship with suicidality

Hypothesis 1: Scores on risk items will demonstrate a positive correlation with increased suicidality following cross sectional data collections

H₀: Risk scores alone will be more accurate predictors of suicidality than combined risk and resilience scores

Hypothesis 2: Combined risk and resilience scores will be more accurate predictors of suicidality than risk scores alone.

Methodology

2.1 Introduction and summary of methods

A mixed method sequential design was employed to assist with theory creation and development of a screening tool for adolescent risk and resilience for suicidality. The first stage of data collection (Stage 1) included the integration of an inductive and deductive process, consisting of a grounded theory analysis (Glaser & Strauss, 1967; Strauss & Corbin, 1990). Theory generation included data from 4 focus groups of practitioners, concurrently with a review of the existing literature. Following the construction of a theoretical framework, items for the assessment tool were generated based on categories which emerged from the grounded theory analysis. Potential items were put forward for expert review with an additional group of clinicians working in a suicide and self harm crisis service. A draft tool was created and piloted initially with a clinical sample of ‘at-risk’ youth in a suicide and self harm crisis service (Stage 2). Exploratory factor analysis and logistic regression analysis were then conducted with the ‘at-risk’ sample data. Risk items were compared with a standardised screener for depression (PHQ-9) (Spitzer et al., 1999) and with a standardised screener for suicidal behaviour (SBQ-R) (Osman et al., 2001). The tool was subsequently shortened and refined for a second data collection with a nonclinical population. Initial item analysis, psychometric properties, and regression models for the 46-item and the 29-item versions are presented in Chapter 4 for the ‘at-risk’ sample. Based on the current findings, an additional nonclinical collection focused on the resilience subscale and obtaining normative data and a factor structure for this part of the tool and is still underway.

Overall, the research moved from a primarily inductive process with theory generation towards a primarily more deductive process of hypothesis testing. While grounded theory can be considered a primarily inductive process (Strauss & Corbin, 1994), the method

also facilitated the arguably more deductive nature of literature review and theoretical sampling during Stage 1. The research moved towards a more traditional deductive stance during Stage 2 with the introduction of quantitative analysis for theory verification (Punch, 2005). However, the exploratory nature of the initial factor analysis techniques employed meant that both processes were dynamically co-occurring throughout. The second stage of research included preliminary analysis of dimensionality, reliability, and validity of the psychometric tool. The overall research aspiration is that through both theory generation and later hypothesis testing and validation, that the emerging ‘grounded’ theory can be guided and refined through statistical methods. The end product at the time of writing is the second version of a tool measuring both risk and resilience for suicidality which is currently being further examined and validated in clinical, community, and educational settings.

2.2 Stage 1 research paradigm and process

The mixed method sequential design provides an integration for seemingly conflictual philosophical stances of positivism, postpositivism, and constructivism. The advantage to this design is the pragmatic need for more comprehensive theory generation and further testing of that theory. Theory exists on suicidality. Little is known about what makes one resilient to suicidal risk. Resilience has not been found in Irish adolescents in studies of self harm (McMahon et al., 2014) and thus further theory generation is indicated in this area. Despite merging techniques from different research stances, it is the opinion of the researcher that the integration of inductive and deductive techniques can be more helpful than using merely one or the other, particularly where there is a pragmatic need (Onwuegbuzie & Leech, 2005). Clinicians working in settings where risk identification happens in the first instance are likely to be good sources of information about factors

which confer resilience in populations of young people at risk. Other research has suggested that the preferable way to conduct resilience research is by using a ‘theory driven’ approach (Johnson et al., 2011). Qualitative approaches may help in looking at resilience for particular outcomes (Fergus & Zimmerman, 2005).

The pragmatic approach is becoming more accepted in guiding research strategy, and is in fact one of the core tenets of grounded theory according to Strauss (1987). In fact, Strauss was heavily influenced by North American pragmatism namely Dewey, alongside the position of symbolic interactionism (Axelson & Goldkuhl, 2004). The complexities of trying to develop a comprehensive ‘grounded’ theory in an area where some theory already exists in addition to the merging of differing philosophical underpinnings to the research stance has been examined by many scholars (Axelson & Goldkuhl, 2004; Barbour, 2001; Strauss & Corbin, 1994, Charmaz, 2006). This issue is examined in more detail in the sections below. There is precedent in the research literature for development of resilience theory in unique contexts through a variety of methods, most notably through ‘grounded theory’ methods (Fletcher & Sarkar, 2013).

Grounded theory arose as an opposition to the predominant functionalist and structuralist approaches of the time which were regarded as overly deductive, aimed to bridge the gap between theory and empirical research, and sought to give a structure and legitimacy to qualitative research (Strauss & Corbin, 1994). The method was ‘designed to open up a space for the development of new, contextualised theories’ (Willig, 2013). Grounded theory as a practice has evolved over the years; most significantly, this has been influenced by a split between the two founding authors, Glaser and Strauss. This has been further complicated by a variety of studies using grounded theory methods, sometimes referred to as a so-called version of ‘lighter’ grounded theory whereby only the analytic technique is adopted, or a ‘pick and mix’ approach which compromises the

process (Weed, 2009). There are currently 3 commonly accepted variations of the methodology: classical (Glaserian), Straussian, and constructivist, most commonly associated with Charmaz (Weed, 2009; Willig, 2013). Grounded theory, originally posited by Glaser & Strauss (1967), and later developed by Strauss & Corbin (1990, 1994) informed the Stage 1 initial data collection and analysis process.

While the original authors did not make it explicit, traditional grounded theory is thought to be borne out of ontological realism, and has moved gradually over the years towards a position of relativism with subsequent versions of the methodology (Willig, 2013). Thus, while Glaser's original writings resonate more with a positivist epistemology, more contemporary versions of the method are associated with a constructivist epistemology (Charmaz, 2006; Willig, 2013). Straussian (1990) grounded theory resides somewhere in the middle and is arguably considered to maintain a post-positivist epistemological approach (Birks & Mills, 2015). This approach is based on a number of assumptions about the nature of reality and the role of the researcher.

It has been suggested that the methodology was originally developed in the so-called 'second moment' of qualitative analysis whereby there is an assumed reality which is worth uncovering by a detached and objective researcher (Birks & Mills, 2015). Post-positivism is not anti-positivism, nor is it relativism (Adams, 2014). Post-positivism does however acknowledge that the scientific method is much more complex and ambivalent than traditional positivism assumes (Adams, 2014). As such, post-positivism does acknowledge that some aspects of the world cannot be directly measured, and that there will be error and knowledge needs to be revisable.

It has also been suggested by Annells that Strauss's views actually moved towards a more social constructivist position (Birks & Mills, 2015), particularly as his career advanced. Indeed, by the mid-1990's, Strauss & Corbin (1994) acknowledged that like

other qualitative traditions the onus lies with the researcher to interpret the data, thus acknowledging some level of co-creation of the theory. This idea has been furthered by Charmaz (2006) who referred to the idea that researchers start out with an open mind but not in the absence of any knowledge. The thrust of Strauss & Corbin's (1994) text however is not on the role of the researcher as such, but on the predominant and unchanging core of grounded theory that has been its emphasis on theory development. This focus is consistent with the aims of the current study. Theories can be defined as systematic statements of likely relationships (Strauss & Corbin, 1994). Theory generation was a main aim of the initial stages of the current project.

Grounded theory seeks to examine the action/ interaction which attempts to manage a phenomenon in a specific context, at a particular point in time (Strauss & Corbin, 1990), in this case the phenomenon of emerging suicidality. Grounded theory regards meaning generated by participants as the focal point of the research. Strauss & Corbin (1994) posit that theory may be generated by data, or if existing theories seem appropriate to the area under investigation, that these can be elaborated and modified as incoming data are compared and 'played' against them. In this case, much theory is already in existence on suicidality. Relatively less is known about the action/ interaction between suicidal risk and resilience. Thus, the narratives of clinicians and in fact of survivors of suicide can give meaningful information to practitioners in this regard. This study focused on the views of clinicians. The rationale for that is to glean the expertise from a number of people who have worked many cases of emerging risk. In addition to the clinical wisdom which can be gleaned, previous research has suggested that professionals are the best predictors of future self harm risk in clients, over and above standardised risk scales and above client estimations (Quinlivan et al, 2017). While the primary data collected was from clinicians, the review of the literature also included first hand accounts of previously suicidal individuals.

Within the process of grounded theory, there are several central tenets to consider: theoretical sensitivity, theoretical sampling, saturation of the data, and systematic coding procedures (Strauss & Corbin, 1994). Theoretical sensitivity stresses that the researcher consider relevant literature, along with personal and professional knowledge of the phenomenon, but not to allow pre-existing knowledge to bias what emerges from the data (Strauss & Corbin, 1990). Strauss & Corbin (1994) acknowledge that the original grounded theory text (Glaser & Strauss, 1967) overemphasised the inductive and ‘emergent’ nature of the process. They later noted the original text underplayed the advantage that trained researchers and professionals are by their very nature theoretically sensitised and thus carry with them training and theoretical knowledge. Strauss & Corbin (1994) in their more recent work refer to more realistic and balanced modifications of the process, which acknowledge that even existing theory can be ‘useful if played against systematically gathered data.’ In a critique on contemporary application of grounded theory methods, Barbour (2001) highlights that while most researchers generate new themes alongside already existing ideas, the potential to expand on both types of insights is often not fulfilled.

In this case, two members of the research team had significant experience as both clinicians and researchers in the identification and management of suicidality in various contexts. While individual experience or theoretical expertise of the researchers is not the focal point of the research, holding this alongside the data generated by participants was crucial to the research process. The principal researcher aimed to reflect on and be aware of theoretical and clinically driven conceptualisations, while not being bound to them. This process was achieved both through professional and personal reflection through memo-ing, discussions in supervision, and also through ongoing review of the literature concurrently with collection of the Stage 1 data. Strauss & Corbin (1990) contend that

heightened theoretical sensitivity enhances theoretical coding, which leads into the overall model development.

The selection of primarily Straussian (1990; 1994) methodology for Stage 1 of the research is based on a number of factors. Grounded theory has been described as a ‘total methodology’ or ‘integrated research process’ (Weed, 2009). Thus, theory generation is a rigorous and iterative process, which requires going back into the field to gather more data as ideas are refined. Grounded theory analysis is compatible with a wide range of data collection techniques, including semi-structured interviews and focus groups (Willig, 2013). The post-positivist epistemological stance in the context of pragmatism fits in with an overall striving for objective knowledge while simultaneously recognising that absolute knowledge cannot be obtained. The tension within this statement captures the dilemma outlined in the previous chapter around aspiring to measure suicidal risk with accuracy while simultaneously knowing this is impossible. Even within traditionally positivist paradigms that influence psychometric models, it has been acknowledged that ‘validity of interpretation is always a matter of degree ...scores will reflect the underlying construct more accurately or less accurately, but never perfectly’ (Cook & Beckman, 2006, p. 166.e10). The hope is that developing a ‘grounded’ theory in relation to suicide risk factors and resilience in a particular context can promote the aim of identifying modifiable factors, aid early identification, and provide a theoretical framework for conceptualising resilience to suicidality.

The current study endeavours to remain consistent with the procedures outlined by Strauss & Corbin (1990) for Stage 1, except for use of the highly structured paradigm model. While the use of the paradigm model meets a pragmatic need, the original version of the paradigm model has been criticised as being too detailed and restrictive (Axelson & Goldkuhl, 2004), was actually simplified by Strauss & Corbin in a later

publication (1998), and does not provide specific guidance for visual modelling. It was also thought that the model does not fully capture the multidimensional nature of suicidal risk. Therefore, while predominantly influenced by the methods put forward by Strauss & Corbin (1990, 1994), the current study will present findings visually in light of the multi-grounded theory and theory modelling developed by Axelsson and Goldkuhl. (2004). While the paradigm model specifically was not used, the coding paradigm (Strauss & Corbin, 1990) was employed, which emphasises axial coding and a focus on process and change aspects in the data (Willig, 2013). Theoretical sampling, saturation of the data, and coding procedures will be further addressed in the relevant sections below.

2.3 Participants Stage 1

Eighteen participants were recruited and attended 4 focus groups. Recruitment initially focused on psychologists based within school settings who routinely came across suicidal risk. Participants were recruited initially from Education Training Board (ETB) psychology services. These practitioners were chosen as a purposive sample as they are based in schools, would have experience identifying first instance of risk in the early stages, and work with populations of students with diverse risk factors. Inclusion criteria were that the participants had to be a qualified mental health professional (and not in training), be willing to participate in a focus group with existing colleagues, and have current access to supervision. Sampling was later extended to a suicide bereavement counselling service to conduct additional theoretical sampling. Participants from all 4 groups were qualified psychologists, counsellors, or psychotherapists. Sixteen participants were female and 2 were male (see Table 1). The two male participants both held senior positions in their services, while no females who attended the groups held a

senior position. Participants ranged from 1 year post-qualification to over 20 years post qualification.

Table 1

Focus group participant characteristics (N = 18)

Demographic characteristics	Frequency
Gender	
Male	2
Female	16
Work context	
Educational setting	14
Suicide bereavement service	4
Professional qualification	
Counselling psychologist	10
Educational psychologist	5
Counsellor/ psychotherapist	3

Two focus groups were conducted initially and the data coded and analysed. In order to progress the process of theoretical sampling, a purposive (theoretical) sample (Strauss & Corbin, 1994) was recruited of community based mental health professionals working with young people bereaved by suicide, a major risk factor for suicidality. The rationale for the sampling was that this third group would have experience of in depth therapeutic work with young people who had a major risk factor. Of this client population, some young people would have continued on to become suicidal themselves, while others would not. This group was specifically selected in light of contemporary resilience theory as outlined in Chapter 1, a definitional approach. Resilience theory suggests that those experiencing a significant risk factor who do not become suicidal can be considered resilient. This is consistent with previous Irish research looking at resilience for self harm specifically in that the sample population was defined as youth with a significant risk

factor for self harm who do not self harm (McMahon et al., 2013). This approach is in keeping with Luthar (2000) et al.'s definition which suggests the adversity has to be significant, and that resilience is a return to baseline (Bonnano, 2004) as opposed to positive adaptation. Theoretical sampling is a core tenet of the iterative process of creating a 'grounded' theory. With the full version of the methodology, the researcher moves back and forth between data collection and analysis (Willig, 2013) and seeks samples to fill out the theory. The view of these practitioners specifically was of central importance to the emerging theory on resilience to suicidality.

Following the third purposive sampling, a presentation of tentative categories was made at the annual Psychological Society of Ireland conference. Collegial and expert feedback was elicited on the emerging theoretical conceptualisation. The same year, a fourth focus group was conducted to further develop the theory. While the general interview schedule remained the same during theoretical sampling, the researcher placed more emphasis on certain aspects of the theory as the iterative process progressed, in accordance with the grounded theory methods to further refine the emerging theory (Strauss & Corbin, 1990).

2.4 Ethical considerations

Ethical approval for Stage 1 of the study was granted by the University of Dublin, Trinity College Ethics Committee (see Appendix A). Due to the sensitivity of the topic to professionals, only individuals who were fully qualified and currently in supervision were recruited. Due to the recruitment of experienced professionals working in psychological and community counselling services, it was not envisaged that material would emerge outside the remit of the understandable stresses of the working context. Nevertheless, all participants were made aware of the sensitive nature of the topics to be discussed in the

group. Confidentiality of group material was contracted for within each individual service in collaboration with the participants and the researcher and the statutory limits on confidentiality explained. Participants agreed to access individual supervision should any distress arise based on conversations which occurred within the focus groups.

Usual conventions for psychological research were employed and communicated to participants, such as the right to withdraw without consequence, the right to choose to participate, and the limits on confidentiality on the disclosure of any risk. Focus group data was collected on two recording devices and notes were taken in hard copy by a research assistant. Data was stored in line with the Freedom of Information and Data Protection Acts and Trinity College's data storage policy. All electronic data was transferred to a computer where it was password protected and encrypted. Each participant was assigned a code known only to the researcher and data was stored separately from documents containing participant identity. All paper data was stored in a locked filing cabinet accessible only to the research team. Participants were made aware of a potential publication of the research, the date by which any request to withdraw would be possible, and the assignment of a pseudonym in the event of publication.

2.5 Data collection stage 1

Data was collected through a series of four focus groups. Focus groups followed a semi-structured interview schedule (see Table 2). The semi-structured nature of the interview schedule gave the lead researcher suitable flexibility to explore relevant areas of the emerging theory, and thus focus in on aspects of the analysis leading to theoretical sampling (Strauss & Corbin, 1990) particularly around the construct of resilience towards the end of the analysis.

Focus groups lasted for approximately 90 minutes each. Participants were given a short break halfway through if needed. A research assistant attended 3 out of 4 groups to transcribe nonverbal communication and indicate frequencies which might be difficult to determine from the recording. The interview schedule began with more general questions and became more specific. The schedule consisted of 12 questions constructed by the researcher. Pilot feedback was obtained to assess the timing and clarity of the focus group interview schedule prior to distribution. Questions guided participants to reflect on the issue of suicidal risk and how it is usually identified in their own service, moving into issues surrounding their own clinical experience of working with individuals at risk. Due to the volume of data collected, the theory presented in the section below was generated from the answers to questions 10 and 11 only.

Table 2

Interview schedule: Stage 1 focus groups with mental health professionals

Current remit/ protocols

1. What types of risk do you regularly come across in your service?
2. How do your schools/ centres currently identify young people who are vulnerable?
3. How does your service currently identify young people who may be at risk of suicidal behaviour/ self harm?
4. How is the level of risk assessed?

Use of assessment tools for risk

5. Does your service use any type of screening/ assessment tool to identify risk?
6. If you had a tool available to you to screen for a range of risk and protective factors, how would you imagine your service might use it? (Universal screen, targeted screen, outcome measure, etc)
7. If you had a tool available to you, do you think you would use it?
8. What sort of risk is your service most interested in measuring?
9. How would you feel about using a tool that directly asks students about suicidal ideation?

Clinical experiences with heightened risk

10. In your clinical experience, what factors would correlate with an elevated risk for suicidal behaviour/ self harm in a young person?
11. In your clinical experience, what factors would protect against risk of suicidal behaviour/ self harm in a young person?

Pragmatic concerns

12. If a brief screening tool for risk and resiliency were introduced into your work place, how do you think it could be tailored to meet the needs of your particular context?

2.6 Data analysis stage 1

Grounded theory informed the analysis of the focus group data and the concurrent analysis of the research literature, including both large scale and smaller qualitative studies. Analysis of the focus groups began with a full transcription of the conversation verbatim. Dialogue was coded initially during open coding (Strauss & Corbin, 1990), which involves identifying units of meaning line by line from the transcript. Line by line coding has been identified as preferable (Willig, 2013) if time allows. Following open coding, the researcher begins to organise the ideas conceptually and group them together.

The next stage is axial (theoretical) coding (Strauss & Corbin, 1990) where the text is not viewed descriptively, but is linked into a conceptual framework. During open and axial coding, the codes are moved from meaning units into less descriptive and more analytical categories (Willig, 2013). Grounded theory is guided by the following tenets during the analysis process: constant comparison, theoretical questioning, theoretical sampling, concept development, and hypothesising relationships between concepts (Strauss & Corbin, 1994). Constant comparison aids the coding process by constantly returning to the meaning units and indeed even the transcript to ensure the abstraction is not reductionist (Willig, 2013) or incongruent with the original meaning. During axial coding, the relationships between categories are hypothesised conceptually (Punch, 2005). Selective coding (Strauss & Corbin, 1990) involves the abstraction of the theory developed during axial coding into a central core category.

As noted above, relationships between emerging categories were viewed initially in light of Strauss & Corbin's (1990) interactionist coding paradigm. It was later decided that the paradigm model (Strauss & Corbin, 1990) did not fully capture the relationship between the major categories. Since Strauss & Corbin (1998) themselves later moved away from the rigidity of the model, the ideas of Axelsson & Goldkuhl (2004) were incorporated to guide construction of a theory diagram based on the major categories. Direct quotes from the participants are presented in the analysis section to capture moments gleaned from the focus group discussions. Major categories, associated theoretical concepts, and the hypothesised core category are presented in Chapter 3.

2.7 Reliability and validity

As noted above, review of the literature occurred concurrently with focus group analysis, in accordance with a typical grounded theory approach (Weed, 2009).

Provisional findings from focus groups allowed for further exploration of relevant concepts in the literature and further theoretical sampling of practitioners with resilient (and non-resilient) client groups.

The researcher was constantly moving between data, existing theoretical constructs, and research findings to produce a theoretical model, which informed later creation of an inventory of self-report items. The original text by Glaser & Strauss (1967) incorporates the following validity checks:

1. Fit – how closely the concepts generated fit the phenomena,
2. Work – whether the theory offers an analytical explanation for the problem,
3. Relevance – whether the analysis deals with the ‘real concerns of those involved, and
4. Modifiability – how much the results are open to extension or development to accommodate further evidence (Weed, 2009).

It has been suggested that the first 3 of these validity checks are met by checking back with the participants about the concepts which have been generated, by achieving consensual agreement amongst the research team about categories, and by using the constant comparative method and aiming for saturation of the data (Weed, 2009). Within reason and the constraints of resources and time, additional groups were conducted following the initial analysis and additional feedback was sought until the data began to reach theoretical saturation. Saturation refers to a state where no new information is emerging (Punch, 2005). This occurs when further sampling does not yield any further concepts about the phenomena under investigation. Glaser (2012) suggests that for substantive theory development, that a theory can be written up once a core category with 5 or 6 constructs has been thoroughly developed. He notes that this is substantive theory and thus really a hypothesis, which needs to be further validated in the field.

The criteria for quality in qualitative analysis differs from the conventional criteria of reliability and validity used in quantitative analysis (Marshall & Rossman, 1995). These criteria are as follows: *Trustworthiness* accuracy of the meaning of the categories; *Credibility* accurate reflection of the participants and individual views; *Transferability* findings are applicable to similar settings; *Dependability* flexible and recognising nuances of study conditions; and *Confirmability* results can be confirmed by another.

The researcher returned to a sample of focus group participants with initial categories and later with a draft tool for feedback and further theoretical sampling. The return to initial participants is a usual credibility check in qualitative research and in this case was also a pragmatic exercise. Each step of the tool construction involved feedback from agencies who would eventually be using the tool, so that it was constantly being developed collaboratively with the practitioners and the contexts in which it would likely be administered. Checking back with services in light of the emerging theory also assisted development and validation of the emerging ideas. A selection of participants were given the opportunity to review the interpretation of the theory and the eventual measure created. The emerging theory was subsequently presented to an audience of psychologists during the research process and feedback elicited. Further feedback was elicited by additional experts in the field of suicide and self harm prior to the pilot draft of the tool being circulated. The iterative process of data collection, analysis, and further collection and analysis took place over approximately 2 years.

2.8 Item writing

A conceptual framework and tentative theory for resilience to youth suicidality was developed from the focus group data analysis. Additional factors were added which were identified in the literature both in large international studies on risk for suicidality and

several large Irish studies which were published during the timeframe of the current research (Dooley & Fitzgerald, 2012; McMahon et al., 2013). Data on resilience based factors specifically for suicidality is much less researched and so items rely more heavily on focus group data and constructs which are found in the general resilience literature. Based on constructs identified, a pool of over 100 items was created by the TCD research team which is available in Appendix C.

These items were compared to existing measures and also rated for clarity by the research team. Items which received the highest rating for clarity and meaning were selected for further review. The items were then submitted for expert review by the clinical team in Pieta House, a community based suicide and self harm crisis service. Based on collaborative feedback between TCD and Pieta House, the items were narrowed down to 46 self-report items for the initial RISKRES data collection.

Data collection on the first version of the RISKRES tool with an 'at-risk' sample took place in collaboration with Pieta House. Theory verification of the tool then moved into a more quantitative phase in Stage 2 of the research, as the psychometric properties of the items were explored through correlation with standardised items and exploratory factor analysis.

2.9 Methodological challenges

Selection of the participant groups presented a real challenge. The My World Study (Dooley & Fitzgerald, 2012) had difficulty getting permission from schools to ask under 17's about risk. The same issue has been noted by Robinson (et al. 2011) and Gould (et al. 2005), that there is a reluctance to ask about risk in educational settings, on the part of researchers, ethics committees, and schools. Additionally, screening large populations of young people comes with other logistical and ethical dilemmas. There are significant

pragmatic issues to be considered when implementing a screening procedure.

Considerations typically include sourcing adequate follow up care, assigning designated individuals in the school as mandated reporters, and determining the criteria for parental notification (Joe & Bryant, 2007). Gould et al. (2009) identifies that screening needs to be well planned systematically with a timely coordination to referral to other services if needed.

While recruiting a nonclinical student population and conducting subsequent safety interviews were initially considered by the research team, the level of resources and agency collaboration needed was thought to be outside the scope of the current project. It was decided to focus on development of a theoretical framework for the measure, to write the measure in conjunction with practitioners who would be administering it, and to pilot the measure with an ‘at risk’ sample of youth in a setting where there was an already established referral pathway. The notion of anonymous reporting in schools without parental notification of risk was also considered but it was felt this was not appropriate considering the setup of the current project. It was also felt by the research team that young people who had volunteered to access services in a suicide and self harm intervention service should be ready to speak about these concerns and thus potentially be more likely to respond truthfully to risk items.

An Irish Research Council New Foundations award supported the data collected during Stage 2 of the research and the ongoing collaboration between the research team and Pieta House.

2.10 Participants stage 2

The first version of the RISKRES was given to 146 adolescents and young adults ($M_{age} = 16.46$ years, age range: 11 - 22 years, median: 16 years, $SD = 2.41$) as part of their

assessment a suicide and self harm crisis service. All new clients accessing services in Pieta House between June and September 2015 in Dublin-based locations were given the option of participating in the research. The scale was administered as part of the assessment battery during the intake assessment. Due to pressures on time and resources of administering the measure, the collection was completed by the end of the summer of 2015. A total sampling procedure was used to maximise the potential sample size. As such, participants were not randomly selected for participation.

2.11 Ethical considerations

Stage 2 of the study received ethical approval from the Trinity College Dublin ethics committee (see Appendix A). Asking about suicidal risk is inherently sensitive and the population attending for assessment in Pieta house is a population of vulnerable young adults. Thus, significant consideration was given to ethics at this stage of data collection.

It is now widely accepted that asking about suicide is not harmful and this has been confirmed by RCT's on this topic (Gould et al., 2005; Crawford et al., 2011). The young people in this case were already undergoing a process of risk assessment in a suicide and self-harm focused specialised service. Therefore, it was not anticipated any distress would occur due to the proposed research which would not typically occur in the process of a clinical risk assessment in this setting. Additionally, it was felt that any distress incurred by being asked about risk would be outweighed by the potential benefits of more comprehensively identifying the individual's risk level and accompanying protective factors. Participants were service users in Pieta House before, during, and following the research. Therefore, they had ongoing access to psychological supports throughout the research process to mitigate any distress.

The information sheet and consent forms were provided by the Director of Child and Adolescent Services in Pieta House to the families and young people. The research was introduced during the assessment process by the Director of Services as per existing agency protocols for introducing research. The individual's choice to participate, consent, right to withdraw, and confidentiality were highlighted at this point. Participants were asked to consent for their data to be collected for both Pieta House audit purposes and for the current research. Both families and young people had to opt-in and consent to the research for the process to go forward in the case of under 18's. Pieta House staff worked closely with the TCD research team to ensure adherence to the research protocol (see Appendix B for Stage 2 Research pack).

Data storage complied with usual conventions in psychological research and relevant legislation outlined in Stage 1 above. Again, in this instance, each participant was assigned a code only known by the researcher. Particular attention was given to confidentiality and its limits with this participant group. Confidentiality and its limits were identified specifically on all research consent forms. This was clearly outlined to the participant by the Director of Child and Adolescent Services and was already in keeping with existing agency policy about the management of risk. The screening tool was administered in a psychological environment where confidentiality is the norm and assessors were experienced in working with distressed young people. As the identification of risk was deemed likely based on the participant group, participants were made aware that any identification of risk to self or others would be shared with the family (for under 18's) and with their treatment provider (s) (for all participants). All participants had been identified as having some level of risk prior to involvement in the research, based on the context and remit of the service.

All young people participating in the research were attending for an in depth risk assessment as per usual protocol in Pieta House on the same day as completing the screening tool. Thus, any risk identified by the research was immediately followed up and managed as per existing agency procedures on the same day as the research was conducted. Nevertheless, all participants were given extensive information on other services, including face to face services, hotlines, and online services they could use to avail of additional support.

2.12 Data collection stage 2

Information sheets on the research were provided to parents and young people over 18 for their consent. Participants were asked to complete the RISKRES, a self-report tool of 46 items. The items are statements chosen by the research team which represent concepts abstracted during the qualitative analysis. Items guided participants to endorse self report statements on the cognitive, emotional, skill based, and relational experiences associated with suicidality. The items were further rated and filtered down by the research team and by subject matter experts prior to their selection for the 46-item version. A detailed list of the larger pool of items and their origins generated prior to filtering down to the 46 is available in appendix C.

The initial 46-item version of the RISKRES includes 44 items which are rated by the participant. The items are self report statements rated on a 5-pt likert scale, which includes the following descriptors: 0 *'Not at all true for me'*; 1 *'Occasionally true for me'*; 2 *'Some-what true for me'*; 3 *'Pretty much true for me'*; 4 *'Very true for me'*. Scales designed for children and adolescents have been suggested to be most reliable when offering less than 7 response options (Borgers, Hox, & Sikkel, 2004), and with a label for each anchor of the scale (Kline, 2005). The descriptors for the RISKRES were

chosen to capture both frequency and intensity as anchors (Kline, 2005) for the experience listed. While Likert originally used the descriptors ‘*approve and disapprove*’ (Kline, 2005), these terms were not thought to best describe endorsement of the cognitive, emotional, skill based, and relational experiences captured on the measure. While the analysis of Likert scales has been contentious in relation to their status as ordinal vs. interval data amongst other issues, Likert scales are typical in the field of psychology to collect self report data. Additionally, some research exists which suggests Likert type scales do have categories of approximately equal intervals (Kline, 2005).

Other research has suggested that there is a lack of clarity surrounding the criteria a variable should meet in order to confer resilience, but that the variable should exist on a dimensional continuum (Johnson et al., 2011). Originally, none of the 44 self-report items included negative valence and thus no reverse scoring was necessary. Items with negative valence have been found to be problematic with populations not used to completing scales (Kline, 2005). Theoretically, there were also considerations around assuming a dimensional conceptualisation for the constructs. This will be dealt with in more detail in Chapter 3. In order to stabilise factor structure while shortening the scale, the initial decision not to have any reverse scored items was revisited for the shorter version of the RISKRES. This remains an ongoing issue and will be dealt with in the discussion.

In addition to the 44 self-report statements, the initial version of the RISKRES also included 2 suicide screening items. These items are dichotomous and require a yes/ no response. The two screening items are intended to tap different levels of suicidal ideation. The first item asks about ‘thinking seriously’ about ending one’s life, and the second item asks about ‘thinking about how’ to end one’s life. Thus, the first suicide ideation item asks about serious ideation and the second about ideation with thoughts

about a method. All items on the RISKRES are reported over a timeframe of the past 3 months. This time frame is consistent with other suicide risk screening methods (Scott et al., 2010).

Participants also completed the embedded SBQ-R and PHQ-9 as part of the research process. Maximum administration time of the RISKRES and PHQ-9 is 30 minutes. The administration of the tool was paper and pencil, although it is currently being adapted for completion on a device such as a iPad. While the tool is self report, it was completed collaboratively with the assessor due to the vulnerability of the population and greater congruence with the assessment process in the service. This approach is in keeping with an overall process aligned with a structured clinical judgement approach to risk assessment.

In addition to the first version of the RISKRES, the participants also completed a brief screener for depression, the Patient Health Questionnaire (PHQ-9) (Spitzer et al., 1999). The PHQ-9 consists of 9 items, which are aligned with DSM-5 diagnosis of depression. The items consist of a series of self-report statements tapping the symptoms of depression. Participants respond on a 4-pt Likert type scale. While there is also an adolescent version of the PHQ, the PHQ-A, the original PHQ-9 was chosen due to having more validation data at the time, which included adolescent age ranges. The PHQ-9 was originally created as part of the PRIME MD set of tools and are geared towards use in primary care and non-psychiatric settings (Gilbody et al., 2007). The PHQ-9 item 9 specifically is a self harm/ suicide ideation risk screening item. PHQ-9 item 9 has been shown in previous research to identify outpatients in primary care of increased risk for suicidal behaviour in the future (Simon et al., 2013), including adolescents.

The PHQ-9 has been shown to have good construct validity (sensitivity 92% and specificity 80%) (Gilbody et al. 2007) for depressive episodes and also indicates

subclinical depression for a broad range of ages in nonclinical and medical populations. Scoring for the PHQ-9 indicates levels of depressive symptoms as follows: 1 – 4 minimal; 5 – 9 mild; 10 – 14 moderate; 15 – 19 moderately severe; 20-27 severe (Kroenke & Spitzer, 2002). While there is some variation on the cut-off to indicate presence of clinically significant depression, Gilbody et al. (2007) confirm the author's suggestion of using a cut-point of 10, having examined 17 validation studies on the measure. The alpha coefficient for the current sample for the PHQ-9 was .73.

Participants also completed a brief standardised measure for suicidal behaviour, the Suicidal Behaviours Questionnaire, Revised version (SBQ-R) (Osman et al., 2001). The SBQ-R consists of 6 items, instructing participants to report on varying levels of past suicidal behaviour and intent to die. The SBQ-R has shown sensitivity levels of 93% and specificity of 91% (Osman et al. 2001). It has been used with both inpatient and nonclinical populations of adolescents and adults (Osman et al., 2001). Item 1 scores alone and total scores have been recommended for use in both clinical and non-clinical settings. There is precedent in the research literature for discriminating between groups using SBQ-R item 1 scores of 1 or 2 to indicate nonsuicidal and 3 or 4 to indicate suicidal participants (Osman et al., 2001). Cut-off's have been suggested at 7 for nonclinical populations and 8 for clinical populations based on the SBQ-R total score (Osman et al., 2001).

Demographic information was also collected from participants, including age, gender, and geographic location. Test administrators were asked to log any queries about items from the participants for future refining of the language of items. The rationale for this was to highlight for the research team any items which may have been unclear for young participants.

2.13 Data analysis stage 2

Participant data was coded and inputted into IBM SPSS statistics software version 23. Descriptive statistics analyses were initially carried out on the data. Initially, the distribution was examined visually for each individual item. Hypothesised correlations were also examined visually to make sure of a linear relationship between variables. Correlations were examined between the RISKRES total scale scores and the PHQ-9 total score. Individual risk item correlations were also examined between the RISKRES items and the PHQ-9 total score and item 9 score.

Exploratory factor analysis (EFA) was conducted to analyse dimensionality of the 46-item version of the tool. As the 46-item RISKRES was the first version piloted, an exploratory analysis was deemed more appropriate than a confirmatory analysis. Factor analysis was chosen over a principal components analysis due to its ability to account for common variance, unique variance, and error in the analysis (Kline, 2005; Costello & Osborne, 2005). Factor analysis aims to expose the relationships and patterns within the data and make them easier to interpret (Tabachnick & Fidell, 2007). The overall goal is to achieve the most parsimonious solution. The analysis also seeks to assess validity via examining internal structure between items. Based on a wide review of the literature on factor analytic techniques, it has been concluded that while there is relatively little guidance for beginning researchers using factor analysis, that the technique selected is important (Osborne & Costello, 2005). The authors (Osborne & Costello, 2005) contend that the data and literature supports the use of true factor analysis techniques, oblique rotations, and the use of scree plots to choose how many factors to retain.

EFA on the RISKRES involved a maximum likelihood factor analysis, using a direct oblim rotation with Kaiser normalization. Maximum likelihood is the only factor analysis procedure which provides an inferential statistic which indicates how well the resulting

solution represents the original correlations between the items (Kline, 2005). Therefore, there is an inbuilt quality check for the resulting solution. Maximum likelihood is also thought to be the most generalizable and reproduceable as it does not inflate the variance estimates (Osborne & Costello, 2005). The oblim rotation allows for correlations between constructs which was thought to be theoretically more realistic by the research team. Using an oblique rotation like direct oblim makes for a more complicated analysis, but correlations between factors were thought to be more realistic and likely. Missing data was dealt with during the analyses with pair wise deletion, with the exception of the factor analysis, which was run with listwise deletion.

The sample size is on the low end for an exploratory factor analysis. Many authors have hypothesized on sample sizes for factor analysis, with estimates ranging from a minimum of 100 people to individual to item ratios of 2:1, 10:1, up to 20:1 and more. In a review on best practice in factor analysis, Osborne & Costello (2005) recommend a minimum of 20:1 and testing with multiple samples to get an accurate factor structure, which is greater than the common practice of 10:1 (Kline, 2005). Finding young people in the population at risk for suicidality and who were in a setting where there were adequate resources for follow up for all research participants without putting an unrealistic burden on the research team was a real challenge. As a result, the sample is fewer than would be optimal for an exploratory analysis.

Internal consistency reliability was examined through Cronbach's (1951) alpha. This is perhaps the most common of all indices of internal consistency (Kline, 2005). Alphas were computed separately for the risk and resilience subscales as they measure potentially opposing constructs. Both initial alphas and alphas based on the shortened version of the tool are presented below.

Inter-item correlations were examined for both the risk and resilience subscales, to further determine internal consistency reliability. Based on inter-item correlations, item-total correlations, and problems with communalities, 12 items were deleted during initial item analysis. Based on the opinion of subject matter experts administering the tool, an additional 6 items were dropped to shorten the measure and give is a 50/50 spread of positively and negatively biased items. Thus, examination of the inter-item correlations in addition to feedback from agencies that the tool was too long, lead to items being removed from the tool and the generation of a second 29-item version of the tool for a further quantitative data collection.

A second exploratory factor analysis was run with the 29 items for the ‘at risk’ sample to explore dimensionality of the second and shortened version of the tool and is presented below. Inter-item correlations were calculated between the risk items on the shortened 2nd version of the RISKRES and the PHQ-9 item 9 to determine construct validity, and also overall PHQ-9 scores to look at concurrent validity and discriminant validity.

A binary logistic regression was run, using the variables from the EFA and two outcome variables, the suicide screening items. An additional multiple linear regression was also run with the variables from the EFA with the PHQ-9 item 9 as the outcome variable. Assumptions for these tests and the results are presented in Chapter 4.

2.14 Reliability and validity

Establishing psychometric properties, including the reliability and validity of the screening tool is a main aim of the study. It has been suggested that there are 5 potential sources of evidence for evaluating construct validity (Cook & Beckman, 2006):

1. Content – the construct represents what the test intends to measure; In this case, the draft theoretical model and RISKRES items have been examined by the research team, participants from the original focus groups, and subjected to expert review in a suicide and self harm crisis service and feedback taken into account.
2. Response process – the actions and thought processes of the test takers or observers have been taken into account; In this case, assessors administering the RISKRES for the initial sample were asked to note any queries on the paper copies. General feedback was also sought from the service and incorporated into the measure development.
3. Internal structure reliability and dimensionality – scores thought to measure one construct should be homogeneous and scores thought to measure multiple constructs should show heterogeneous patterns as predicted by their theoretical relationships; The initial 46 items on the RISKRES were examined in terms of their internal consistency reliability, inter-item correlations, item-total correlations and were also subjected to factor analysis. The results of the analyses are dealt with in detail in the next section.
4. Relationships to other variables – correlations with other measures where expected; In this case, the RISKRES Depression/ desperation subscale was compared with the PHQ-9 total score and item 9 score. The relationship between the resilience scale on the RISKRES was also examined in relation to the risk scale and the PHQ-9 total score.
5. Consequences – looking for unexpected bias, making decisions about cut-off scores; In the case of the RISKRES, the validation of the measure is ongoing and constant monitoring of consequences is necessary. The establishment of cut-offs is a work in progress.

Reliability and validity of the already established measures administered to the participants have been dealt with in the sections above. In relation to the RISKRES, similarly to Cook & Beckman's (2006) assertion, the validation of the measure is an

evolving and ongoing process with the aim of determining its validity. Further details on factor structure, internal consistency reliability, concurrent and discriminant validity, sensitivity (identifying those with SI correctly), and specificity (identifying those with no SI correctly), and positive predictive value , are all examined and detailed in the results section. Development of the tool at this stage is still exploratory and the current project presents the initial theoretical and item development, including validation of the RISKRES and its subscales.

Analysis and Results Stage 1

3.1 Introduction and summary of analysis

Eighteen participants attended 4 focus groups facilitated by the principal investigator between 2013 and 2015. Focus group data was audio recorded and transcribed verbatim. Focus group transcripts were analysed using grounded theory methodology. The analysis was completed through initially line by line (open) coding (Strauss & Corbin, 1990), which involves identifying units from the transcript, followed by axial (theoretical) coding (Strauss & Corbin, 1990) where the text is not viewed descriptively, but is linked into a more analytical and conceptual framework. The following tenets guided the process: constant comparison, theoretical questioning, theoretical sampling, concept development, and hypothesising relationships between concepts (Strauss & Corbin, 1994). The analysis built in several safeguards to enhance validity, including eliciting feedback from focus group participants and other subject matter experts on the emerging theory to check for 'fit' (Glaser & Strauss, 1967; Weed, 2009). The analysis appears below, through visual diagram and narrative form. Numerical analysis is not preferred to capture the patterns in the dialogue in focus groups (Grudens-Schuck et al., 2005).

The development of the substantive theory diagram is an ongoing and iterative process. Concurrently with this process the analysis and literature review were ongoing; tentative findings from the grounded theory analysis were presented at the annual PSI conference in 2014. Feedback was elicited, further sampling was undertaken, and the theory further refined. Following focus group 4, the research team created a pool of over 100 potential items for the pilot version of the RISKRES. Items were rated by the research team for construct validity and clarity in language, and by subject matter experts at a suicide and self harm crisis service. The item pool was reduced down to 46 items for the first quantitative data collection, which is presented in the next chapter.

The analysis presented below emphasises the dynamic and interactional processes as per Straussian grounded theory (1990, 1994) and to generate a psychological theory of resilience to suicidality during adolescence.

3.2 Inductively developed hierarchy/ map of theory

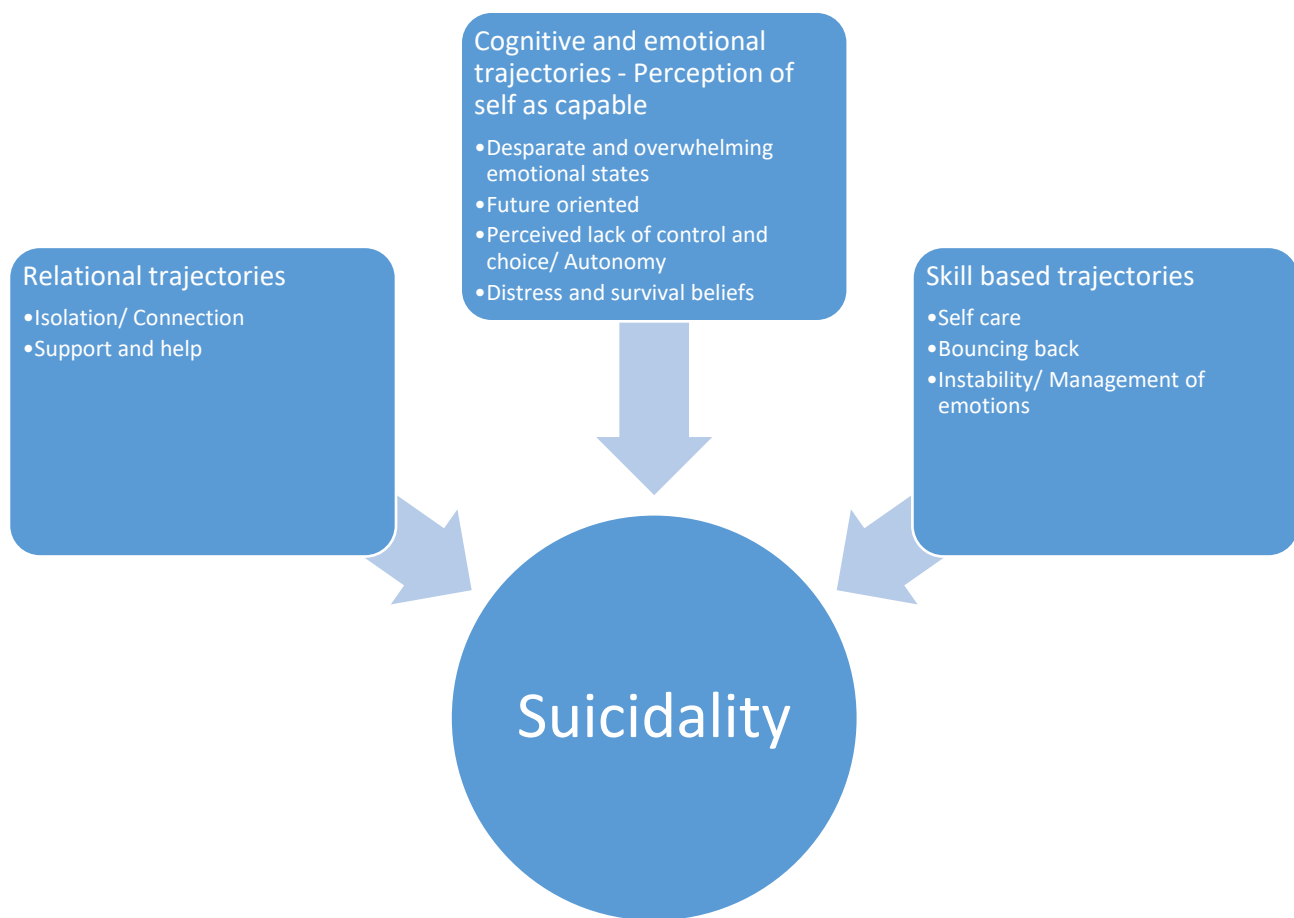


Figure 1. Theory diagram of three major categories generated during the analysis

Dynamic psychological factors are presented above, to be seen in conjunction with historical static, social and environmental static, and more proximal warning signs.

3.3 Major categories

Three major categories were generated during the analysis: 1) Relational trajectories, 2) Cognitive and emotional trajectories, and 3) Skill based trajectories. The three major categories are hypothesised as theoretically inter-related and contributing to the emergence of or protection against suicidality. The 3 major categories are hypothetically held together through their relationship to the core category: Perception of the self as capable. The analysis presented below includes quotations from the focus group participants to capture how the theory has been ‘grounded’ in the narratives. Narratives are based on clinicians’ observations of their clients who were in suicidal crisis or alternatively in the case of group 3, clients who had experienced suicide in their immediate circle. Findings are presented as major categories which are all related to the core category (Strauss & Corbin, 1990). As per Straussian grounded theory, the analysis has been abstracted to emphasise the core category. For pragmatic purposes, theoretical concepts (Glaser, 2012) relating to each category presented have been retained as part of the analysis and are expanded on below.

Relational trajectories and concepts.

Table 3

Theoretical concepts leading to category of relational trajectories

Isolation – alone, alienated, alone with despair, poor communication, isolated from family, isolated from peers, feeling alone even around others, disconnected from others

Limited support/ help – poor resources in family, no help available, low support seeking, not emotionally connected to others

Connection – sense of being loved, feeling validated by others, feeling understood by others, ‘one good adult’, bonding, parent-family connectedness, perceived school connectedness, early nurture, safe place with others, community connection, secure attachment, close bonding

Support/ help – having a ‘confidant’, friend to talk to, family support being able to share problems, being able to express feelings to others, feeling validated, normalising feelings, encouragement to find resources in the self, not being afraid to seek help, not being ashamed to seek help

Participants in all 4 focus groups reported relational trajectories as contributing towards suicidal risk. Participants described client cases where clients felt *isolation* and reported feeling completely alone, alienated, and disconnected from others.

‘...that feeling of being disconnected, people describing it like being a white dot on a black background. Just not feeling connected in the world.’ (Group 4)

In reflecting on their experiences with suicidal clients, participants described client *isolation* in numerous contexts, including family and with peers. ‘Or even isolation with peers like that feeling like you’re alone, like nobody gets what you’re thinking or feeling, feel like you’re on the outside of what’s going on.’ (Group 3) In addition to feelings of disconnection and being alone, participants also reported that young clients at risk frequently report being *isolated* with *desperate emotional states*. Clinicians described conversations with young people whereby the young person reported feeling alone with *despair*, feeling alone even around others, and alienated as contributing towards suicidal risk.

Clinicians also reported that the clients often felt there was *limited support or help* to deal with problems. One practitioner from Group 2 described a typical experience whereby it might take a while for a young person to disclose something significant that has never been talked about before with anyone, ‘*your friend doesn't know and your mom doesn't know, and they say no, they are so afraid to tell somebody so I guess there is nobody in their life at the moment who they can tell something that's important.*’ (Group 2) Clinicians described dynamics with risk cases whereby there were poor resources in the family and no help available. They detailed situations where there was no climate of

support seeking within the family or peer group, and it seemed like there were no avenues for young people at risk to deal with the feelings and problems. '*...that feeling that 'Even if I tell my mom or dad, they can't help me' so usually they don't tell anybody.*' (Group 2)

Conversely, participants described an emotional connection with at least one other person to help to garner resilience, even in the face of difficult circumstances. Clinicians noted clients in crisis especially value the *connection* with others. They spoke about client experiences feeling loved. These *relational* experiences included feeling validated, feeling understood, and feeling safe and secure with another person as protective, even in the face of serious risk. '*...if you ask someone what stops them from doing it, they often say a sense that someone loves them*' (Group 1). *Connections* with and obligations to other people were also cited by clinicians in group 4 as an immediate protective factor when considering suicidality: '*do you ever think about killing yourself? No because I couldn't leave so and so..*' (Group 4)

Practitioners in all 4 groups also felt a strong network providing *support/help* could be protective. '*a good strong family unit with a good supportive system relational system...Connection to school, the support system in school.*' (Group 3) Clinicians referenced clients valuing having a 'confidant' or friend to talk to and being able to express feelings to others like friends and family. They reported processes whereby clients felt their feelings were normalised, and where they were further encouraged and supported. They also noted the importance for vulnerable clients of being able to seek help without feeling ashamed as particularly helpful '*help seeking behaviour, being able to ask and know how to do that and not feel ashamed or afraid*' (Group 3).

Clinicians in Group 3 reported schools can be places of *connection* and combat *isolation*, particularly when suicidal tragedies have occurred in the community and risk is heightened. '*...things have happened the school puts in place a space for the kids to*

come together to be together, I mean that's massively important, hugely important for them, otherwise they're isolated.' (Group 3)

Cognitive and Emotional trajectories and concepts. In addition to relational trajectories towards suicidality, clinicians also spoke of both cognitive and emotional processes as contributing towards suicidal risk. While the three major categories are presented as distinct in the diagram above, in reality there is an overlap between them, with both relational and skill based processes interacting with cognitive and emotional processes.

Table 4

Theoretical concepts leading to cognitive and emotional trajectories

Perception of the self as capable (core category)

Desperate – hopelessness, depression, inability to visualise future, rigid thinking, unhappy, irritability, withdrawal, psychological distress, pain

Overwhelm - – limited anger control, poor coping skills, feeling overwhelmed, overwhelmed by life experiences, anxiety, feeling unsafe, , perceived 'serious problems'

Perceived lack of control/ choice – lack of awareness about opportunities, lack of awareness of skills, limited problem solving, passivity

Autonomy – awareness of choice, choosing valued actions, choosing enjoyable actions, internal locus of control, being in control of your own life, independent

Openness – flexible thinking, willing to take healthy risks, seeing opportunities, being open to good things happening again

Transient nature of distress – allowing 'things to pass', recognising transient nature of feelings/ problems, 'this isn't permanent', getting through bad experiences

Self Efficacy and survival beliefs – belief in abilities, sense of achievement, mastering patterns, feeling capable, seeing self as a survivor, awareness of past resilience, able to access previous coping, recognising they have coped before

Future oriented – hopeful, optimistic, ability to identify positives, hopeful, vision of future

Sense of self – lack of integrated self, ‘there must be something wrong with me’

When reflecting on cases with suicidal clients, clinicians described *desperate* and *overwhelming emotional states*. Throughout the course of the groups, clinicians described clients who were struggling with upsetting and painful feelings. They noted hopelessness, helplessness, depression, anxiety, and feeling unsafe as part of a *desperate or overwhelmed emotional state*. ‘*hopelessness, desperation, isolation ...*’ (Group 1). Clinicians also described an interaction whereby clients at risk were struggling with these distressing emotional states in heightened states of risk, without coping skills or others to help them. ‘*...a sense of hopelessness and the person feels isolated with hopelessness, there is no kind of hope or anything to look forward to in the future*’ (Group 2)

Practitioners spoke about young clients not being able to see their way out of a difficult issue, particularly in the context of rigid thinking, as something potentially contributing towards risk: ‘*going back to that idea of a permanent solution to a transient problem and going back to can they see a way out of it?*’ (Group 2). A significant dialogue in 3 separate groups focused on the episodic or *transient nature of distress*, and the awareness of that on the client’s part as potentially increasing or decreasing risk. Participants reported that resilient clients will recognize that feelings are impermanent: ‘*I do enjoy that and I know I will feel that again when this moves because this will move whatever this feeling is.*’ (Group 3) This was described as a cognitive process of learned experience resulting in knowledge that feelings will change. Clinicians described clients who might be in heightened distress, but had the recognition that *feelings are temporary*, and that things could be better again in *the future* as protective. ‘*...the idea of having bad*

things happen or bad experiences but still remaining optimistic and hopeful, that this isn't permanent. That idea of not being rigid, being flexible, being a little more open to good things happening again ...' (Group 4).

Conversely, clinicians in group 2 described a construct of cognitive inflexibility which one participant described as 'blinker thinking'. This constricted thinking was hypothesised as leading to a *perception* there is *no way to change or control* a situation. *'There is no sense of the broadness, so I think it is very easy to find yourself in this nothing will ever change sort of place if the mindset is quite blinkered'* (Group 2). This sentiment was echoed by another clinician, who also linked rigidity in thinking to a *lack of perceived control or choice* as a risk factor. *'Poor problem solving, black and white thinking. It can cause people to think they have very little control in their life.'* (Group 2)

As an alternative to the cognitive rigidity and *perceived lack of control*, clinicians described protective factors as flexible thinking, being willing to take healthy risks, seeing opportunities, and being open to good things happening again. Further clinician accounts also described cognitive processes of resilient clients as translating cognitive processes into actions. Practitioners in Group 3 described proactivity as protective. Practitioners described coping processes, including as ability to take an action to try to shift a situation and exercise the young person's *autonomy*. Clinicians described moment to moment processes such as choosing to do something to shift a feeling state: *'...also you taking an action yourself can help you in that moment change how you're feeling and move from it in some way, I think that's quite empowering. Taking an action of some sort.'* (Group 3) One clinician described a more long term process she had observed take place by helping clients to be more proactive and *autonomous* and act in accordance with their own values. *'if we keep things focused on themselves they realise that the pain they are in can change if they attach actions to their values'* (Group 1)

Clinicians noted the importance of thinking processes as being particularly important during distress and cited those that are *future oriented* are more able to cope with difficulties. Again, practitioners cited cognitive processes as helpful, such as maintaining hope, being optimistic, having the ability to identify positives, and having a vision of the future. *'I think the other thing is instilling a sense of hope. Basically, the opposite of what ... said earlier about the factors which are problematic, if you can instill a sense of hope, having a vision for the future.'* (Group 2)

Part of the dialogue in all 4 groups was a contemplation of how best to help individuals at risk to attain the knowledge and skill to deal with difficult circumstances. Clinicians emphasised their aims in this area with vulnerable clients often include allowing 'things to pass', recognising *transient nature of feelings/* problems, instilling an attitude of 'this isn't permanent', getting through bad experiences, and also instilling a *future orientation*.

Clinicians in all 4 groups particularly noted that getting through extreme distress could involve an awareness that difficult things had been dealt with before. They described observing processes in resilient clients which included *beliefs in self efficacy and survival*. Clinicians described clients' belief in their abilities as important and protective. Practitioners described the importance of young people feeling *capable* to perform tasks. *'having experiences of success that something you do has an impact and ideally you end up feeling good about that or that I did something good and that ended up with this and that's good... effective yes.'* (Group 4) This could occur by having a sense of achievement relating to dealing effectively with day to day tasks and stressors: *'school work is important as well because they can feel achievement if they can keep up with the class so that is something.'* (Group 2)

In addition to beliefs they were *capable and effective* at life stage tasks, clinicians also referenced young peoples' *beliefs* in their abilities to actually cope with heightened *distress* itself and even to *survive* it. Clinicians reported resilient clients can acknowledge distress while also seeing the self as a *survivor*. All groups described this as an awareness of past resilience, an ability to access previous coping, or recognising they have coped before: *'so I managed to live through this and I survived so now also it's very crap, but I know and I can link it and I can say I can probably survive it so it has very little to do with education, but I'm talking about learning from your own experience.'* (Group 2)

Throughout the dialogues, participants referenced complex and dynamic processes including the regulation of cognition and emotion at times of heightened distress. Regulating cognitive and emotional sequelae related to risk depend were described as not only related to belief, but also to skill, which is covered in more detail below. This complex and multidimensional interaction was captured succinctly by one participant in Group 3, who eloquently summed up a potential relationship between the constructs addressed above, feeding into an overarching *perception of the self as capable*: *'Feeling capable. If you don't feel capable of managing your feelings (you) get overwhelmed. People who get overwhelmed with their feelings are not going to feel resilient.'* (Group 3)

Skill based trajectories and concepts.

Table 5

Theoretical concepts leading to skill based trajectories

Limited self care - Poor care for body, low body protection

Self care - choosing activities that promote wellness, proactive self care, choosing enjoyable activities

healthy sleep and diet

Avoidant coping

Instability – impulsivity, Reckless actions, emotional urgency, chaotic interpersonal relationships

Emotional regulation – identifying coping resources, having strategies to manage feelings, can feel positive emotion despite distress, recognising range of feelings, feeling capable to manage feelings

Measured – (not impulsive)

Bouncing back from difficulties

Participants described abilities and skills as helping to deal with the management of some of the difficult cognitive and emotional trajectories listed above. Clinicians described clients who use proactive processes for *self care* as protective against risk. They described clients who choose activities that promote wellness, such as choosing enjoyable activities, choosing healthy activities, and making efforts with sleep and diet as helpful. *‘if they have sports or hobbies that they can do, those kinds of things can sometimes get you through.’* (Group 4)

Clinicians noted having practical activities are helpful and also developing or changing self care strategies as protective for clients, such as communicating differently, taking up a hobby, or spending more time with others. *‘Having a skill, is it yes master, whatever it is, maybe a communication skill, or a hobby, time with friends’* (Group 2)

A barrier to managing risk which was mentioned in all 4 groups was a climate of *instability*, which was mentioned in the context of the family unit not having skills to deal with problems: *'And also about lack of, how to deal with crisis. so there's no sort of formula if this happens this is what we do if this happens we are going into crisis so they themselves fall into that.'* (Group 4) Practitioners described family based patterns of *instability*, including impulsivity, reckless actions, emotional urgency, and chaotic interpersonal relationships.

Another barrier to mastering regulatory skills noted by practitioners in Group 4 was *avoidance*: *'in the emotional world if you find something hot actually what you need to do is you need to get yourself into a place where you can feel it look at it come back to it retouch it work it through don't just put it off and say I'm never going back there again.'* (Group 4).

In addition to the development of practical skills for managing during heightened difficulty, practitioners also referenced the development of regulatory skills, which feeds into the overarching *sense of the self as capable*. Management of emotional trajectories, particularly recognizing the *transient nature of distress*, was described not only as a belief or an insight, but also as a skill that can be developed and applied. The application of this learned experiential knowledge was described in Group 3 as a skill that not all young clients would have attained. *'...people are often not always aware that it's a bit like a wave that a feeling rises and peaks and then goes away.'* (Group 3) Managing emotional processes effectively was touched on in all 4 of the groups as a skill related to the *perception of the self as capable and able to survive*: *'...or to try and manage that feeling when it comes'* (Group 3).

Self efficacy and survival beliefs as noted in detail above can also be regarded as a 'thinking skill', which can be developed. *'...sometimes someone is going through very*

difficult and sometimes you can help them to say that they used to have resilience and maybe you can help them to build on it so the types of situations from the past where you have solved it and you know because they have come so far, that they have solved so many different problems.' (Group 2). Retention of this knowledge is hypothesised to help the person realise through their own experiences that they have previously been able to bounce back. *'feeling your mastery, that you were able to bounce back from it. That it hasn't destroyed you.'* (Group 4).

3.4 Static Factors

While the current analysis focused primarily on identifying modifiable, psychological factors, a number of other factors were identified by focus group participants.

Historical static factors. Factors identified during the focus groups: Self suicide attempts; Self self harm; History of violence/ criminality; Mental health issues; Medical issues, physical pain; Access to medical care; Access to mental health care; Tough 'hardy personality; History of trauma/ abuse

Situational/ environmental static factors. Community support; Exposure to suicide behaviour; Positive modelling; Exposure to self harm; Abstinence from drugs; Drug and alcohol abuse; Criminality/ legal problems; Financial problems; Unstable accommodation; Bullying; Problems in school; Inconsistent parenting; Blended families; Access to firearms; Family dysfunction

Family history and exposure to suicidal behaviour was referenced in all 4 groups. Interestingly, practitioners spoke about exposure to self harm or suicidal behaviour of others as both conferring risk and being protective, dependent on the context and the meaning for the individual. *'I've met it in clinical experience as both. A feeling of he*

killed himself, that was a way out, I could do the same. So where there was familial history of abuse... an option definitely in self harm. In self harm, a history of peer groups or whatever of being this is a way to cope but I've also met it as I could never do that because its left our family destroyed because he did it.' (Group 4)

3.5 Relationship between constructs within categories

While the three major categories are presented as distinct in the diagram above, in reality there is significant overlap between them. The current theory diagram hypothesises that both relational and skill based trajectories feed into cognitive and emotional trajectories as the core category: Perception of the self as capable. A variant of this discussion occurred in all 4 groups with participants referencing clients' struggle to cope with their pain and distress in a context of feeling isolated or connected, and with the internal abilities to manage that distress (or not) dependent on their beliefs about distress, efficacy, survival, and the skills for coping through adversity.

The current hypothesis proposed 3 inter-related psychological trajectories leading to the emergence of suicidality. All 3 major categories have been retained as they have all contributed towards the development of the measure. There is a degree of doubt on the part of the researcher as to whether cognitive/ emotional and skills based categories really represent separate constructs or whether they should be blended together. In fact, there is some degree of doubt as to whether self and other-related perceptions should indicate separate constructs at all or whether all three are part of an overall construct of resilience? This dilemma will be returned to in Chapter 5 where the conceptual framework for the proposed model of psychological resilience to suicidality will be examined in light of the existing literature and in light of the factor analysis results.

Analysis and Results Stage 2

4.1 Introduction and summary of analysis

Items for the original 46-item version of the RISKRES were generated through an in depth process of development and selection as detailed above. This chapter details the initial psychometric validation of the 46-item RISKRES. The exploration and examination of its properties in relation to normality, internal consistency reliability, initial factor structure, and overall construct validity were examined. An initial EFA and subsequent regression analysis were conducted by the research team. Based on reliability analyses and feedback from subject matter experts, the RISKRES was shortened to a 29-item version with no positive or negative bias in the item wording. Provisional factor structure and regression analyses with the 29-item version are presented below. All analyses were conducted with IBM SPSS statistics software version 23. Missing data was dealt with generally during the analysis by pair wise deletion, with the exception of the factor analysis, which was run with listwise deletion.

4.2 Descriptive statistics

The first version of the RISKRES (46-item) was given to 146 adolescents and young adults ($M_{age} = 16.46$ years, age range: 11 - 22 years, median: 16 years, $SD = 2.41$) as part of their assessment at a suicide and self harm crisis service. During the process, they also completed the PHQ-9, the SBQ-R, and the Pieta House standard assessment. As such, this sample was a clinical sample of individuals presenting with potential indicators of risk who were seen in a community setting.

Table 6

Distribution by age for 'at risk' sample (N = 143)

Age in years	Frequency	Percent
11	1	.7
12	4	2.7
13	8	5.5
14	20	13.7
15	22	15.1
16	23	15.8
17	17	11.6
18	19	13.0
19	8	5.5
20	12	8.2
21	8	5.5
22	1	.7

Table 7

Response to PHQ-9 item 9 risk screening item (N = 142)

Thoughts that you would be better off dead or hurting yourself in some way	Frequency	Percent
Not at all	19	13.0
Several days	45	30.8
More than half the days	52	35.6
Nearly every day	26	17.8

It can be seen from Table 7 that only 13% of the sample reported a negative response to the PHQ-9 risk screening item 9 indicating no thoughts of a passive death wish, self harm, or suicidal ideation. The majority of the sample reported either several days over the last 2 weeks of experiencing a passive death wish, thoughts of self harm or suicidal

ideation, or more than half the days of experiencing a passive death wish, thoughts of self harm, or suicidal ideation.

On the RISKRES screening items, which required a dichotomous (yes/ no) endorsement of statements on ‘serious’ suicidal ideation and suicidal thoughts + method, 40.4% of the participants endorsed an affirmative response to having serious suicidal ideation, while 56.2% endorsed a negative response to this screening item ($N = 141$). For the screening item asking about suicidal thoughts + method, 58.2% of the participants endorsed an affirmative response to having suicidal thoughts + method, while 38.4% endorsed a negative response to the screening item ($N = 141$).

Initially, the distribution for each item on the RISKRES was examined visually by viewing a histogram with an imposed normal curve. Each item was also examined for skewness and kurtosis. Values of skewness and kurtosis are ideally approaching zero with a normal distribution. For a sample size of 146 participants, skew and kurtosis values should not exceed the range outside of -2 to 2. Two items showed values outside this range. The items represented worries about sexual orientation (Kurtosis 2.7) and worrying (Skew -2.2 and Kurtosis 4.3). Of the two items with questionable distribution, they were retained initially. The sexual orientation item was removed later on in the analysis due to other issues identified with internal consistency detailed below.

The range of skew and kurtosis for total scale scores for the PHQ-9, the RISKRES risk scale, and the RISKRES resilience scale were all within values of -1 to 1. The data appeared to have a normal distribution based on visual inspection of the histogram. However, the PHQ-9 and RISKRES risk scale scores failed the tests for normality. They were both significant on the Kolmogorov Smirnov statistic and the Shapiro Wilk statistic, while the RISKRES resilience scale score showed normal distribution, with values of .2 and .673, respectively. Apparently, this is common for larger samples to fail tests of

normality. Hypothesised correlations were also examined visually on a scatterplot to make sure of a linear relationship between variables. Following exploration of the properties of the data, the following calculations were all conducted to establish preliminary psychometric properties of the tool.

4.3 Internal consistency reliability

Internal consistency reliability for the 46-item RISKRES was examined through Cronbach's (1951) alpha. In the initial version of the 46-item RISKRES, there are 29 risk items, all with positive valence. The Cronbach alpha coefficient for these items was .87. Alpha levels can range from 0 to 1, and values over .7 are generally indicated to ensure good internal consistency reliability. This indicates good internal consistency reliability for this subset of items.

The initial version of the 46-item of the RISKRES includes 15 resilience items, again all with positive valence. The Cronbach alpha coefficient for these items was .79. Again, this indicates good internal consistency reliability for this subset of items. While the alpha is relatively lower for this subset of items, it is important to note that the number of items is included in the calculation (Kline, 2005) so this statistic is effected as item numbers are shortened.

Tavakol & Dennek (2011) suggest that while higher alphas are usually considered better, that measures with alpha coefficients over .9 could be redundant and would likely benefit from being shortened. The coefficient alphas listed are for the overall scales, which likely include constructs which are multidimensional. Since brevity of the instrument is a main aim, the alpha levels are optimal.

4.4 Validity 46-item RISKRES

Table 8

Mean, Standard deviation, and participant numbers for PHQ-9 and RISKRES scales

Scale	Mean	SD	N
PHQ9 total score	16.78	5.27	141
RISKRES total risk score	70.53	18.35	131
RISKRES total resilience score	29.08	9.58	135

The relationships between the total scores on the RISKRES risk scale, the RISKRES resilience scale, and a standardised screener for depression (PHQ-9) were investigated to establish construct validity. Preliminary exploration of the data was performed to ensure there were no issues with normality, linearity, and homoscedasticity. There were no issues with the presence of linear relationships based on the scatterplot. Due to the data from 2 of the scales violating the tests for normality, both parametric and nonparametric tests were run. The results were similar, both resulting in moderate to high correlations between variables. Due to the issues of distribution and the ability of Spearman's rho to better accommodate ordinal data, the non-parametric correlations are presented here. Cohen's (1988) guidelines for interpreting correlations were used: Small $<.3$, moderate, $.3 - .49$, high, $> .5$

Table 9

Correlations between PHQ-9, RISKRES risk scale and RISKRES resilience scale using Spearman's Rho (r_s)

Scale	PHQ9 total score	RISKRES total risk score	RISKRES total resilience score
PHQ9 total score	---	.62**	-.39**
RISKRES total risk score		---	-.42**
RISKRES total resilience score			---

** . Correlation is significant at the 0.01 level (2-tailed).

There was a directional hypothesis but considering this was a first administration of the RISKRES, a two-tailed test was run. As expected, there were significant and high correlations between the risk scale of the RISKRES and the PHQ-9 total score, $r_s = .62$, $N = 129$, $p < .001$. There were significant moderate negative correlations between the RISKRES resilience scale total score and the PHQ-9 total score, $r_s = -.39$, $N = 133$, $p < .001$. There was also a significant, moderate negative correlation between the RISKRES total risk scale score and the RISKRES total resilience scale score, $r_s = -.42$, $N = 129$, $p < .001$. As expected, there was a strong positive relationship between the RISKRES risk total scores and higher levels of depression. There was a negative relationship between RISKRES resilience scores and depression, indicating higher levels of resilience was associated with lower levels of depression. Also as expected, there was an inverse, statistically significant and moderate level of relationship between the RISKRES risk scale and the RISKRES resilience scale.

4.5 Dimensionality 46-item RISKRES

Exploratory factor analysis was conducted by the research team to analyse dimensionality of the 46-item version of the tool. EFA involved a maximum likelihood factor analysis, using a direct oblim rotation with Kaiser normalization. Factor analysis

on the 46-item version was conducted by the primary researcher in collaboration with the research team and has already been reported on as part of 2 Master's research projects. Details of the analyses can be found elsewhere (Morgan & Trimble, 2015; Clarke & Trimble, 2016). Factor loadings for the EFA with the 46-item RISKRES can be found in Appendix D

No items were deleted from the EFA as part of the original analysis (Morgan & Trimble, 2015; Clarke & Trimble, 2016) but it should be noted that the original analysis included a communality greater than one and thus should be interpreted with caution. The original solution also suggested the retention of 13 factors, which seemed to be an overestimation. Costello & Osborne (2005) suggest that eigenvalue estimates often retain too many factors.

4.6 Regression model 46-item RISKRES

A number of regression models were run during the analysis to answer to examine the following issues:

1. to determine whether the variables comprising the risk and resilience scales were potential predictors for the RISKRES screening items measuring different types of suicidal ideation;
2. to compare any differences in prediction between the 46-item vs. the 29-item versions of the RISKRES;
3. to determine whether the variables on the risk only scale would predict suicidal ideation accurately alone or be influenced by the combined risk and resilience variables;

4. to determine whether the models showed similar results depending on whether the outcome variable for suicidality was measured using a dichotomous or continuous outcome variable;
5. to give preliminary estimates of sensitivity and specificity, and positive predictive value for the risk and resilience factor models;
6. to give an indication of whether the risk and resilience variables could predict suicidal ideation even if the suicide ideation screening items were not used as part of the measure.

First, following the EFA of the original 46-item RISKRES, a binary logistic regression was run, using the 13 factors from the EFA as independent variables with two outcome variables, the suicide screening items. This regression was run to investigate whether, and to what extent, the independent variables would predict the dependent variable, the suicide ideation outcome. The two screening items represent different levels of suicidal thinking, one a binary endorsement of ‘thinking seriously about ending one’s life’, representing serious ideation and the other a binary endorsement of ‘thinking about how to end one’s life’, representing suicidal ideation + thoughts about a method. Thus, the regression was performed to assess the impact the hypothesised factors would have on both outcome variables of suicidality. Both models contained 13 variables, the 13 factors derived from the EFA (Shame/self loathing; Hopelessness; Isolation; Heightened state; Resilience; Connection; Coping with events; Avoidant coping; Investment; Perceived control; School connection; Survival beliefs; Anxiety/impulsivity).

For the outcome variable of ideation with thoughts about a method, the full model containing all predictors was statistically significant, $\chi^2 (13, N = 128) = 36.88, p < .001$, indicating that the model was able to distinguish between respondents who did and who did not report suicidal ideation with thoughts about a method. The Hosmer-Lemeshow goodness of fit test was not significant. This indicates that there is support for good fit of

the model as a Hosmer Lemeshow chi-square of less than .05 indicates poor fit (Pallant, 2016). In this case, the significance level is .78, well over the recommended value. The model as a whole explained between 25% (Cox and Snell R square) and 33.7% (Nagelkerke R square) of the variance and correctly classified 74.2% of cases. As can be seen from Table 10 , four of the independent variables made a unique and statistically significant contribution to the overall model (Isolation, Heightened state, Resilience, and Survival beliefs).

Table 10

Logistic Regression analysis of 13 factors on 46-item RISKRES with suicidal thoughts + method outcome

Factor	<i>B</i>	<i>S.E.</i>	Wald	<i>df</i>	<i>p</i>	<i>Exp (B)</i>	95% CI for Odds Ratio	
							Lower	Upper
Shame/ self loathing	-.067	.243	.077	1	.782	.935	.581	1.505
Hopelessness	.126	.272	.213	1	.644	1.134	.665	1.934
Isolation	-.535	.259	4.275	1	.039	.585	.352	.973
Heightened state	.780	.315	6.137	1	.013	2.180	1.177	4.040
Resilience	-.749	.294	6.490	1	.011	.473	.266	.841
Connection	-.276	.280	.970	1	.325	.759	.439	1.314
Coping with events	.150	.261	.331	1	.565	1.162	.696	1.940
Avoidant	.349	.270	1.672	1	.196	1.417	.835	2.404
Investment	.429	.289	2.204	1	.138	1.536	.872	2.705
Perceived control	-.128	.281	.207	1	.649	.880	.508	1.526
School connection	.270	.273	.983	1	.321	1.310	.768	2.236
Survival beliefs	-.669	.280	5.713	1	.017	.512	.296	.887
Anxiety/ impulsivity	-.072	.300	.058	1	.809	.930	.517	1.674
Constant	.339	.210	2.617	1	.106	1.404		

For the outcome variable of suicidal ideation + thoughts about a method, the model was able to correctly classify 83.8% of the cases where suicidal ideation + thoughts about

method were positively endorsed. Therefore, the sensitivity of the model in this instance is 83.8%. Similarly, the model was able to accurately classify 61.1% of the cases who did not have suicidal ideation with thoughts of method. This is the specificity of the model. The model was able to correctly classify 62 individuals out of a total of 83 individuals who endorsed the suicide ideation outcome of thoughts + method. The positive predictive value (PPV) is therefore 62 (correct positive screen)/ 83 (total predicted positive based on the model) (Sattler, 2008; Trevethan, 2017) $\times 100 = 74.7\%$ for this model.

A second binary logistic regression was run, again with the 13 factors derived from the EFA (Shame/self loathing; Hopelessness; Isolation; Heightened state; Resilience; Connection; Coping with events; Avoidant coping; Investment; Perceived control; School connection; Survival beliefs; Anxiety/impulsivity) with the outcome variable of ‘...thinking seriously about ending my life’ For the outcome variable of serious suicidal ideation, the full model containing all independent variables was statistically significant, $\chi^2 (13, N = 128) = 47.2, p < .001$, indicating that the model was able to distinguish between respondents who did and who did not report serious suicidal ideation. The Hosmer-Lemeshow goodness of fit test was not significant. This indicates that there is support for good fit of the model as a Hosmer Lemeshow chi-square of less than .05 indicates poor fit (Pallant, 2016). In this case, the significance level is .75, again well over the recommended value. The model as a whole explained between 31.8% (Cox and Snell R square) and 41.6% (Nagelkerke R square) of the variance and correctly classified 73.4% of cases. As can be seen from Table 10, three of the independent variables made a unique and statistically significant contribution to the overall model (Connection, Investment, and Avoidant coping).

Table 11

Logistic Regression analysis of 13 factors on 46-item RISKRES with 'serious' suicidal ideation outcome

Factor	B	S.E.	Wald	df	p	Exp(B)	95% CI for Odds Ratio	
							Lower	Upper
Shame/ self loathing	-.003	.254	.000	1	.990	.997	.606	1.640
Hopelessness	-.466	.282	2.743	1	.098	.627	.361	1.089
Isolation	-.323	.283	1.299	1	.254	.724	.415	1.262
Heightened state	.616	.322	3.675	1	.055	1.852	.986	3.478
Resilience	-.410	.298	1.894	1	.169	.664	.371	1.190
Connection	-.650	.294	4.898	1	.027	.522	.293	.928
Coping with events	.099	.277	.127	1	.721	1.104	.641	1.900
Avoidant	.643	.297	4.689	1	.030	1.903	1.063	3.406
Investment	.836	.309	7.323	1	.007	2.306	1.259	4.224
Perceived control	-.107	.299	.128	1	.720	.899	.500	1.614
School connection	.368	.284	1.670	1	.196	1.444	.827	2.522
Survival beliefs	.347	.308	1.270	1	.260	1.415	.774	2.589
Anxiety/ impulsivity	.369	.313	1.392	1	.238	1.447	.783	2.673
Constant	-.643	.240	7.213	1	.007	.525		

For the outcome variable of serious suicidal ideation, the model was able to correctly classify 69.2% of the cases where serious suicidal ideation was in fact endorsed, indicating a sensitivity of 69.2% for this outcome. The model was able to accurately classify 76.3% of the cases who did not have serious suicidal ideation, indicating a specificity of 76.3 for this outcome variable. The positive predictive value was 66.7% for this model. In both cases, the model was able to correctly classify a statistically significant amount of cases of suicidal ideation based on the 44 measure items which do not ask directly about risk.

4.7 Internal structure 46-Item RISKRES

Feedback was sought from risk assessors in the suicide and self harm crisis service who had been collaborating with the researcher for the initial data collection, and participants who had participated in the focus groups from Stage 1 of the research in the ETB. Both groups of subject matter experts relayed that the tool was too long and too negatively biased. Despite the Cronbach's alpha coefficients showing good reliability initially, further item analysis was conducted to attempt to shorten the measure and remove negative bias. As part of the reliability analysis of the 46-item tool, inter-item correlations were examined.

On visual examination of the inter-item correlation matrix for the 46-item version of the RISKRES, there are some correlations of greater than .3. As both risk and resilience based items are included in the matrix, it is expected that not all items will have a positive correlation. Higher correlations between items are expected for items within the subscales.

Seven items were removed from the risk subscale due to negative correlations with the other risk items and due to corrected item-total correlations of $<.3$. Two additional risk items were removed due to significant overlapping with other items and loading on multiple factors. Based on inter-item correlations, item-total correlations and theoretical overlap, 9 items were deleted during the item analysis. Based on the opinion of subject matter experts administering the tool that it was too long, an additional 6 risk items were dropped to shorten the measure and give it an approximately 50/50 spread of positively and negatively biased items. The 6 items were selected based on theoretical assumptions that they existed on a dimensional continuum whereby a positively biased item already represented that construct.

Two of the resilience items had low item-total correlations also (fit and healthy and school connection). These items were retained provisionally as part of the analysis for pragmatic and theoretical reasons. In summary, examination of the inter-item correlations in addition to feedback from expert practitioners guiding theory and development indicated that the tool was too long. Items were strategically removed from the tool and further analyses were run with the 31-item version of the tool, which was subsequently shortened to 29 items for a further quantitative data collection.

4.8 Dimensionality 29-item RISKRES risk scale

A second exploratory factor analysis was run with the remaining 31 items (subsequently shortened to 29) to explore dimensionality of the second and shortened version of the RISKRES and is presented below. As this is the first time this factor analysis has been presented, it will be examined in detail.

The 31 items remaining were subjected to exploratory factor analysis (EFA) with maximum likelihood factor analysis, using a direct oblim rotation with Kaiser normalization. Two separate analyses were performed, one on the risk subscale and the other on the resilience subscale. Prior to performing the factor analysis, the suitability of the data for factor analysis was assessed. Visual inspection of the correlation matrix for each subscale revealed numerous correlation coefficients of .3 and above. Due to low communalities with 2 of the resilience items ($<.2$), these items were removed prior to the analysis, resulting in a total of 29 items for the initial factor structure of the RISKRES shortened version. Items removed as part of the EFA of the shortened version were Handling upsetting feelings and School connection. Additional school connection items were written for a further data collection with a nonclinical population to try to resolve

the issue. The school connection item has thus been removed from the analysis presented here but will ideally be retained for future nonclinical data collections.

For the 14 risk items remaining in the analysis, the Kaiser-Meyer-Olkin value was .86, exceeding the recommended value of .6 for suitability (Kaiser, 1970). The Bartlett's test for sphericity (Bartlett, 1954) was highly significant at .000, suggesting the suitability of the correlation matrix for factor analysis.

Factor analysis supported the presence of 2 factors with eigenvalues exceeding 1, explaining 32.5% and 11.2% of the variance, respectively. A visual inspection of the scree plot seemed to support the decision to retain 2 factors. The Chi square goodness of fit test showed significance of .696. This is optimal as a nonsignificant result shows the factor analysis is representative of the correlations originally there between the items (Kline, 2005).

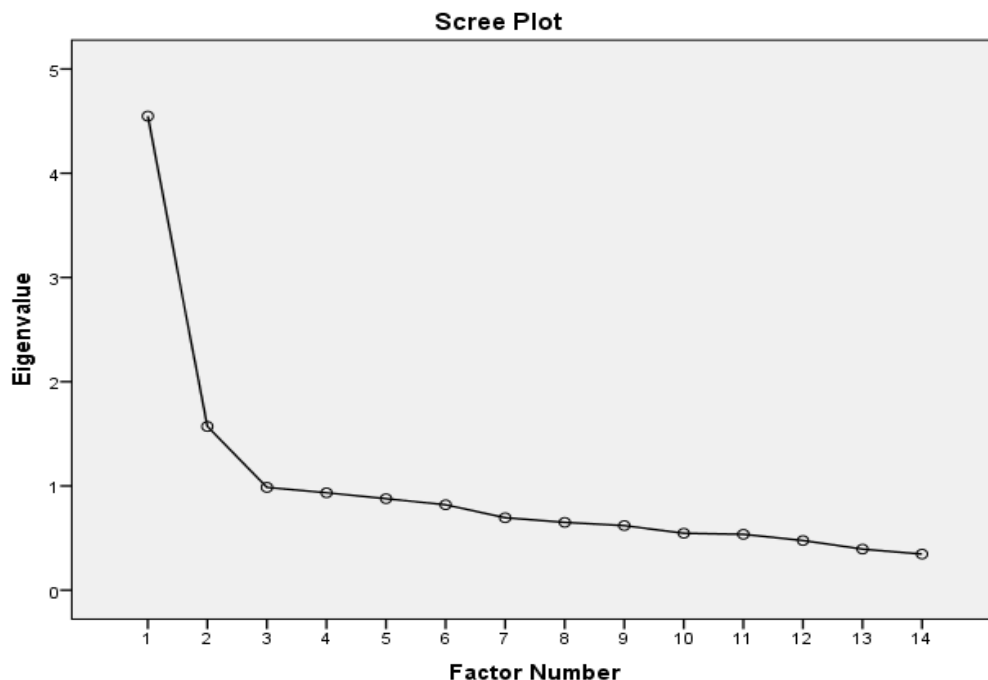


Figure 2. Scree plot for risk scale of 29-item RISKRES exploratory factor analysis

Table 12

Pattern factor loadings for items on 29-item version RISKRES risk scale

RISKRES item	Factor	
	1	2
I feel that life is just not worth living	.799	
I feel like there is no hope for the future	.680	
My thoughts and feelings are very upsetting or painful	.586	
I feel sad, unhappy, or down on myself	.586	
I don't enjoy things anymore or feel interested in them	.546	
I feel like a burden to the people around me	.371	.330
I feel nervous or afraid and I don't understand why		.671
I'm sleeping much more or much less than usual		.601
I am restless, agitated, or constantly on edge		.548
I worry a lot		.546
My thoughts move very quickly or feel like they're racing		.442
I am easily overwhelmed by my problems		.379
I dislike myself		.365
I feel under pressure to achieve what is expected from me		.350

Table 13

Structure factor loadings for items on 29-item version RISKRES risk scale

RISKRES item	Factor	
	1	2
I feel that life is just not worth living	.764	.327
My thoughts and feelings are very upsetting or painful	.684	.488
I feel sad, unhappy, or down on myself	.647	.414
I feel like there is no hope for the future	.629	
I don't enjoy things anymore or feel interested in them	.579	.338
I feel like a burden to the people around me	.535	.514
I feel nervous or afraid and I don't understand why		.623
I am restless, agitated, or constantly on edge	.396	.609
I'm sleeping much more or much less than usual		.566
My thoughts move very quickly or feel like they're racing	.348	.506
I worry a lot		.496
I dislike myself	.389	.468
I am easily overwhelmed by my problems	.334	.452
I feel under pressure to achieve what is expected from me		.405

The two factors on the risk scale are positively and moderately correlated with factor correlations of .49 on the correlation matrix. While all factor loadings exceed the minimum recommended value of .32, there are some factors with significant and moderate cross-loading. While the results of this analysis are exploratory and need to be tested on a larger sample, they support the tentative notion that the 2 factors are unique but related constructs. The factors have been provisionally labelled: 1. Depression/ desperation and 2. Anxiety/ agitation/ overwhelm.

4.9 Concurrent validity 29-item RISKRES risk scale

Inter-item correlations were calculated between the depression/desperation subscale on the shortened 2nd version of the RISKRES and the PHQ-9 item 9 to determine construct validity, and also overall PHQ-9 scores for concurrent validity.

The relationship between the individual items on the RISKRES Depression/desperation subscale and a standardised screening tool for depression (PHQ-9) was investigated using inter-item and inter-item total correlations. Preliminary exploration of the data was performed. The items of interest showed issues with normal distribution by achieving statistical significance on both the Kolmogorov-Smirnov and the Shapiro-Wilks tests of normality. Both parametric and non-parametric correlations were examined and results were similar. Due to the violations of normal distribution, non-parametric results are reported here.

Table 14

Correlations between PHQ-9 total score, PHQ-9 risk screening score, and RISKRES Depression/ desperation subscale individual items

Scale/ Item	PHQ9 total score	PHQ9 item 9	Life not worth living	Painful feelings	Burden	Hopeless	Feeling down	Anhedonia
PHQ9 total score	—	.60**	.54**	.39**	.40**	.39**	.35**	.47**
PHQ9 item 9		—	.65**	.39**	.35**	.38**	.46**	.23**
Life not worth living			—	.46**	.38**	.49**	.47**	.46**
Painful feelings				—	.40**	.43**	.40**	.32**
Burden					—	.31**	.45**	.25**
Hopeless						—	.39**	.31**
Feeling down							—	.26**
Anhedonia								—

** . Correlation is significant at the 0.01 level (2-tailed).

A Spearman's rho (r_s) correlation was run to determine concurrent validity between the RISKRES Depression/desperation subscale and the PHQ-9 total scores and PHQ-9 item 9, the risk screening item. All items in the Depression/ desperation subscale were significantly correlated with the PHQ-9 total score. Individual items on the RISKRES showed moderate to high correlations with the PHQ-9 total score: Life not worth living $r_s = .54, p < .001$; Painful feelings $r_s = .39, p < .001$; Burden $r_s = .40, p < .001$; Hopeless $r_s = .39, p < .001$; Feeling down $r_s = .35, p < .001$; Anhedonia $r_s = .47, p < .001$. Items on the RISKRES Depression/desperation subscale also show significant correlations with PHQ-9 item 9, the risk screening item ('thoughts that you would be better off dead or hurting yourself in some way'): Life not worth living $r_s = .65, p < .001$; Painful feelings $r_s = .39, p < .001$; Burden $r_s = .35, p < .001$; Hopeless $r_s = .38, p < .001$; Feeling down $r_s = .46, p < .001$; Anhedonia $r_s = .23, p < .007$.

Inter-item correlations for the PHQ-9 items and PHQ-9 item 9, the risk screening item, were also calculated for comparison with the RISKRES Depression/ desperation items to examine construct validity. Inter-item correlations between PHQ-9 item 9 and other items on the measure ranged from $r_s = .49, N = 142, p < .001$ (feeling down, depressed, hopeless) to $r_s = .17, N = 142, p < .039$ (problems with appetite). The 6 items on the RISKRES Depression/ desperation subscale showed consistently higher levels of correlation with the PHQ-9 item 9 than the other items on the PHQ-9 did. This indicates construct validity, as the PHQ items are written to tap depression overall, while the RISKRES items aim to target risk factors for suicidality specifically.

4.10 Dimensionality 29-item RISKRES resilience scale

An additional exploratory factor analysis was conducted for the 15 resilience items remaining. The analysis included 2 items which were reverse scored (disconnection and

long time to recover). Two items which initially showed low item-total correlations ($<.3$) were retained for this analysis. For the 15 resilience items, the Kaiser-Meyer-Olkin value was .71, exceeding the recommended value of .6 for suitability (Kaiser, 1970). The Bartlett's test for sphericity (Bartlett, 1954) was highly significant at .000, suggesting the suitability of the correlation matrix for factor analysis.

Factor analysis supported the presence of 5 factors with eigenvalues exceeding 1, explaining 26%, 12.4%, 8.7%, 8.1%, and 6.8% of the variance, respectively. A visual inspection of the scree plot however, would seem to support the retention of 3 factors instead of 5. The Chi square goodness of fit test showed significance of .068. A nonsignificant result shows the factor analysis is representative of the correlations originally there between the items (Kline, 2005), although this result is approaching significance. The analysis also showed a communality estimate greater than 1, so the following solution should be interpreted with caution.

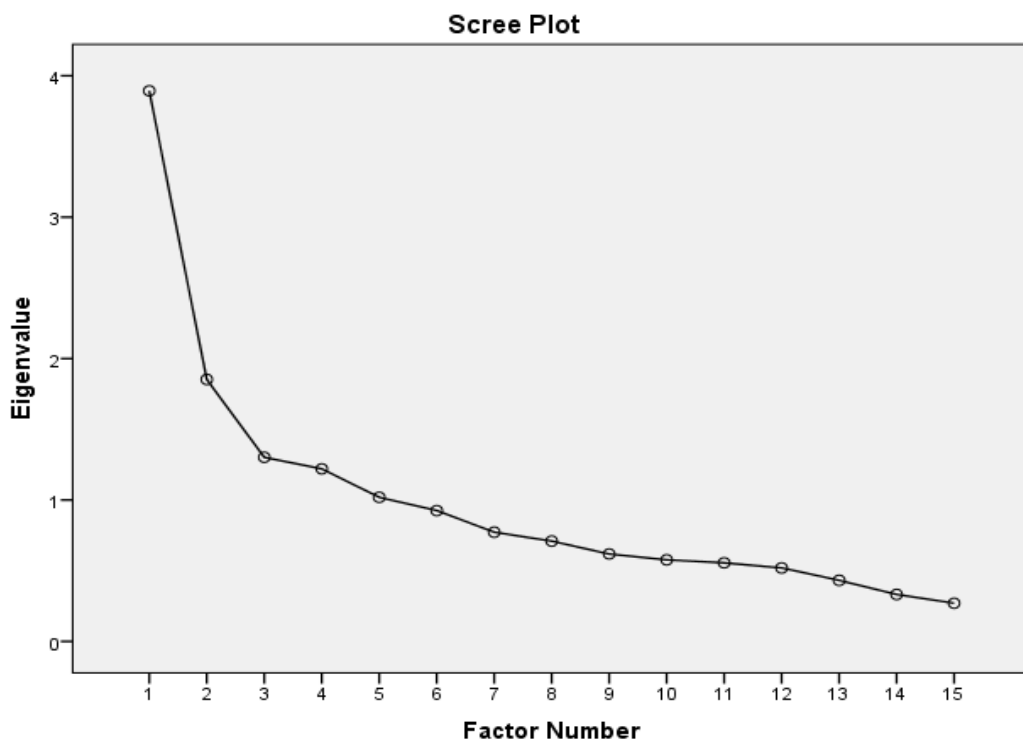


Figure 3. Scree plot for resilience scale of 29-item RISKRES exploratory factor analysis

Table 15

Pattern factor loadings for items on 29-item version RISKRES resilience scale

RISKRES item	Factor				
	1	2	3	4	5
I am in control of my own actions	1.079				
I have the freedom to make my own decisions	.371				
I feel disconnected from my family and friends		.948			
I am hopeful about the future			.672		
I make efforts to stay fit and healthy			.568		
I usually succeed in the things that I do			.547		
I find upsetting feelings are just temporary			.497		
I believe that things usually turn out well			.431		
I have people I can talk to if I need to				-.882	
There is someone I feel very close to				-.544	
I have enough support to cope with my problems				-.421	
I feel loved					
I take a long time to recover when something bad happens					-.774
I am able to get through a bad experience				-.321	-.472
I recover quickly from setbacks			.353		-.427

Table 16

Structure factor loadings for items on 29-item version RISKRES risk scale

RISKRES Item	Factor				
	1	2	3	4	5
I am in control of my own actions	.979				
I have the freedom to make my own decisions	.446				
I feel disconnected from my family and friends		.971		-.344	
I am hopeful about the future			.683	-.307	
I usually succeed in the things that I do			.593		
I find upsetting feelings are just temporary			.558		
I make efforts to stay fit and healthy			.503		
I believe that things usually turn out well			.491		
I have people I can talk to if I need to				-.838	
There is someone I feel very close to				-.545	
I have enough support to cope with my problems				-.511	-.356
I feel loved			.375	-.462	-.322
I take a long time to recover when something bad happens					-.735
I am able to get through a bad experience	.363		.383	-.500	-.615
I recover quickly from setbacks	.358		.479		-.500

The correlation matrix suggested low to moderate correlations between factors, ranging from -.018 to .395. There was substantial cross-loading, which in addition to information from the scree plot may indicate that fewer factors could be retained. This is difficult to interpret, considering the instability of the factor structure and the lack of theoretical clarity about the expected number of factors. For the current analysis, the

factors have provisionally been labelled: 1. Autonomy, 2. Disconnection, 3. Capable/future orientation, 4. Connection, 5. Bouncing back. A further exploratory analysis on the resilience subscale with a much larger sample is indicated to clarify the factor structure. This is ongoing at the time of writing.

4.11 Internal structure 29-item RISKRES risk and resilience scales

Internal consistency reliability for the 29-item RISKRES was examined through Cronbach's (1951) alpha. In the second 29-item version of the RISKRES, there are 14 risk items, all with positive valence. The Cronbach alpha coefficient for these items was .83. There are 15 resilience items on the 29-item version. 13 of these items have positive valence and the other 2 are reverse scored. The Cronbach alpha coefficient for these items was .78. Alpha levels can range from 0 to 1, and values over .7 are generally indicated to ensure good internal consistency reliability. Again, this indicates good internal consistency reliability for this subset of items. Shortening the tool does not appear to have impacted the internal structure reliability. This will be addressed in more detail in the next section.

4.12 Regression model 29-item RISKRES

Two binary logistic regressions were run, using the 7 variables generated from the exploratory factor analysis as the independent variables and the 2 suicide ideation screening items as the dependent variables. The regressions were run to see if, and to what extent, the independent variables predict the dependent variable, the suicide ideation outcome. The binary logistic regressions were also run using the two factors representing the risk subscales only, to see if risk scores alone were able account for the independent

variable as accurately. An additional multiple linear regression was also run, again using the 7 factors from the EFA as the independent variables with the PHQ-9 item 9 score (the risk screening item) as the dependent variable. The additional regression was run to determine if results were similar using a true linear model as opposed to the logit calculation.

Prior to examining the regressions, preliminary analyses were conducted to ensure there were no violations in the data of the assumptions of normality, linearity, multicollinearity, and homoscedasticity. In relation to multicollinearity, there were some correlations above .3 between the independent variables and the outcome variable. There were also some negative and significant correlations, as would be expected. There were no high correlations between independent variables. There were no tolerance values of less than .1 or variance inflation factor values of above 10, the commonly used cut-off points for determining the presence of multicollinearity (Pallant, 2016). Inspection of the normal probability plot revealed a visually reasonably straight line. The value for Cook's distance was .19 suggesting that outliers were not causing major issues within the data set, as a Cook's value of 1 indicates problems with outlying cases (Pallant, 2016).

Binary logistic regressions were run this time with the 29-item version of the RISKRES and the 7 factors derived from the EFA presented above (Depression/ desperation; Anxiety/ agitation/ overwhelm; Autonomy; Disconnection; Capable/ future orientation; Connection; Bouncing back) as the independent variables, again with the 2 binary endorsed suicide risk screening items (serious ideation and ideation + method) as the outcome variables.

For the outcome variable of Ideation + method, the full model containing all independent variables was statistically significant, $\chi^2(7, N = 131) = 29.44, p < .001$, indicating that the model was able to distinguish between respondents who did and who

did not report suicidal ideation with thoughts about a method. The Hosmer-Lemeshow goodness of fit test was not significant. This indicates that there is support for good fit of the model as a Hosmer Lemeshow chi-square of less than .05 indicates poor fit (Pallant, 2016). In this case, the significance level was .498, well over the recommended value. The model as a whole explained between 20.1% (Cox and Snell R square) and 27.1% (Nagelkerke R square) of the variance and correctly classified 71.8% of cases. As can be seen from Table 17, two of the independent variables made a unique and statistically significant contribution to the overall model (Depression/ desperation and Disconnection), with the variable Connection approaching significance at $p = .09$.

Table 17

Logistic Regression analysis of 7 factors on 29-item RISKRES with suicidal thoughts + method outcome

Subscale	<i>B</i>	<i>S.E.</i>	Wald	<i>df</i>	<i>p</i>	95% CI Ratio for Odds		
						<i>Exp(B)</i>	Lower	Upper
Depression/ desperation	.909	.342	7.079	1	.008	2.482	1.270	4.849
Anxiety/ agitation/ overwhelm	-.144	.321	.201	1	.654	.866	.462	1.625
Autonomy	-.305	.239	1.621	1	.203	.737	.461	1.179
Disconnection	-.593	.247	5.771	1	.016	.553	.341	.897
Capable/ future orientation	-.290	.287	1.021	1	.312	.748	.427	1.313
Connection	-.481	.284	2.872	1	.090	.618	.355	1.078
Bouncing back	-.052	.290	.032	1	.859	.950	.538	1.675
Constant	.419	.201	4.357	1	.037	1.520		

For the outcome variable of suicidal ideation + thoughts about method, the model was able to correctly classify 85.7% of the cases where suicidal ideation + thoughts about method were positively endorsed. Therefore, the sensitivity of the model is 85.7% for this outcome. Similarly, the model was able to accurately classify 51.9% of the cases

who did not have suicidal ideation with thoughts of method, which indicates a specificity of 51.9%. The positive predictive value of the model was 71.7% (66 cases predicted correctly/ 92 cases anticipated as positive by the model x 100).

A second binary logistic regression was run for the 29-item version of the RISKRES with the second outcome variable of ‘...thinking seriously about ending my life’. Independent variables were again the 7 factors derived from the EFA (Depression/ desperation; Anxiety agitation/ overwhelm; Autonomy; Disconnection; Investment/ future orientation; Connection; Bouncing back). For the outcome variable of serious suicidal ideation, the full model containing all variables was statistically significant, $\chi^2 (7, N = 131) = 37.0, p < .001$, indicating that the model was able to distinguish between respondents who did and who did not report serious suicidal ideation. The Hosmer-Lemeshow goodness of fit test was not significant. This indicates that there is support for good fit of the model as a Hosmer Lemeshow chi-square of less than .05 indicates poor fit (Pallant, 2016). In this case, the significance level was .938, again well over the recommended value. The model as a whole explained between 24.6% (Cox and Snell R square) and 33.2% (Nagelkerke R square) of the variance and correctly classified 68.7% of cases. As can be seen from Table 18, two of the independent variables made a unique and statistically significant contribution to the overall model (Depression/ desperation and Anxiety/ agitation/ overwhelm).

Table 18

Logistic Regression analysis of 7 factors on 29-item RISKRES with 'serious' suicidal ideation outcome

Subscale	<i>B</i>	<i>S.E.</i>	Wald	<i>df</i>	<i>p</i>	<i>Exp(B)</i>	95% CI	
							for Odds	Ratio
							Lower	Upper
Depression/ desparation	1.537	.390	15.514	1	.000	4.652	2.165	9.997
Anxiety/ agitation/ overwhelm	-.875	.367	5.681	1	.017	.417	.203	.856
Autonomy	-.278	.248	1.253	1	.263	.757	.466	1.232
Disconnection	-.332	.260	1.625	1	.202	.718	.431	1.195
Capable/ future orientation	.069	.296	.054	1	.816	1.071	.600	1.912
Connection	-.035	.280	.015	1	.901	.966	.558	1.671
Bouncing back	.310	.318	.953	1	.329	1.364	.732	2.542
Constant	-.505	.217	5.410	1	.020	.603		

For the outcome variable of serious suicidal ideation, the model was able to correctly classify 59.3% of the cases where serious suicidal ideation was in fact endorsed, indicating a sensitivity of 59.3% for this outcome. The model was able to accurately classify 75.3% of the cases who did not have serious suicidal ideation, indicating a specificity of 75.3% for this outcome variable. The positive predictive value for the model was 62.7%.

In order to compare with the results above, the regressions were also run with the risk subscales only. For the outcome variable of Ideation + method, the risk only model containing the 2 variables from the EFA that form the risk subscales was statistically significant, $\chi^2(2, N = 137) = 20.19, p < .001$, indicating that the model was able to distinguish between respondents who did and who did not report suicidal ideation with thoughts about a method. The Hosmer-Lemeshow goodness of fit test was not

significant. This indicates that there is support for good fit of the model as a Hosmer Lemeshow chi-square of less than .05 indicates poor fit (Pallant, 2016). In this case, the significance level was .634, well over the recommended value. The model as a whole explained between 13.7% (Cox and Snell R square) and 18.5% (Nagelkerke R square) of the variance and correctly classified 69.3% of cases. Depression/ desperation played a unique and statistically significant part in the model at $p = .001$, while Anxiety/ agitation/ overwhelm did not reach significance.

The model showed a sensitivity of 84.1% a specificity of 47.3%, and a positive predictive value of 70.4%. Sensitivity, specificity, and PPV are all lower for the 29-item RISKRES in correctly classifying the suicidal ideation + method outcome based on the risk subscales only vs. the 7 factor overall model, which includes the resilience subscales.

For the outcome variable of serious suicidal ideation, the risk only model containing the 2 variables from the EFA that form the risk subscales was statistically significant, $\chi^2(2, N = 137) = 32.99, p < .001$, indicating that the model was able to distinguish between respondents who did and who did not report serious suicidal ideation. The Hosmer-Lemeshow goodness of fit test was not significant. This indicates that there is support for good fit of the model as a Hosmer Lemeshow chi-square of less than .05 indicates poor fit (Pallant, 2016). In this case, the significance level was .915, well over the recommended value. The model as a whole explained between 21.4% (Cox and Snell R square) and 28.8% (Nagelkerke R square) of the variance and correctly classified 69.3% of cases. For this suicidal ideation outcome, both risk factors played a unique and statistically significant role in the model with p values of $p < .001$ for Depression/ desperation, while Anxiety/ agitation/ overwhelm was also significant at $p < .044$.

The model showed a sensitivity of 63.8%, a specificity of 73.4%, and a PPV of 63.8% for the risk only variables with the outcome variable of serious suicidal ideation. In this

case, the sensitivity was relatively lower for the full model including all the variables (59.3%), while the specificity was relatively higher for the full model including all 7 variables vs. the risk model only (75.3 vs. 73.4%). The positive predictive value was also a little higher for this risk outcome variable using the risk scores only as predictors (63.7 vs. 62.7%).

An additional multiple linear regression was also run, again using the 7 variables from the EFA as the independent variables and the PHQ-9 suicide screening item as the outcome variable. The additional regression analysis was run to see the impact of the 7 variables on the outcome of suicidal ideation using a scale as opposed to a dichotomous variable and compare models. The linear regression allows for comparison between R square and pseudo- R square values and also allows for verification of prediction of the outcome variable with a true linear model. Furthermore, the PHQ-9 outcome item is a standardised and validated suicide screening item and has been shown to have predictive validity for future suicidal risk (Simon et al., 2013).

The 7 independent variables were entered into the model at the same time (Depression/ desperation; Anxiety agitation/ overwhelm; Autonomy; Disconnection; Capable/ future orientation; Connection; Bouncing back). The total variance explained by the model as a whole was 41.5%, $F(7, 124) = 12.6, p < .001$. Two of the variables made a unique and statistically significant contribution to the overall model, Depression/ desperation (beta = .68, $p < .001$) and Bouncing back (beta = -.17, $p < .041$).

As part of post hoc analysis, an additional binary logistic regression was run with a combined overall suicide ideation outcome. As such, participants were assigned to 2 groups: those who had endorsed either suicide ideation outcome or both as a suicide ideators group, and those who did not endorse either suicide ideation outcome as a non-suicidal group. Independent variables were again the 7 factors derived from the EFA

(Depression/ desperation; Anxiety agitation/ overwhelm; Autonomy; Disconnection; Investment/ future orientation; Connection; Bouncing back). For the outcome variable of suicidal ideation, the full model containing all variables was statistically significant, $\chi^2 (7, N = 131) = 47.09, p < .001$, indicating that the model was able to distinguish between respondents who did and who did not report serious suicidal ideation. The Hosmer-Lemeshow goodness of fit test was not significant. This indicates that there is support for good fit of the model as a Hosmer Lemeshow chi-square of less than .05 indicates poor fit (Pallant, 2016). In this case, the significance level was .959, again well over the recommended value. The model as a whole explained between 30.2% (Cox and Snell R square) and 42.4% (Nagelkerke R square) of the variance and correctly classified 82.4% of cases. As can be seen from Table 19, two of the independent variables made a unique and statistically significant contribution to the overall model (Depression/ desperation and Disconnection).

Table 19

Logistic regression analysis of 7 factors on 29-item RISKRES with suicidal ideators vs. non-ideators

Subscale	<i>B</i>	<i>S.E.</i>	Wald	<i>df</i>	<i>p</i>	<i>Exp(B)</i>	95% CI	
							for Odds	Ratio
							Lower	Upper
Depression/ desparation	1.654	.426	15.096	1	.000	5.226	2.269	12.034
Anxiety/ agitation/ overwhelm	-.648	.397	2.669	1	.102	.523	.240	1.138
Autonomy	-.457	.288	2.513	1	.113	.633	.360	1.114
Disconnection	-.617	.287	4.634	1	.031	.539	.307	.946
Capable/ future orientation	-.337	.342	.968	1	.325	.714	.365	1.397
Connection	-.613	.345	3.149	1	.076	.542	.275	1.066
Bouncing back	.091	.339	.072	1	.788	1.095	.564	2.126
Constant	1.110	.250	19.642	1	.000	3.035		

The model showed a sensitivity of 93.3%, a specificity of 58.5%, and a PPV of 83.2% for an overall outcome of presence vs. absence of suicidal ideation.

In summary, psychometric properties were examined for both the 46-item and reduced 29-item versions of the RISKRES. The initial version was reduced through the process of item analysis. Psychometric properties were then investigated for a reduced 29-item version of the RISKRES. Internal consistency, dimensionality, and concurrent validity were explored. The hypothesized factors were used to inform logistic and multiple regression analyses with different types of outcome variables on suicidality. The results are discussed in Chapter 5.

Discussion

5.1 Introduction and summary of discussion

The purpose of this study was to develop a psychometrically sound method to measure both risk and resilience as potential predictors of suicidality for adolescents and young people. The research team embarked on a lengthy and iterative process of theory development in the area of resilience for suicidal risk. In accordance with a grounded theory methodology and concurrent review of the literature, theory was generated on 3 major categories which related to psychological factors which could potentially enhance or buffer suicidal risk. Items for a draft tool were generated and the research moved into a quantitative phase of theory verification with an ‘at-risk’ sample of young people in a community crisis service. The tool was subsequently shortened to 29 items through further item analysis and the psychometric properties of the shortened tool were examined in detail in the previous chapter. An initial evaluation of the usefulness of the RISKRES is presented below, along with conceptual issues remaining, and directions for future research.

5.2 Emergent theoretical model

Prior to reviewing the psychometric evaluation of the RISKRES, the three major categories from the grounded theory analysis are presented below, in light of current literature. These categories provided the theoretical foundation for the RISKRES items. While Straussian (1990, 1994) grounded theory directs the researcher towards the selection of a core category, all three major categories are again presented here, as all three categories fed into construction of the RISKRES. The three major categories are:

1. Relational trajectories,
2. Cognitive and emotional trajectories,
3. Skill based

trajectories. All three categories have been hypothesised to be intrinsically linked, and to revolve around the core category: Perception of the self as capable.

Theoretical concepts leading to category of relational trajectories. The first major category identified in relation to suicidal risk and resilience was described during the analysis as *relational*. This refers to the primarily interpersonal experiences described during the focus groups. Clinicians reported suicidal clients relaying being in disconnected and *isolated* states. This is consistent with other research, as large scale reviews of risk factors have consistently shown the relationship between relational factors and adolescent suicidality (Posner et al., 2007; Hawton et al., 2012; Milner et al., 2013). Original research has suggested that this is the case with Irish teens, specifically problems with and between parents being a risk factor for self harm (McMahon et al., 2013). The *isolation and lack of support* reported in this study for adolescents at risk suggests similarities with Joiner's (2005) ideas about 'thwarted belongingness' and 'burdensomeness.' In fact, the interpersonal theory of suicide (Joiner, 2005) proports that these specific relational dynamics fully capture the beginning of the journey towards suicidality.

Conversely, practitioners in the current study identified interpersonal *connection* as protective against risk. This is consistent with large scale epidemiological research, which suggests that parent-family connectedness and perceived school connectedness have been shown to be protective against a range of risk outcomes, including suicidal risk (Resnick et al., 1997), and also outcome research, which consistently shows that interventions geared towards improving family functioning have been shown in numerous RCT's to show a decrease in suicidal risk and other associated risk factors (Zalsman et al., 2016). In addition to *connection*, practitioners identified a perception of having adequate *support and help* as important, and particularly identified the presence or absence of

having a ‘confidant’ as particularly important to young people. In a review on resilience factors for suicidality, Johnson et al. (2011) found consistent support for family support ‘buffering’ against suicidal risk. Other grounded theory research with previously suicidal young people has identified a ‘meaningful relationship’ as particularly important in developing resilience (Everall et al., 2006).

This is consistent with large scale findings in samples of Irish teens and young people. The My World study particularly emphasised the helpful presence of ‘one good adult’ in a child’s life as protective against a variety of risk outcomes and also as enhancing associated protective factors, such as self esteem (Dooley & Fitzgerald, 2012). This is not entirely a new idea; attachment theory has maintained this perspective for some time (Ainsworth, 1979). While adolescence has been seen as a time of increasing autonomy, contemporary conceptualisations of adolescence suggest that connectedness remains important at this stage (Santrock, 2014).

It might be suggested that the relational trajectories interact and overlap with the next major category as they provide the background for cognitive and emotional trajectories influencing suicidality

Theoretical concepts leading to cognitive and emotional trajectories. Cognitive and emotional trajectories were identified as the second major category in the analysis, and from this category, the core category was identified: Perception of the self as capable.

Clinicians identified numerous cognitive and emotional processes which could either enhance or mitigate risk, based on their range of experience with different types of individuals. The first of these described were painful feelings reported by vulnerable young people at risk. These feelings could take on a variety of forms, and were captured during the analysis as *desperate and overwhelming emotional states*. It is important to

note that clinicians often described these states as co-occurring during *relational isolation* or alienation, thus perhaps serving as a precipitating or perhaps a maintaining factor for the state. These states have been represented in other psychological conceptualisations of suicidality. Schneidman's (1993) theory of 'psychache' purports that unbearable emotional pain is the central feature of suicidality. The CAMS model (Jobes, 2006) also focuses on assessment of states of agitation, desperation, misery, and emotional pain.

The descriptions of emotion and cognition from clinicians encompassed a range of feelings such as helplessness, hopelessness, overwhelm, agitation, thinking problems were unsolvable, and not being able to visualise a future. These descriptions are not dissimilar to typical psychiatric conceptualisations of core risk factors, in particular depressive mood disorders and anxiety disorders, as specified in DSM-5 (APA, 2013). This is unsurprising, considering the long established link between mood disorder as a risk factor (Hawton et al., 2012) and the significant role this may play for some young people.

However, the thrust of this category is not on the conceptualisation of the real pain these states may involve, but the practitioners' articulated views on the things which help or hinder clients from coping with these states. The focus group discussions centred on a range of slightly different but related processes, which had many convergent themes. Practitioners spoke about working with individuals with a *perceived lack of control or choice* in their lives as being at enhanced vulnerability to suicidal risk. First hand accounts from participants who had been through suicidality during adolescence also found cognitive processes as important for later resilience, including a perceived sense of control, and an internal locus of control (Everall et al., 2006).

The processes described are similar to, although less specific than the cycle of 'entrapment' that is referred to in the IVM model (O'Connor, 2011). O'Connor (2011)

conceptualises entrapment as a cycle of social and cognitive humiliations and failures. There are therefore similarities in relation to the descriptions of an evolving rigidity in thinking and also processes of feeling disempowered, like there is *no control or choice* during the evolution of suicidal risk. More investigation is needed to see if this process is in fact similar to the process of ‘entrapment.’

Conversely, a number of cognitive and emotional processes were identified during the analysis which would be helpful in the face of risk. The discussion focused around resilience as *beliefs*. Beliefs around *perceived choice, distress*, the young person’s own perception of their ability for *survival*, and their *perception of self* were suggested to be important in the management of risk, particularly in the face of difficult circumstances. Those who were more *autonomous* were identified as more resilient. Practitioners reported young people who are more self directed, proactive, and driven by their own values fared more favourably during difficult circumstances. This is consistent with more traditional resilience conceptualisations which emphasise mastery (Prince-Embury, 2008), and also with normative adolescent developmental tasks. Johnson et al. (2011) identified a sense of agency as a factor which buffers risk, although the definition of agency used in the article is quite broad.

The development of *autonomy* has long been a core tenet of numerous therapies and presents as conceptually similar to developing a more internal ‘locus of evaluation’ (Rogers, 1961), which has been associated with increased personal development and sense of self. Conversely, a sense of *self* fragmentation, or a sense that ‘there is something wrong with me’ was identified as conferring increased vulnerability. This is consistent with the research literature. Burke et al. (2015) was able to predict suicidal ideation prospectively by measuring negative adjectives to describe the self, rumination, and a negative inferential style.

In addition to independent thought and action, *beliefs* about the nature of *distress*, *survival*, and *the future* were also of primary importance. Specifically, it was hypothesised in some way in each group that getting through difficult times took a particular cognitive skill set. Cognitive constriction as a risk factor has been hypothesised previously (Orbach, 1984). It was thought that being able to recognise the *transient nature of problems and distress* was a real asset, and conversely, cognitive constriction conferred risk, particularly during difficult times. Related to this was a described personal narrative on the part of the young person that they had the *capability* to get through difficult things. This was described by clinicians as enhanced by both *relational support*, and also by the cognitive and experiential knowledge that they had made it through difficult things before and *survived*. This is consistent with other research, which suggests that coping and survival beliefs as measured by reasons for living may be particularly protective against suicidality (Bakhiyi et al., 2016).

Believing in the self and in *survival* were both seen as important by practitioners. This included both *beliefs* in relation to coping with *distress* and problems, but also beliefs in being able to deal with day to challenges and normative stressors. The school or university experience is a significant and encompassing challenge for many adolescents and young people. Longitudinal research has suggested that there is an association between perceived academic performance, self esteem, and suicidality (Martin et al., 2005). Problems with school performance has been shown as a risk factor for suicidality in both international (Resnick et al., 1997) and Irish samples (McMahon et al., 2013) and during reviews of the evidence basis on adolescent specific risk factors (Hawon et al., 2012); specifically the perception of ‘failing’ has been shown to predict suicidality (Martin et al., 2005). Failure to adapt to normative developmental tasks in the face of risk is consistent with other conceptualisations of vulnerability and lack of resilience (Masten, 2010).

Conversely, *self belief* and an integrated *perception of the self as capable* was identified as a characteristic of resilient young people. Clinicians emphasised that resilient young people were able to recognise *distress as transient*, to believe they could accomplish things, cope with distress, and *visualise* positive things in their *future*, even at times of stress or distress. This is consistent with IVM (O'Connor, 2011) which suggests that impaired positive future thinking is central to the suicidal process in the motivational stage. Future orientation was part of the most sensitive classification tree based on Hill et al.'s (2017) longitudinal study looking at prospective suicidal ideation.

The third major category identified during the analysis was skill based trajectories. It could be suggested that while cognitive and emotional trajectories relate to sensations, thoughts, and beliefs, that skill based trajectories are the action oriented aspects of those thoughts and emotions.

Theoretical concepts leading to skill based trajectories. While *self beliefs* were addressed to some extent in the abovementioned category, an extension of the belief of the *self as capable* is the action behind that belief. Clinicians referred to clients who do or do not engage in *self care*. *Self care* included participating in and valuing a range of activities that promote wellness such as prioritising sleep, diet, fitness, and engaging in enjoyable activities. Orbach (2006) posited that suicidal processes are linked with destruction of the self and the evolution of the 'suicidal body.' This, he believed, originates through neglect and limited learned abilities to *self care*.

Practitioners cited examples of individuals and more typically, families operating in climates of instability or 'crisis mode' at times resulting in trauma. Conversely, regulatory strategies were also identified. This included the use of problem-focused coping and specifically skills to deal with high levels of distress. Other research has focused around the resilient nature of problem solving, although Johnson et al. (2011)

hypothesise that this may be related to another associated factor which ‘buffers’ suicidal risk. Research on Irish adolescents has linked ‘avoidant’ coping styles as enhancing risk outcomes (Dooley & Fitzgerald, 2012).

Again, linked to beliefs conceptualised above are the action oriented outcomes of the *beliefs* about *distress and survival*. Practitioners in this study suggested that the knowledge that distress is likely temporary is paramount to dealing with difficult feelings. This, many likened to a skill that is learned by the young person through experience for *emotional regulation*. The process articulated has similarities with the practise of distress tolerance skills (McKay, Wood, & Brantley, 2007) which are part of dialectical behavioural therapy (DBT) (Linehan, 1993), a well established treatment for suicidality. Another skill for regulating emotions which was articulated was allowing a painful feeling and watching it pass. This process is also a core skill in DBT (Linehan, 1993). *Emotion regulation* skills have been identified in other qualitative research with adolescents who have lived through a suicidal crisis, who reported experiencing a range of emotions, including facing painful feelings to be helpful (Everall et al., 2006).

The beliefs and associated skills conceptualised above could be suggested to result in an overall perceived ability or lack thereof, to *bounce back* from difficulties on the part of the young person. *Bouncing back* is associated with resilience in the traditional sense. It is consistent with definitions of resilience such as Luthar (2000) et al.’s definition which suggests the adversity has to be significant, and that resilience is a return to baseline, (Bonnano, 2004) as opposed to positive adaptation. Thus, in order to feel that it is possible to *bounce back*, and take steps to enhance doing so in the face of adversity or distress is a complex and multidimensional process involving a myriad of factors. The core psychological aspects of this process were eloquently summed up by one clinician:

'Feeling capable. If you don't feel capable of managing your feelings (you) get overwhelmed. People who get overwhelmed with their feelings are not going to feel resilient.'

5.3 Relationships between categories

This includes *perceptions of the self as capable* not just to undertake daily life tasks, but also to cope in the face of problems and heightened distress, in part by believing that distress and hardship are temporary and in part by recognising that it is possible to survive and to have a future which is positive. The process as described occurs dynamically and is in part dependent on feeling supported and connected or vice versa. Based on the substantive theory put forward, these perceptions are likely to buffer against desperate and overwhelming emotional states which are consistent with but not limited to psychiatric classifications of mood and anxiety disorders (APA, 2013). Self related perceptions likely exist on a background of beliefs about attachment and also about the skills required to survive difficult times.

There are longstanding debates in the resilience literature about whether it is an intrapersonal or interpersonal construct. Min et al. (2015) notes that protective factors are frequently divided into 2 types: resilience (intrapersonal) and social support (interpersonal). Based on the lengthy discussion above in relation to whether resilience is an internal characteristic or a dynamic state which is influenced by the environment a person experiences, this author contends that this separation is not helpful or appropriate in measuring resilience to suicidality. Indeed, Milner et al. (2013) conclude that the relationship between social factors and suicide is a dynamic phenomena which is influenced by contextual factors and time.

The current proposed theory does not seek to measure attachment or skills in the objective sense by gathering collateral information as part of this measure; construct and measure design are consistent with existing definitions that resilience is psychological and intrapersonal (Johnson et al., 2011), and thus emphasises the subjective stance of the suicidal person. It is the opinion of the principal researcher however, that self beliefs do not exist in isolation and so perceptions about others and social support available should also be included in the conceptualisation of resilience. Statistical analysis of internal structure through coefficient alpha and exploratory factor analysis reported below lend some guidance in determining if this is a reasonable conceptual stance.

While not specifically suicide related, in their own psychometric analysis of the factors related to resilience, Prince-Embury & Courville (2008) investigated 1, 2, and 3 – factor models. Their psychometric validation reported high correlations between the hypothesised constructs of sense of mastery and sense of relatedness, similarly to the issue being debated here. Prince-Embury & Courville (2008) concluded that clinically, these developmental outcomes are often interlinked.

In summary, based on the substantive theory generated from clinicians working with vulnerable Irish young people in school and community settings, a *perception of the self as capable* is hypothesised to protect against risk. While the *perception of the self as capable* was emphasised as the core category during the analysis, it is hypothesised to be interlinked with the other 2 major categories, namely beliefs about others and also about skills and abilities.

It is difficult to comment on the exact nature of the resilience factors and sequentially how they interact with each other. At this point in time, the 3 trajectories presented here are hypothesised to be dynamic and interactive. One construct may in fact be causal. Of the concepts developed in the discussion above, some may be precipitating while others

may be maintaining. Some concepts may be more related to the likelihood of taking action on suicidal thoughts. It is very difficult to hypothesise this based on the existing resilience literature. This is in part due to an overall difficulty also noted by Dray et al. (2017) on the exact nature of and interaction between resilience factors, as very few suicide prevention studies looking at this construct actually use a measure of resilience.

By further investigation with the RISKRES longitudinally and with a prospective design and suicide ideation outcome variables, it may be possible to determine whether self related beliefs are in fact influenced by attachment related beliefs or vice versa and to establish if one is causal in the evolution of suicidal thinking. For now, it will suffice to say that they are likely interactive and both important.

Qualitative research with previously suicidal adolescents has suggested that there are 4 domains of resilience (Everall et al., 2006): social processes, emotional processes, cognitive processes, and purposeful action. Like the current study, Everall (et al., 2006) also used grounded theory methodology and found 4 trajectories. In the current conceptualisation, cognitive and emotional categories have been grouped together. The apparent similarities between the two studies indicates a triangulation, as the research team did not come across the other grounded theory study until the analysis was nearly finished. Furthermore, the fact that the present study sampled clinicians and the other study sampled previously suicidal individuals with both indicating such similar findings is worth noting.

While psychological factors were the focus of this study, the analysis also generated a number of historical and environmental factors as important in the genesis of suicidal risk. Other qualitative research with participants who were bereaved by suicide and thus at heightened risk for suicidality themselves suggests similar connections between resilience and coping in the longer term with social and environmental factors. 'It

appears that the personal, social and environmental contexts of those bereaved played a very significant role in longer term coping' (Gaffney & Hannigan, 2010, p. 533). The relational contexts of the participants in this qualitative investigation of the bereaved were found to impact significantly on coping and resilience in the long term (Gaffney & Hannigan, 2010).

The role of family history of suicide as a potential risk factor has been contentious with conflicting research findings in this area. Exposure to self harm of others was shown to be a risk factor for Irish adolescents (McMahon et al., 2013). Other research has suggested that exposure to suicide in family members can be protective against nearly fatal suicidal acts (Mercy et al., 2001). Clinicians in this study identified familial exposure as both a risk or protective factor, depending on the context and the circumstances of the family. They spoke on the one hand of social learning processes whereby seeing someone close to them become suicidal in the face of distress makes it more normalised. This phenomenon has been documented in other research, including a large scale review of 4 studies (de Leo & Heller, 2008), which suggests that this phenomenon can last throughout young adulthood. Clinicians in this study also identified connection to family members to be protective. Practitioners reported clients knowing how the pain had hurt others in the family made suicide a non-option following the attempt of a family member. This process appears more similar to the findings documented by Mercy et al. (2001). Clinicians in this study appeared to report that exposure could have beneficial impacts, if the individual was aware of the pain it could cause, but also detrimental impacts, due to suicidality becoming a more normative response to distress. Indeed, what became evident from the grounded theory analysis is that the psychological processes are resting on a foundation of historical, social, and environmental factors, which all play a part in the trajectories of risk.

The substantive theory put forward by the grounded theory analysis can be seen as an attempt to generate hypothetical answers to the first research question: How can we identify young people with the potential for suicidal behaviour early? The current research does not seek to answer this question, but rather to generate knowledge which can contribute to an answer which will evolve and change as more is discovered. The discussion below focuses on how well the substantive theory operationalised by the RISKRES stands up to preliminary psychometric evaluation.

5.4 Psychometric properties of the RISKRES

Based on the 146 ‘at risk’ adolescents sampled, endorsement of suicide risk screening items was reasonably high. This was not unexpected, as the sample was recruited from a community based self harm crisis service. Only 13% of the participants did not report any level of thoughts of self harm or suicidal ideation as measured by the PHQ-9 item 9. On the RISKRES suicide screening items, 40.4% of the participants endorsed an affirmative response to having ‘serious’ suicidal ideation, while 56.2% endorsed a negative response. Similarly, 58.2% of the participants endorsed an affirmative response to having suicidal thoughts + method, while 38.4% endorsed a negative response to this screening item. Thus, more of the participants had thought about how they might end their life, than those who had been ‘thinking seriously’ about ending their life. This was somewhat unexpected, particularly in light of hierarchical models, which would suggest that thoughts about a method suggest more serious and active ideation. While common on suicide screeners, the use of the term ‘seriously’ has been criticized due to its subjective nature (Goldston, 2003). In terms of the further analysis, an approximately even spread is optimal in the distribution of dichotomous variables (Kline, 2005).

Validation results suggest that both the risk and resilience subscales show good internal consistency reliability for the sample for both the 46-item and 29-item versions of the scale. Cronbach's (1951) alphas for the risk and resilience subscales were .87 and .78 respectively for the 46-item version of the RISKRES. Cronbach's alphas for the 29-item version were .83 and .78 respectively with the same sample. Shortening the scale did not appear to significantly impact the internal structure reliability, particularly as the number of items is part of the calculation and so shorter scales have relatively lower coefficient alphas (Kline, 2005). Since this tool is being developed as part of an initial screen, alphas of between .7 and .9 are optimal to ensure reliability without too much redundancy in the measure (Tavakol & Dennek, 2011).

The tool was shortened based on inter-item and item-total characteristics for this sample, so administration with another and ideally more diverse sample is needed to confirm the internal consistency reliability. As the alpha levels were calculated for the risk and resilience scales total scores, this lends support to the hypothesis that at least for this sample, it was reasonable to group all the resilience items together. Both beliefs about self and beliefs about others were correlated, as the alpha coefficient for the total scale is still relatively high.

In relation to concurrent validity, scores for the 46-item RISKRES were examined as compared to the PHQ-9 total scores. There was a strong positive relationship between the RISKRES risk total scores and higher levels of depression as measured by the PHQ-9. There was a negative relationship between RISKRES resilience scores and depression, indicating higher levels of resilience as measured by the RISKRES were associated with lower levels of depression. There was an inverse, statistically significant and moderate level of relationship between the RISKRES risk scale and the RISKRES resilience scale. Therefore, the 46-item RISKRES risk scale showed a high and statistically significant

association with a standardised screener for depression, as expected, and this suggests good concurrent validity of the scale. The resilience scale showed a moderate inverse relationship with both the RISKRES risk scale and the screener for depression, also as expected and contributing towards the content and discriminant validity of the resilience scale.

Following shortening of the tool from 46 to 29 items, the 14 risk items retained were subjected to an exploratory factor analysis. The factor structure loaded on 2 factors, with moderate to high factor scores, ranging from .350 to .799 on the pattern matrix. The two factors on the risk scale are positively and moderately correlated with factor correlations of .498. While all factor loadings exceeded the minimum recommended value of .32, there were some factors with cross-loading. While the results of this analysis are exploratory and need to be tested on a larger sample, they support the tentative notion that the 2 factors represent unique but related constructs. The factors have been provisionally labelled: 1. Depression/ desperation and 2. Anxiety/ agitation/ overwhelm. The factors are consistent with constructs represented on other screening measures of suicidal risk factors (Schaffer et al., 2004; Diamond et al., 2017) and map broadly onto psychiatric classifications, while providing some nuanced information.

For the 29-item version of the RISKRES, the Desperation/ depression subscale individual items specifically showed high and statistically significant correlations with the PHQ-9 (Spitzer et al., 1999) total score and with item PHQ-9 item 9, again suggesting content and concurrent validity for the 29-item version of the scale. All items in the Depression/ desperation subscale correlated significantly at moderate to high levels with PHQ-9 item 9, which is the self harm/ suicide risk screening item. PHQ-9 item 9 has been shown in previous research to identify outpatients in primary care of increased risk for suicidal behaviour (Simon et al., 2013), including adolescents. While the items

characterising the construct of Depression/ desperation have been designed with suicidality in mind, it can be seen that there are marked similarities with traditional psychiatric classifications of mood disorders as per DSM-5 (APA, 2013). This was evidenced by the high correlation with the PHQ-9 total score, and with suicidality specifically by the moderate to high correlations with the PHQ-9 item 9 risk score. This can be seen as a strength of the measure. While the tool is geared towards tapping risk factors for suicidality specifically, it could potentially be used to signpost referral to existing mental health services. This may meet a pragmatic need in terms of linkage for vulnerable young people within the prevailing system. Due to high correlations between the Depression/ desperation subscale and the suicide screening items, plus the significance the subscale plays in all of the regression models, there is promise for this subset of 6 items to be used as a very brief screener for depression and suicidality. In fact, the RISKRES 6 item subscale showed higher correlations with the PHQ-9 item 9 over the range of items than the other PHQ-9 items. This suggests that for the current sample, the RISKRES items were better able to tap the features of depression that correlated with suicidality than the PHQ-9 and with less items.

Thus for the original hypothesis 1 proposed, we can tentatively reject the null hypothesis and accept the alternative hypothesis: Scores on risk items will demonstrate a positive correlation with increased suicidality following cross sectional data collection. There appears to be a consistent relationship between the depression/ desperation subscale and the presence of risk outcomes across all regression models. Further work needs to be undertaken to determine the relationship between the anxiety/ agitation subscale and risk outcomes.

The factor structure of the 29-item RISKRES resilience scale is relatively less stable than for the risk factors scale. The factors loadings range from 1.08 to .371 on the pattern matrix, indicating that the solution needs to be interpreted with caution. The correlation matrix suggests low to moderate correlations between factors, ranging from -.018 to .395. During analysis substantial cross-loading of items was noted, and an inconsistency was found between the eigen value estimation and visual information from the scree plot. It was concluded that fewer than the 5 factors presented here could potentially be retained. This is difficult to interpret, considering the instability of the factor structure and the lack of theoretical clarity about the expected number of factors. Nevertheless, the 5 factors suggested by the solution are theoretically coherent. For the current analysis, the 5 factors have provisionally been labelled: 1. Autonomy, 2. Disconnection, 3. Capable/future orientation, 4. Connection, 5. Bouncing back. These constructs are relatively consistent with the types of constructs presented in other resilience models (Prince Embury & Courville, 2008) and may tap constructs which are the inverse of processes described in other models of suicidality, such as 'thwarted belongingness' (Joiner, 2005) and 'entrapment' (O'Connor, 2011).

Further validation of the resilience subscale in particular is needed. Further analysis could seek to determine its psychometric properties with a more heterogeneous non-clinical sample and whether it is suitable as a stand-alone measure of resilience. Particularly since there is considerable debate in terms of the number of factors for resilience, obtaining a more stable structure for this section of the scale is an important and ongoing priority. Further data collection in this regard is ongoing at the time of writing.

5.5 Regression models

A number of regression models were run during the analysis. All independent variables entered into the models were entered as regression factor scores from the maximum likelihood exploratory factor analysis, using an oblique direct oblim rotation. The outcome variables were suicide risk screening items as measured by the RISKRES and the PHQ-9. The regressions were run to explore the following issues:

1. to determine whether the variables comprising the risk and resilience scales were potential predictors for the RISKRES screening items measuring different types of suicidal ideation;
2. to compare any differences in prediction between the 46-item vs. the 29-item versions of the RISKRES;
3. to determine whether the variables on the risk only scale would predict suicidal ideation accurately alone or be influenced by the combined risk and resilience variables;
4. to determine whether the models showed similar results depending on whether the outcome variable for suicidality was measured using a dichotomous or continuous outcome variable;
5. to give preliminary estimates of sensitivity and specificity for the risk and resilience factor models;
6. to give an indication of whether the risk and resilience variables could predict suicidal ideation even if the suicide ideation screening items were not used as part of the measure.

For the 46-item version of the RISKRES, the measure was able to correctly identify a significant number of cases with suicidal ideation based on dynamic risk and resilience based items. The model was able to correctly classify 74.2% of cases for the suicide ideation outcome item tapping suicidal ideation + thoughts about a method. In this case,

resilience and survival beliefs made a unique and statistically significant contribution to the overall model along with the factors of isolation and heightened state. For the outcome variable of serious suicidal ideation, the model was able to correctly classify 73.4% of cases overall. For this model, connection, investment, and avoidant coping made a unique and statistically significant contribution to the overall model.

The sensitivity and specificity of the 46-item RISKRES were reasonably high for both outcome variables. The models were able to correctly classify a significant number of suicidal individuals without asking directly about suicidality. For the outcome variable of serious suicidal ideation, the model indicated a sensitivity of 69.2% and a specificity of 76.3%. For the outcome variable of suicidal ideation + thoughts about a method, the model indicated a sensitivity of 83.8% and a specificity of 61.1%. In both cases, the model was able to correctly classify a statistically significant amount of cases of suicidal ideation based on the 44 measure items which focus on risk and resilience factors, but do not ask directly about suicidal risk.

For the 29-item version of the RISKRES, sensitivities and specificities were again calculated and the contribution of various factors to the overall model were analysed. For the outcome variable of serious suicidal ideation, the model as a whole correctly classified 68.7% of cases. In this case, two of the independent variables made a unique and statistically significant contribution to the overall model (Depression/ desperation and Anxiety/ agitation/ overwhelm). For the outcome variable of serious suicidal ideation, the model showed a sensitivity of 59.3% for this outcome and a specificity of 75.3%. Thus, the number of individuals the model was able to correctly classify with suicidal ideation as measured by the RISKRES screening item on 'serious suicide ideation' was relatively lower in sensitivity for the 29-item version of the RISKRES, without a substantial increase in specificity.

For the outcome variable of suicidal ideation with thoughts about a method, the 29-item RISKRES correctly classified 71.8% of cases. Two of the independent variables made a unique and statistically significant contribution to the overall model (Depression/desperation and Disconnection), while the variable Connection was also approaching significance at $p = .09$. For the outcome variable of suicidal ideation + thoughts about a method, the sensitivity was 85.7% and the specificity was 51.9% for the 29-item version of the RISKRES. For this outcome variable, the sensitivity was relatively higher for the 29-item version of the RISKRES vs. the 46-item version although the specificity was relatively lower.

Other research has indicated there is often a tradeoff between high sensitivity and high specificity (Halfors, 2006; Scott et al., 2010). Pragmatic considerations play a role here in determining whether a screening method is suitable, such as length of the initial tool and availability of resources for follow up after a positive screen. Selecting a sensitive screening method leads to more positive screens. More people actually at risk are likely to be correctly classified; more people not really at risk are also likely to be flagged for further assessment, potentially overstressing resources. It has been suggested that services can optimally select screening methods which will balance out having high sensitivities without placing undue burden on resources by choosing scoring algorithms and cut-offs dependent on the context (Hill, Oosterhoss, & Kaplow, 2017).

For comparison of the risk subscales only vs. the risk and resilience subscales together, the models with all the variables had more explanatory power than the models without them, with one exception. Based on logistic regression analyses with the 29-item RISKRES risk subscales only, the risk subscales of Depression/ desperation and Anxiety/ agitation/ overwhelm were entered into the model with the outcome variable of serious suicidal ideation. The model as a whole correctly classified 69.3% of cases and both risk

factors played a unique and statistically significant role in the model. The model showed a sensitivity of 63.8% and specificity of 73.4% for the risk only variables. In this case, the sensitivity was relatively lower for the full model including all the variables (59.3%), while the specificity was relatively higher for the full model including all 7 variables vs. the risk model only (75.3 vs. 73.4%). This indicates that for the outcome of serious suicidal ideation, the risk only variables had greater predictive accuracy than the risk and resilience variables for correctly identifying those with serious suicidal ideation correctly, but had lesser predictive accuracy in identifying those who did not have serious suicidal ideation correctly.

The situation was different for the other suicide ideation outcome variable. For the 29-item RISKRES risk subscales, the model produced through logistic regression showed a sensitivity of 84.1% and specificity of 47.3% with the outcome variable of suicidal ideation + thoughts about a method. Both sensitivity and specificity are relatively lower for the 29-item RISKRES risk subscales only for this outcome variable. This indicates the model is less effective in correctly classifying the suicidal ideation + method outcome based on the risk factors only. For this suicide ideation outcome, the full model including the risk and resilience variables had more explanatory power than the model with the risk variables only.

An additional multiple linear regression was also run, again using the 7 variables from the EFA as the independent variables and the PHQ-9 item 9, suicide screening item as the outcome variable. The additional regression analysis was run to see the impact of the 7 variables on the outcome of suicidal ideation using a scaled as opposed to a dichotomous variable as the outcome for comparison. The linear regression also allowed for comparison between R square and pseudo- R square values and for verification of prediction of the outcome variable with a true linear model. Furthermore, the PHQ-9 item

9 used as the outcome variable in this model is a standardised and validated suicide screening item which has been shown to have predictive validity for future risk (Simon et al., 2013), including with adolescents.

The 7 independent variables were entered into the multiple linear regression with the PHQ-9 item 9 as the outcome variable. The PHQ-9 risk screening item is broader than the RISKRES screening items, and thus would likely be endorsed by those with thoughts of suicide, thoughts about nonsuicidal self-injury, and a passive death wish. ('Thoughts you would be better off dead or hurting yourself in some way'). Only 13% of the total sample did not endorse this item to some extent, which indicates it is less specific than the other two outcome items. The total variance explained by the model as a whole was 41.5%, $F(7, 124) = 12.6, p < .001$. In this case, two of the independent variables made a unique and statistically significant contribution to the overall model, Depression/ desperation (beta = .68, $p < .001$) from the risk scale and Bouncing back (beta = -.17, $p < .041$) from the resilience scale.

It can be seen from the results of the regression analyses overall, that the risk subscales, and in particular the Depression/ desperation subscale, play a statistically significant and unique contribution to the model, despite the type of regression analysis conducted and despite the scoring of and/ or wording of the suicide ideation outcome item. It can also be seen in some of the models that Anxiety/ agitation/ overwhelm and various resilience based subscales, most notably Bouncing back, Connection, and Disconnection, contribute towards the overall model and aid correct classification of individuals with suicidal ideation, albeit at lower significance than the Depression/ desperation subscale. Furthermore, the scale is able to distinguish between suicide ideators and non-ideators with a sensitivity of 93.3%, specificity of 58.5%, and PPV of 83.2% based on risk and resilience profiles. Again, the Depression/ desperation subscale

and interpersonal variables played the most significant role in the model. This was despite most individual variables not reaching a unique and statistically significant contribution in some of the models. The situation is similar with the dichotomous outcome variables as measured by the RISKRES screening items, and with the scaled standardized outcome variable as measured by the PHQ-9 item 9 suicide screening item. With all of the regression analyses, the Depression/ desperation subscale played a statistically significant role in the overall model. With the exception of the sensitivity for ‘serious suicidal ideation’ as the outcome variable with the 29-item version, the overall models were also aided by the resilience subscales.

Thus, we can provisionally reject the null hypothesis for hypothesis 2, and accept the alternative hypothesis: Combined risk and resilience scores will be more accurate predictors of suicidality than risk scores alone. As such, based on findings from this small-scale study and the current method of operationalising resilience, the second overall research question can be answered affirmatively: Resilience can make a contribution to suicide risk identification. This of course needs to be validated with larger, more diverse samples in order to be more definitive. The measure will also likely benefit from further refining to emphasise the aspects of resilience which are most highly correlated with risk outcomes across diverse populations.

It is evident based on the abovementioned analysis of the RISKRES, that the constructs which are related to suicidal ideation may also vary, depending on the type and level of suicidal ideation being measured. For example, the levels of sensitivity and specificity differ depending on the outcome item. One possible explanation for this is that particular constructs are more predictive of particular types of suicidal ideation. For example, considering oneself to be ‘seriously’ considering suicide might be associated

with a slightly different profile of risk and/ or resilience than contemplating the method that might be used. This again may differ from ideation which is more passive in nature.

Overall, it is difficult to interpret which resilience based subscales might play the biggest contribution for particular outcomes, as the factor structure is still not definitive. There is a possibility that the scale might load on one or two latent constructs with a larger sample size. Analysis of internal structure of the RISKRES goes some way to supporting the hypothesis that beliefs about self and beliefs about others can work as part of an overall resilience scale, although at present other related beliefs are loading on a separate factor. In several of the models, perception of interpersonal connection or disconnection played a significant role in the overall model. This is consistent with other research (Ream, 2015) which suggests that screening efforts might be enhanced by measuring constructs from the interpersonal theory of suicide (Joiner, 2005) such as belongingness. Longitudinal classification tree analysis has also suggested that to achieve optimal sensitivity without compromising specificity that suicide ideation, depression, suicide exposure, and social support all play a role in predicting future suicidal ideation (Hill, Oosterhoff, Kaplow, 2017). Findings are consistent with other recent research, which suggests that resilience as measured by the READ was predictive of suicidality independent of psychological distress, in particular the constructs of personal competence and family cohesion (Jakobsen et al., 2017).

Of course, a limitation of the present study which needs to be considered is the tentative nature of the factor structure which was put forward for the resilience subscale overall and the lack of stability in the factor solution. This will ideally be addressed through a larger data collection with a broader population and eventual confirmatory analysis which will be addressed further below.

5.6 Conceptual issues

When the tool was shortened from 46 to 29 items, it was with a view to a further nonclinical data collection in mind. Feedback received from multiple agencies was around the negative bias of the items in the tool and a need for brevity. This resulted in a number of items being removed due to low item-total correlations, low inter-item correlations, low communalities, and in some instances items were removed if there was a positively worded item which represented the same construct. This has presented a number of issues.

It can be seen from the abovementioned results that the sensitivity and specificity of the RISKRES is relatively lower for one of the screening outcomes after having been shortened to 29 items. This presents a dilemma. Practitioners expressed they would be less likely to use a longer and more negatively biased tool. However, the use of such a tool may more comprehensively measure risk. Furthermore, certain items may not be appropriate for school settings, such as asking about a trauma history. One potential solution for this may be a change in the design of the 46-item version for online administration which would allow a filter item to confirm whether or not additional items would need to be answered, such as in the Behavioural Health Screen (Diamond et al., 2017). This could potentially maximise the number of constructs being measured while remaining brief.

Two of the resilience items had low item-total correlations also (fit and healthy and school connection). These items were retained for the nonclinical data collection for pragmatic and theoretical reasons. School connection has been identified in the literature as protective against suicidal risk in North American studies (Resnick et al., 1997). Furthermore, school related factors have been identified as part of risk profiles which predict risk prospectively with the most sensitivity (Hill, Oosterhoff, & Kaplow, 2017).

For these reasons and also a pragmatic usefulness for a measure which could potentially be administered in schools, the school connection item was omitted from the 29-item analysis presented above, but has been retained overall and additional items have been written to be included in a school administration of the resilience subscales.

One issue which has not been satisfactorily dealt with during the analysis is whether the constructs do in fact exist on a dimensional spectrum, and whether they can be measured in that way. Johnson et al. (2011) suggests that resilience factors must exist on such a so-called bi-polar continuum. The principal researcher was initially sceptical of such an assumption and thus the 46-item RISKRES taps all constructs and their opposites with positive valence, as mentioned earlier. It was felt that the original EFA for the 46-item version had perhaps overestimated the factors and some of the items could be considered redundant for a tool being used for an initial screen.

While originally none of the items included in the 46-item version included negative valence, in order to stabilise factor structure while shortening the scale, the principal researcher decided to eliminate some of the negatively worded items if they were represented in a positively worded way, and to reverse score some of the items to ensure there were still a minimum of 2-6 items (Kline, 2005) for each hypothesized construct. One way to view the issue is that it is reasonable to assume that disconnection/ isolation is the opposite of connection and that these can be measured with that assumption as a given. The 29-item version does rely to some extent on the assumption that constructs exist on a dimensional continuum, which has raised some issues.

Of the two reverse scored items, there were problems with one and not the other. There are two possible explanations for this. One is possible response bias. It seems unlikely however that response bias would impact one reverse scored item and not the other. Another possibility is that one of the constructs is not actually existing on a

continuous dimension with its opposite. The bouncing back reverse scored item did in fact load on the same factor as the other bouncing back items with positive valence; the disconnection item however did not load with the connection items when reverse scored. The item loaded highly on its own factor. A possible explanation for this is that while delayed recovery is actually the opposite on a dimensional continuum from recovering quickly and other items tapping bouncing back, that disconnection from friends and family is not the opposite of connection, love and support from others.

One plausible explanation may be the presence of dysregulated or dissociative states. For young people presenting as at risk of suicide who are likely to have problems with emotion regulation, it is possible that they feel at times intensely connected and at other times intensely disconnected in a short space of time. As such, these experiences might not exist on a dimensional continuum which could be measured in that way. Further investigation is needed on the association of disconnection with other risk and resilience constructs specifically and the possibility of whether this relates to dysregulated or dissociative states for some young people presenting as suicidal. Throughout the development of the tool, there has been a tension around trying to achieve the balance of remaining brief, while also trying to work out whether the constructs are really dimensional.

There is also tension both in the analysis and within the research literature in relation to traditional psychiatric classifications for measuring risk factors. While it is commonplace for risk screeners to use these conceptualisations, most contemporary psychological theories of suicidality do not include them. It was felt by the principal researcher that since traditional classifications were identified through the analysis that they could be represented on the measure for pragmatic reasons vs. using purely descriptive labels for the subscales. There are pragmatic advantages to this stance in

relation to referral which will be examined further below. Additionally, the exploratory analysis did move the variables back in this direction, for the risk scales especially, although the RISKRES risk scales are more nuanced for suicidality than a typical mental health screen. In fact, the 6 Depression/ desperation items show promise as a short risk screen and would also screen for DSM-5 (APA, 2013) criteria A1 and A2 (low mood and anhedonia) for depression. Further research is needed to validate concurrent validity with the Anxiety/ agitation/ overwhelm subscale as a potential screener for anxiety disorders.

Much work has been done in recent years on identifying the relationships between impulsivity, heightened states, and ADHD like risks and their associations with suicidality. These constructs are in Teen Screen (Shaffer et al., 2004) and have not been included here except in the Anxiety/ agitation/ overwhelm subscale. The impulsivity item is one which had a low item-total correlation. This is perhaps in absence of the fact that it may have been correlated with the outcome variable of suicidal behaviour and the present scale is geared towards measuring ideation. The removal of this construct may merit further attention, particularly due to its association with suicidal behaviour (O'Connor, 2011).

Reducing down the 46-item version has eliminated a number of constructs, such as impulsivity and also acute stressful events. Kline (2005) notes an 'unusual paradox' during scale development which may play a role in the current tool development. A tension appears to exist between creating a scale with high inter-item correlations and high item to external criterion correlations, particularly in the situation where a criterion variable is multifaceted (Kline, 2005). Because suicidality has multifaceted risk factors and resilience is likely multifaceted as well, eliminating items based on low inter-item or low item total correlations is likely to aid a clean factor solution, but may not necessarily promote the aim of predicting concurrent suicidality most efficiently with the least

number of items possible. Indeed, having more items for each construct, thus making it more redundant would likely improve factor loadings. However, this would likely work against the aim of efficiently measuring the most relevant modifiable risk and resilience factors with the least number of items, with the strongest associations with the outcome variable.

A recent review of the literature on suicide and self harm in adolescents (Hawton et al. 2012) urged clinicians to be aware of the following: family history of suicide or self harm, previous self harm, contact with others engaging in self harm, expressed suicidal intent, access to methods, and lack of social support. The current study has emphasized the dynamic and modifiable processes in relation to suicidal risk. Nevertheless, the importance of a potential social learning process was also evident both from examination of the literature and from the focus group data. While exposure to suicide/ self harm of others features on the clinical add-on section of the tool, incorporating this static risk factor into the main body of the screening tool is also a potential area under consideration.

5.7 Advantages of RISKRES initial design

Considering the lengthy debates highlighted in relation to the merits of prediction of suicidality, the post-positivist epistemology within a context of pragmatism can be seen as a strength of the study. While there may be factors of an objective nature which enhance and mitigate against risk, it is likely impossible to make absolute statements about these factors for every situation. Approaches to risk screening have been reworked over the years. The multidimensional, complex nature of suicidality is receiving increasing attention and resulting in screens looking at different types risk, outside the traditional classification of depression (Diamond et al., 2017). The idea of screening comes from a medical model and needs to be adapted accordingly when applied to abstract, latent, and

even ambivalent constructs such as suicidality. Thus, an epistemology which allows for ambiguity within the scientific method and ongoing refining of hypotheses is advantageous over a rigid view on predictive accuracy.

Considering the issues surrounding predicting suicidal risk with accuracy, it seems prudent to move more into the contemporary frame of so-called ‘upstream prevention’ (Hill, Oosrerhoff, & Kaplow, 2017; Singer, Erbacher, & Rosen, 2018). This involves identifying modifiable risk factors which may lead to suicidality and providing intervention in the very early stages. If the individual is already at risk, then identifying what is modifiable can direct safety planning and referral. The Straussian (1990, 1994) grounded theory methodology emphasises process and interaction in analysing the data and is grounded in pragmatism. This has been an asset in guiding the researcher towards what is dynamic as the basis of the proposed substantive theory. This means that dynamic, modifiable constructs have been the focus of the analysis and form the basis of the RISKRES.

The substantial iterative process guided by the grounded theory methodology is also a strength of the research. The measure development involved a rigorous process of analysis, consultation with the literature, consultation with participants and stakeholders, and more analysis. Theory development was enhanced by theoretical sampling, including feedback from subject matter experts in a suicide and self harm agency and also collegial feedback following dissemination of provisional findings. This was aided by further feedback on the emerging theory by participants of the original 2 focus groups. Consultation throughout the process of development of the tool with practitioners is considered a strength, although it has been challenging at times to balance clinical needs and preferences with rigorous research.

The tool was designed to measure factors which are dynamic in nature and thus amenable to intervention. Other brief measures of resilience, for example the Connor Davidson RISC 10-item resilience scale focus primarily on characteristics more compatible with trait theory, such as persistence and hardiness. Trait based approaches have been criticized in the literature. Fergus and Zimmerman (2005) are critical of the conceptualisation of resilience as a trait, suggesting that resilience is a construct which is ecological and that trait conceptualisations are not amenable to the measurement of change. The view of the research team is consistent with this concern. An important aspect of the current tool is that it measures characteristics which are thought to be modifiable with intervention. This is a core feature of the resilience subscale in that it does not measure factors which would not be suitable for targeted intervention, such as religious beliefs about suicide. Furthermore, the focus of the tool is not on static risk factors. Other risk scale models have been shown to be less effective than global clinician ratings (Quinlivan et al., 2017). These risk scale models are often focused on historical static factors and do not take psychological state into account. Any screen should be sensitive to change in resilience and be able to indicate when the person is coping better and if they are moving further away from a crisis point.

Indeed, Johnson et al. (2011) have identified that most suicide resilience research to date has included participants being given an overly wide range of standardised batteries. Limitations to this approach are the risks of participant fatigue and the risk of type I error. Thus, a main advantage of the RISKRES is that it measures a myriad of modifiable risk and resilience constructs within one measure while remaining brief and user-friendly.

In order to be of any use in programme evaluation in suicide prevention, a risk screening tool needs to measure not only deficits, but also resilient characteristics, or those which would help to buffer 'risk.' Surgenor et al. (2016) suggests that school based

suicide prevention is overly focused on risk factors and should emphasise building resilience and evaluating outcomes regularly. Thus, a strength of the RISKRES is that it takes both of these dimensions into account. It was noted during a recent systematic review on the evidence of resilience focused interventions that trials very rarely measure resilience as an outcome (Dray et al., 2017). Returning to the debate around operational definitions, it would seem that it is not sufficient to measure the absence of pathology to determine an increase in resilience. The RISKRES resilience subscale shows promise as a stand alone measure of resilience outcomes with a view towards suicide prevention.

5.8 Study limitations

A limitation of the current study is that the grounded theory analysis only sampled clinicians and did not include previously suicidal individuals. While interviewing clinicians gave the advantage of asking subject matter experts who had experience of multiple cases of emerging risk, from a grounded theory perspective it would have been optimal to also interview suicidal or previously suicidal people themselves. While the rich data this could have added would certainly be beneficial, there are obvious ethical drawbacks to interviewing suicidal young people, or even previously suicidal young people in detail about their most vulnerable time. Additionally, research suggests that professionals may be best placed to make an overall evaluation of future risk, over and above clients themselves (Quinlivan et al., 2017), although this research was conducted with adults in psychiatric settings so may not generalise to adolescents in community settings. To bridge this gap, qualitative studies with actual clients were specifically sought out and consulted as part of the literature review.

Grounded theory has been critiqued as a method in psychological research. It has been suggested it is more suited to studying sociological processes than psychological

processes (Willig, 2013). In relation to this critique, the current study attempts to capture the lived experiences of suicidal individuals through experts who have worked with a number of these individuals, and to explain the development of their suicidality in light of the wider social processes at hand and their consequences. Insights into these processes have been gleaned through the clinicians who have observed them first hand. There is much debate in the literature about whether resilience to suicidality is an intrapersonal or interpersonal process. In order to fully investigate the phenomenon, authors contend that these aspects cannot be separated out.

Yet another critique of the method is that grounded theory does not take reflexivity into account to the extent that other qualitative methods do in terms of the role of the researcher in co-constructing the findings (Willig, 2013). In this case, the concept of theoretical sensitivity was reflected heavily upon throughout the research through the use of memo-ing and discussions in supervision. It has been accepted within grounded theory that the research does not really start from no knowledge and the method has moved throughout the years to accepting that fact (Strauss & Corbin, 1994). In relation to the role of the researcher, this may be a clash of epistemology. While this study does acknowledge that the data was in fact analysed by the research team, it does not maintain to be constructivist. As such, the analysis and resulting theory focused more on the conceptual development of the theory rather than on the researcher's experiences. As theory development and subsequent verification continued, the research moved into a more positivist space, while still acknowledging and reflecting on the inherent ambiguity in studying a construct like resilience to suicidality and the difficulties in obtaining absolute knowledge in this area.

One major limitation of the current study is the relatively small, homogeneous sample. While the age range was representative of the intended population for a screening

method, this sample were attending for services in one geographical area and were all attending the same service. Due to the total sampling procedure, this was not a nationally representative sample of young people. As noted previously, total sampling was adopted to maximise participation during a finite period of time when extra resources were available within the service to support the research. However, a larger sample would have been preferable for the initial item analysis and exploratory factor analysis. Eliminating the acute items and other items from the 46-item RISKRES, while based on statistical and theoretical reasoning, does not mean that these items are not related in a meaningful way to the outcome variable. Due to the sample size being on the low end for an exploratory factor analysis, reduction of the items at this early stage may have been premature, particularly due to the homogeneity of the sample. This needs to be examined further, and with larger samples, both 'at risk' and nonclinical samples.

Conducting a larger exploration of the measure items with both a nonclinical and a clinical sample would have been optimal for obtaining factor structure, but proved difficult due to resources and ethical issues surrounding the scaffolding of follow up support and experienced researchers who could provide support to young people and families throughout the research. While using a nonclinical student population and conducting safety interviews were initially considered by the research team, the level of resources and agency collaboration needed was thought to be outside the scope of the current project. It was decided to focus on development of a theoretical framework for the measure, to write the measure in conjunction with practitioners who would be administering it, and to pilot the measure with an 'at risk' sample of youth in a community based setting where there was an already established referral pathway.

One major advantage of the 'at risk' sample was an already established referral pathway and access to support. It was also felt by the research team that young people

who had volunteered to access services in a suicide and self harm intervention service might be ready to speak about these concerns and thus be more likely to respond truthfully to risk items, potentially reducing social desirability and other bias. They were also less likely to experience distress during the research as they would have already agreed to attend the service. However, this sample may represent a certain cohort of young people. The participants may exhibit lower stigma about help seeking as they have agreed to attend a self harm service and therefore may not be representative of the range of young people with suicidal ideation. Tapping into this population in its entirety would be very difficult without conducting the screen in a purely anonymous manner. This provides other ethical dilemmas which have been previously noted.

The participants sampled may be reasonably representative of a population which would be suitable for a 'targeted screen' in an educational or community setting, since they were recruited from a community based self harm crisis service, as opposed to a psychiatric service. Targeted screens focus on individuals thought to be vulnerable to suicidality as opposed to universal screens which include everyone in that setting. The sample in the present study were likely to have risk indicators but also to be first time service users and were likely to be in the early stages of suicidality. In this sense, the current sample had some advantages. It has been suggested that to study resilience, the group must be vulnerable and have risk factors (Fergus & Zimmerman, 2005), ideally varied risk factors. Additionally, when conducting analysis on dichotomous variables, it is optimal that they are roughly equal in their proportions (Kline, 2005). Since the sample presented above was an 'at-risk' sample, responses to suicide screening items which were reasonably specific were roughly equal. This is beneficial for the regression analysis. This would have been a very unlikely scenario in measuring these outcome variables if the sample had been randomly selected from a nonclinical population.

Test-retest data was not collected from this sample. The test-retest reliability for the measure has yet to be established. Ideally, this would be taken from clinical and nonclinical samples who were not receiving any follow up intervention.

Both the 46-item and 29-item versions of the RISKRES include the majority of items as measured by Likert type scales. The descriptors chosen were: 0 '*Not at all true for me*'; 1 '*Occasionally true for me*'; 2 '*Some-what true for me*'; 3 '*Pretty much true for me*'; 4 '*Very true for me*'. The descriptors were chosen to capture both frequency and intensity as anchors (Kline, 2005), rather than purely focusing on one or the other. The use of Likert scales has been contentious in relation to their status as ordinal vs. interval data. Nevertheless, Likert scales are typical in the field of psychology to collect self report data. Additionally, some research exists which suggests Likert type scales do have categories of approximately equal intervals (Kline, 2005). In this case, some of the correlational analyses were conducted using Spearman's rho, which has been suggested as better able to accommodate ordinal data. A possible resolution to the interval dilemma would be to adapt an online version of the scoring that does not use descriptors, but visually has a bar that can be calibrated between 0 and 10. However, children and adolescents tend to respond more reliably with fewer options and there are issues surrounding the use of neutral midpoints (Borgers et al., 2004; Kline, 2005). This is something to consider for future administrations of the tool.

The use of young person self report to measure risk and resilience factors and also direct suicide screening items has both advantages and disadvantages. Response bias will always be a potential downfall with self report measures. Other suicide screening researchers have indicated that self report may be biased due to social desirability or other biases (Hill, Oosterhoff, Kaplow, 2017). A higher social desirability bias was indicated in US samples for young people with lower socioeconomic status when receiving follow up

after a screening process (Hill, Wynne, & Cunningham, 2012). These issues do not appear to have been investigated with Irish adolescents. UK research on mental health screening in educational settings has indicated that young people would be reluctant to disclose difficulties due to fears around confidentiality, stigma, and gossip circulating around their school (Fortune, Sinclair, & Hawton, 2008). This is one advantage of the sample in the current study. Adolescents were in a contained space where confidentiality is the norm. They were also potentially more likely to be truthful as they are a sample who has presented with risk indicators and have to some extent agreed to seek help. Thus, while response bias is something to consider, it is not thought to be a significant barrier with the present sample.

One possible workaround to the issue of response bias is to seek collateral information from other sources. This is typical within the context of psychological assessment. Many measures contain a feature to measure collateral data from the young person, the parent, and/ or the teacher. However, in this case there are issues with this approach. Research has consistently suggested that self report taken from a young person is likely to be reliable, and more reliable than information taken from parents, as parents are often unaware of the suicidality of their children (Velez & Cohen, 1988). Furthermore, My World findings suggested that Irish adolescents are generally self aware and reliable sources of whether they have significant problems and need help (Dooley & Fitzgerald, 2012). Recent research has suggested that client global self report of risk is more accurate than some of the standardised and established suicide risk scales using static observable variables (Quinlevan, 2017). The National Institute of Mental Health in the US are promoting a new 4-item screening tool for primary care settings called Ask Screening Questions which urges the practitioner to conduct the risk screen privately with young person and not with parents present (NIMH, 2015). For all of the abovementioned

reasons, self report remains a primary method of screening adolescents for suicidal risk (Goldston, 2003).

Another major limitation of the present study is the lack of longitudinal data to assess for predictive validity. The use of the measure at multiple time points with an outcome variable of suicidal behaviour in addition to ideation would give more rigour to the hypothesis that resilience plays a significant part in the suicidal process. It has been noted that a failure in the literature is the lack of evaluation of prediction models based on longitudinal approaches, in studies of first onset suicidality in particular (Mortier et al., 2017). A time 2 administration of the measure was originally part of the research plan, but was abandoned due to service providers suggesting that contacting young people a year after the crisis may have been resolved could be potentially distressing. It was decided that due to the potential for distress and potential lack of a suitable structure at a later stage to contain that distress that a time 2 administration should be abandoned. Balancing ethical considerations with statistical considerations again created tension in the research design.

Yet another potential limitation of the study design is that the screening outcome variables were dichotomous. Johnson et al. (2011) critiques the use of dichotomous variables in suicide research as the outcome variable, although acknowledges this is common. Many screening questions seek binary answers. There are statistical limitations to this approach; however pragmatically and clinically there are advantages to having more certainty with suicide screening items and not relying on Likert type responses. In this case, the issue was to some extent mitigated by having an additional outcome variable of the PHQ-9 item 9. This was a continuous scaled item measuring suicidal ideation. However, measuring the ideation more specifically through multiple scale variables for all the participants would have added to the analysis.

No meaningful feedback was gathered from the ‘at-risk’ sample in relation to language of the items. While no confusion was reported by the assessors, feedback from adolescents as to the wording of the items and general construction of the tool would further supplement the research aim of being user-friendly. When surveying children and adolescents, three important considerations are central to questionnaire design: comprehension/ readability, memory/ processing time, and suggestability (de Leeuw, Borgers, & Smits, 2004). It would have been optimal to pilot the language of the items, particularly with older children and younger adolescents prior to the initial data collection to check for comprehension, particularly of more abstract suicide ideation items. In relation to processing of retrospective events, while a time line of 3 months is typical for screening questionnaires, this may add complexity in relation to recall for younger adolescents (de Leeuw, Borgers, & Smits, 2004). In the case of the RISKRES, there is no time limit to complete the measure, so processing issues are less of a concern, aside from potential participant fatigue which could benefit from further investigation. Self report bias has been suggested to be influenced by ‘pleasing’ behaviours in children approaching adolescence, and by conformity with peers for young and middle adolescents (de Leeuw, Borgers, & Smits, 2004). Assessing for suicidal risk has further complexities in relation to the disclosure of sensitive information and potential consequences which have been noted previously.

Incidentally, the only feedback that was gleaned from potential participants was in relation to the demographic information. It was reported that during separate agency led focus groups on the school version of the resilience subscale that the students did not wish to be asked about gender. The service reported students would prefer not to have predefined categories to choose from for this item. This created significant debate amongst the research team about gender, biological sex, the subjectivity of this issue and whether the data should be collected at all.

The last potential limitation surrounds the lack of clarity around what resilience is, and how it related to suicidality and suicidal risk. Issues have been noted in the literature around the lack of a universal operational definition of resilience (Lui et al., 2017). Is resilience to suicidality a construct, a number of related constructs, a trait, a process, or is it an outcome? Johnson (2011) critiques contemporary research on resilience to suicidality and suggests that a true resilience variable should be more than an inverse relationship with risk and should be able to buffer (statistically moderate) high risk. This view proposes resilience is not a construct in its own right, but defines it as any psychological variable which has an interaction effect with a risk variable. It is suggested that the variable must exist as a bi-polar construct on a dimensional continuum (Johnson et al., 2011). This definition is restrictive for a number of reasons.

This interpretation of resilience seems to be a methodological one and not a conceptual one, which could imply that any psychological variable is resilience if it is a moderator, and implies that true risk variables are static constructs which can be modified. This is arguable. Cosco et al. (2017) have suggested that there are 3 methods of investigating resilience in the literature: psychometric, definition driven, and data driven. Psychometric studies regard resilience as a construct and incorporate a fit for purpose measure, whereas definition driven research involves defining a priori criteria for creating resilient and non resilient groups. Data driven research defines groups on a continuum based on statistical procedures (Cosco et al., 2017). Cosco et al. (2017) suggest that using psychometrically driven models of resilience are effective and can be preferable to measuring interaction effects due to increased granularity of specifically designed resilience measures, particularly in longitudinal studies. The authors even imply that the popularity of data driven approaches is perhaps due to the accessibility of secondary data sets, rather than being the optimal way to define and measure resilience. Thus, there is

merit in attempting to measure resilience as an overall, albeit complex construct in its own right.

In addition to advantages of the psychometric approach to investigating resilience, a number of methods are prominent in the literature for studying resilience. The protective factor model (Fergus & Zimmerman, 2005) is consistent with Johnson et al. (2011)'s definition of a resilience variable. The compensatory model has also been identified as a valid way to study resilience, by looking at unique, direct effects on the outcome variable. As such, the resilience factor operates in the opposite direction as the risk to influence the outcome variable. The current study while taking account of the 'buffering hypothesis' (Johnson et al., 2011) has not as such defined the variable of resilience in keeping with this definition. The principal researcher regards similarly to Lui et al. (2017) that resilience is likely a multidimensional construct, as opposed to a statistical relationship, which is more in keeping with a psychometric rather than a data driven approach.

Finally, while the provisional hypotheses were accepted based on findings from this sample, the research is to date still of an exploratory nature. The current study goes some way towards creating a theoretical framework for measuring suicide resilience. Development of the RISKRES has been based on this framework and initial psychometric properties have been established. The psychometric validation presented above needs to be trialled more broadly on diverse samples in different settings to clarify the results. The current project is part of a broader research aim to develop an evidence based screening method which is non-pathologising, strength identifying, and can facilitate immediate safety planning and referral.

5.9 Implications for applied settings

Ideally, a comprehensive screening method needs to capture the multidimensional nature of suicidal risk (ie. not measuring low mood only). It also needs to be able to signpost both immediate safety planning and onward referral for a more comprehensive assessment in the case of a positive screen, while remaining brief. The current 29-item version of the RISKRES shows good internal consistency reliability for both scales and a stable factor structure for the risk subscales. The Depression/desperation subscale shows good concurrent validity with a standardised screener for depression (PHQ-9), is aligned with DSM-5 (APA, 2013) criteria, and features as significantly and uniquely associated with suicidal ideation in all regression models. This can be seen as a strength of the measure. While the RISKRES is geared towards tapping risk factors for suicidality specifically, it could potentially be used to signpost referral to existing mental health services. This may meet a pragmatic need in terms of linkage for vulnerable young people within the prevailing system. There is promise for this subset of 6 items to be used as very brief screener for depression and suicidality.

Other screening methods, such as Teen Screen primary care involve comprehensive discussions with the young person which would be lengthy. The screen is totally focused on risk factors and thus while likely aiding referral, it provides very little other information which might aid the creation of an immediate safety plan.

A *safety plan* is a collaborative collection of strategies designed to ensure immediate safety, provide social support, and coordinate available resources (Paladino & Minton, 2008). The plan is constructed based on the level of risk and serves to provide an immediate environment which assists in making healthy choices during a crisis. Safety plans also provide an alternative to the problems identified with no-harm contracts (Paladino & Minton, 2008), which were previously usual practice in the identification of

immediate risk. Safety plans should include triggers/ warning signs, internal and external coping strategies, agreement to limit access to lethal means, steps to take during a crisis, and include parental involvement and a referral if appropriate depending on the context (Singer et al., 2018). Safety plans tend to be used more in clinical settings, but according to Singer et al. (2018) they are applicable to a range of settings, including school and community interventions.

In the case of the RISKRES, in addition to providing information on potential difficulties with mood and anxiety, it taps the following constructs: 1. Autonomy, 2. Disconnection, 3. Capable/ future orientation, 4. Connection, 5. Bouncing back. While the exact factor structure for this is still under review and it is unclear exactly which of these constructs is the most important in a predictive sense, this is very useful clinical information.

A young person's first encounter with a professional in relation to suicidal risk is important and it is essential that young people feel supported and not pathologised. Pragmatically, having strengths based information about a young person in addition to risk factors can feed into more nuanced safety planning and referral. Optimally, one main advantage of the tool is that it can pragmatically facilitate referral to appropriate psychiatric and community based services for a broader assessment so that this can be focused on the issues driving the suicidal ideation (psychiatric problems, family problems, school based problems, etc.).

In relation to the screening questions used on the measure, they are a little more specific than those included on other screens. This is evidenced by relatively lower levels of endorsement than items which cast the net more broadly, such as the PHQ-9 item 9. This should ideally help to reduce false positives, as fleeting ideation is common in the general population. Screening for thoughts with a method means that a discussion can

seamlessly feed into questions about the method for anyone with training in suicide first aid. This will facilitate basic safety planning and help with the already established intervention of means reduction. The RISKRES also provides nuanced information about the young person's level of connection with others or lack thereof, and so an appropriate balance of interpersonal/ individual coping strategies can be created, based on the young person's unique situation. The RISKRES can thus help to build safety capital – building on the foundation of the resilience that is already there to help to keep the young person safe.

It was noted during the grounded theory analysis that the psychological processes rest on a foundation of historical, social, and environmental factors, which all play a part in the genesis of suicidal risk. At the time of writing, this is reflected only in the clinical add-on component of the tool. Taking into account the myriad of factors is consistent with the current NICE (2011) recommendations, which suggest that in the long term management of self harm that risk scales only be used to supplement a full psychosocial assessment. The NICE guidelines refer to management of self harm which suggests that self harm has already taken place. The guidelines do not really comment on the use of screeners or scales as a preventative measure, in keeping with a more 'upstream' approach (Hill, Oosterhoff, & Kaplow, 2017) to identify risk prospectively or in the very early stages. It is however the intention of the research team that use of tool be supplemented by a full psychosocial assessment where risk items are endorsed. Screening is not a one step process. It is the beginning of a process if risk is queried.

The clinical add-on component of the measure provides a framework for those experienced in assessing risk to make a more comprehensive assessment of key risk factors. This section has not been trialed yet and represents some of the constructs which have were removed for nonclinical data collection, but likely have an association with the

outcome variable, such as history of trauma. This add-on may not be applicable or appropriate for non-mental health professionals to administer and would likely be part of the second stage of a screening method, which is yet to be investigated.

Reasonably high levels of sensitivity and specificity on the regression models would suggest that the measure might eventually be usable as a screen for potential suicidality with or without the suicide screening questions being included. This would be an advantage for some contexts, who may wish to make referrals, but may not want to collect data on suicidal ideation due to fear of causing distress, or logistical pressure around being able to provide follow up in a timely manner. This may also be an advantage to young people taking the measure, who might not answer suicide screening questions truthfully for a variety of reasons.

Other research on online disclosure has indicated that risk screening items which go unanswered often are associated with high profiles of risk (Podlogar et al., 2016), so much that they are now usually regarded as positive screens (Podlogar et al., 2016). Furthermore, measures which look at psychological factors of risk and resilience have been hypothesised to be more acceptable with nonclinical populations (Troisten, D'gata, & Holden, 2015), and particular subsets of parents may not be in support of screening (Brown & Grumet, 2009). Authors suggest that this may be culturally influenced. Lack of support of educational programmes relating to mental health and suicide screening has been associated with higher levels of stigma around mental health in studies in schools in the USA (Fox et al., 2013). For all of the abovementioned reasons, having a tool which can identify risk and resilience factors for suicidality with or without suicide screening items included is a valuable contribution to the knowledge base.

5.10 Implications for future research

Significant questions remain in relation to the acceptability and feasibility of screening for suicide or associated mental health problems in the Republic of Ireland, with or without an associated mental health educational component. One European RCT to date has examined outcomes of screening vs. other interventions (Wasserman et al., 2015) but very little information was provided about acceptability or feasibility of the interventions.

When speaking with stakeholders in relation to the current project, one question constantly surfaced: how can risk be evaluated without being so suicide focused? As recently as 2011, it was noted that GP's in the UK were under the impression that asking about risk could perhaps increase risk, although an RCT of adults in a primary care setting found this concern to be unfounded (Crawford et al., 2011). However, the acceptability of risk screening has not been trialled in Ireland and it cannot be assumed that suicide risk screening would not cause distress/ fear of stigma, particularly in a nonclinical population. Concerns were raised by professionals in this study about directly addressing the issue, despite knowing that it did not increase risk. The concerns expressed to the principal researcher surrounded potentially evoking distress in the case of a universal screen or overburdening already stretched resources. For this reason, the use of a tool like the RISKRES which has reasonably high sensitivity and specificity prior to asking the suicide screening items may give schools and community based services more leeway to detect problems in the early stages if they prefer to screen through risk factor profiles rather than directly asking suicide questions.

In relation to feasibility, issues surrounding screening in educational settings have been noted as problematic in the literature (Halfors et al., 2006; Scott et al., 2010) and concerns about overburdening the system have been expressed by participants in the current study. In a review of screening processes, it has been suggested that a tension

often exists between feasibility and effectiveness; what can be performed efficiently vs. what might be the most effective for identifying all of the potential risk may be two different things (Boudreaux & Horowitz, 2014). Conducting screening with the end point of referral being an already struggling mental health system in crisis is a potential for disaster if it is not carefully contained and planned. This is where sensitivity, specificity, and nuanced cut-offs would be of utmost importance. In terms of the RISKRES, more validation is needed before cut-offs are established for determining a so-called positive screen. Any use of the tool for universal or targeted screening would have to be supported by other research on acceptability and feasibility of screening in the specific context and ideally service and resource specific.

The scale is also potentially of use to the community. The RISKRES resilience subscale has been selected as one method of outcome assessment for Pieta House's Resilience Academy, a school based programme seeking to build resilience protective factors with a view towards suicide prevention. This strand of the research is promising, as it will further establish properties of the tool, gather further data for concurrent validity with other measures, and determine if the tool is sensitive as a stand alone outcome measure. This is in keeping with recommendations by Dray et al. (2017) who note that many programmes seeking to improve resilience protective factors to influence child and adolescent mental health are not actually measuring resilience outcomes. Thus, further development of the RISKRES in this context will ideally also further the research aim of helping to establish the evidence basis for promising interventions seeking to increase resilience in groups of young people.

Ideally, future research on the RISKRES could involve focus groups with service users/young people themselves. There is increasingly a demand for research which focuses on older children and adolescents as 'actors in their own right' (de Leeuw,

Borgers, & Smits, 2004, p. 209). Measure and method development would be enhanced from feedback, particularly with younger adolescents on the risk items, the more abstract suicide ideation items, and also the anchors used on the scale. Other possible areas of useful input directly from young people might be length of the scale, readability of the items, and perceptions of the likelihood of truthful self report, considering the sensitivity of the topics. Mode of administration would be another potential avenue to examine. Future research will likely explore the administration of the RISKRES face to face vs. administration on an adolescent-friendly piece of technology such as an ipad, followed by a debriefing meeting. It has been recommended that adolescent focus groups take place in settings which have no relationship to school (de Leeuw, Borgers, & Smits, 2004). Diligence to ethical and contextual issues would need to be considered in conducting focus groups with adolescents and young people on the risk items. The cognitive interview method adapted for adolescents might be an alternative option for gleaning cognitive processes of young people while answering questionnaire items (de Leeuw, Borgers, & Smits, 2004).

A primary need for further validation of the RISKRES is the collection of data for test-retest reliability. Additionally, once the exploratory analysis has been finalised another area of investigation is a confirmatory analysis of factor structure for both scales on the measure.

Eventually, whether the resilience subscale can buffer the risk of suicidality in samples of the population where there is high risk is another area of potential investigation. Future data collections could include samples 'at risk' for suicidality based on a known risk factor, and grouping those who are suicidal and not suicidal themselves, such as those bereaved by suicide to look at a resilience buffering effect. In addition, it would be prudent to test the RISKRES longitudinally to see if it has predictive power in the

longitudinal sense and is able to ascertain both concurrent and prospective risk (Hill, Oosterhoff, Kaplow, 2017).

Finally, the RISKRES needs to be trialled as part of a large scale nationally representative universal or targeted screen (where ethically and logistically possible), once preliminary issues surrounding acceptability and feasibility have been taken into account. As such, the current project is part of the broader research aim to develop an evidence based screening method which is non-pathologising, strength identifying, and can facilitate immediate safety planning and referral.

5.11 Conclusion

It is possible to create a screening tool which captures a myriad of psychological factors which are associated with suicidality during the initial stages. This study goes some way towards creating a theoretical framework for measuring suicide resilience, with an emphasis on non-psychiatric populations and close collaboration with clinicians. Measuring a range of psychological factors while more complex, may be preferable to measuring depression alone. Ascertaining more information about a range of modifiable risk factors and measuring resilience gives more options for immediate safety planning. The information obtained should also provide more comprehensive signposting for onward referral. Development of the RISKRES is still exploratory. The subscales and the measure as a whole need to be tested further with larger, more heterogeneous, and nationally representative samples and compared further to other measures. Some of this work is already underway. Further exploration of the subscales and their true predictive power with longitudinal samples of early onset risk are needed. Further exploration of acceptability and particularly feasibility of screening for suicidality and mental health difficulties in the Irish context would be prudent. Optimally, this could happen

concurrently to development of the screening method and help to make decisions in relation to sensitivity and specificity thresholds to avoid potential pitfalls which have been documented in the literature internationally. In addition to a screening tool which takes into account a variety of constructs, the RISKRES subscales show potential as stand alone measures. The use of the resilience subscale as an outcome measure for programmes trying to teach resilience with a view towards suicide prevention is promising.

References

- Achenbach, T. M. (1991). *Manual for Child Behavior Checklist/ 4–18 and 1991 Profile*. Burlington: University of Vermont Department of Psychiatry.
- Ainsworth, M. (1979). Infant-mother attachment. *American Psychologist*, *34*, 932-937.
- American Psychological Association (2016). The road to resilience. Retrieved from <http://www.apa.org/helpcenter/road-resilience.aspx>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Publishing.
- Andreissson K., Krogh, J., Wenneberg, C., Jessen, H., Krakauer, K., Gluud, C.... Nordentoft, M. (2016). Effectiveness of dialectical behavior therapy versus collaborative assessment and management of suicidality treatment for reduction of self-harm in adults with borderline personality traits and disorder a randomized observer-blinded clinical trial. *Depress Anxiety*, *33*(6), 520–530. doi: 10.1002/da.22472
- Aseltine, R. H., Jr., & DeMartino, R. (2004). An outcome evaluation of the SOS suicide prevention program. *American Journal of Public Health*, *94*, 446–451. doi: 10.2105/AJPH.94.3.446
- Aseltine, R. H., James, A., Schilling, E. A., & Glanovsky, J. (2007). Evaluating the SOS suicide prevention program: a replication and Extension. *BMC Public Health*, *7*, 161. doi:10.1186/1471-2458-7-161
- Ask Suicide-Screening Questions (ASQ). Toolkit. National Institute of Mental Health. Retrieved from <http://www.nimh.nih.gov/labs-at-nimh/asq-toolkit-materials/index.shtml>.
- Axelsson, K., & Goldkuhl, G. (2004). Theory modeling: Action focus when building a multigrounded theory. In Proceedings of the 3rd European Conference on

Research Methodology for Business and Management Studies, Reading,
United Kingdom.

- Bakhiyi, C., Calati, R., Guillaume, S., & Courtet, P. (2016). Do reasons for living protect against suicidal thoughts and behaviors? A systematic review of the literature. *Journal of Psychiatric Research*, 77, 92-108.
- Barbour, R. S. (2001). Checklists for improving rigour in qualitative research: a case of the tail wagging the dog?. *BMJ*, 322(7294), 1115-1117.
doi: 10.1136/bmj.322.7294.1115
- Bartlett, M. S. (1954). A note on multiplying factors for various chi square approximations. *Journal of the Royal Statistical Society*, 16, 296-298.
- Baumeister, R. F., & Leary, M. R. (1997). Writing Narrative Literature Reviews. *Review of General Psychology*, 1(3), 311–320. doi: 10.1037/1089-2680.1.3.311
- Beck, A. & Steer, R. (1991). *Manual for the Beck Scale for Suicidal ideation*.
San Antonio, TX: Psychological Corporation.
- Beck, A. Kovacs, M. & Weissman, A. (1979). Assessment of suicidal intention: the Scale for Suicidal Ideation. *Journal of Consulting and Clinical Psychology*, 47, 343 – 352.
- Beck, A., Steer, R. & Brown, G. (1996). *Manual for the Beck Depression Inventory – II*. San Antonio, TX: Psychological Corporation.
- Birks, M. & Mills, J. (2015). *Grounded Theory: A practical guide*. (2nd ed.). London: SAGE.
- Bonanno, G. A. (2004). Loss, trauma and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events?. *American Psychologist*, 59, 20–28. doi: 10.1037/0003-066X.59.1.20
- Borgers, N., Hox, J., & Sikkel, D. (2004). Response effects in surveys on children and adolescents: The effect of number of response options, negative wording, and neutral

mid-point. *Quality and Quantity*, 38(1), 17 – 33.

doi: 10.1023/B:QUQU.0000013236.29205.a6

Brennan, M. A. (2008). Conceptualizing resiliency: An interactional perspective

for community and youth development. *Child Care in Practice*, 14, 55–64.

doi: 10.1080/13575270701733732

Brown, M. M., & Grumet, J. G. (2009). School-based suicide prevention with African

American youth in an urban setting. *Professional Psychology: Research and Practice*,

40(2), 111-117. doi: 10.1037/a0012866

Bryan, C., Corso, K., Neal-Walden, T., & Rudd, D. (2009). Managing Suicide Risk

in Primary Care: Practice Recommendations for Behavioral Health Consultants

Professional Psychology: Research and Practice, 40(2), 148-155.

doi: 10.1037/a0011141

Burke, T. A., Connolly, S. L., Hamilton, J. L., Stange, J. P., Abramson, L. Y., & Alloy, L.

B. (2016). Cognitive Risk and Protective Factors for Suicidal Ideation: A Two Year

Longitudinal Study in Adolescence. *Journal of abnormal child psychology*, 44(6),

1145–1160. doi:10.1007/s10802-015-0104-x

Campbell-Sills, L., & Stein, M. (2007). Psychometric analysis and refinement

Of the Connor–Davidson Resilience Scale (CD-RISC): validation of a 10-

Item measure of resilience. *Journal of Traumatic Stress*, 20, 1019–1028.

Casey, P. R.; Dunn, G.; Kelly, B., Lehtinen, V. Dalgard, O. Christopher Dowricke, C.

& Ayuso-Mateos, J. (2008). The prevalence of suicidal ideation in the

general population : results from the Outcome of Depression International

Network (ODIN) study. *Social Psychiatry and Psychiatric Epidemiology*, 43(4),

299-304. doi.:10.1007/s00127-008-0313-5

Central Statistics Office (2012) National Office for Suicide Prevention.

Retrieved from <http://www.nosp.ie/html/consultation.html>

- Charmaz, K. (2006). *Constructing grounded theory*. London: Sage.
- Chu, C., Buchman-Schmitt, J. M., Stanley, I. H., Hom, M. A., Tucker, R. P., Hagan, C. R., ... Joiner, T. E. (2017). The Interpersonal Theory of Suicide: A Systematic Review and Meta-Analysis of a Decade of Cross-National Research. *Psychological Bulletin*, *143*(12), doi: 10.1037/bul0000123
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Lawrence Erlbaum.
- Comtois K. A., Jobes, D. A., O'Connor, S., Atkins, D. C., Janis, K., Chessen, E. C., ... Yuodelis-Flois, C. (2011). Collaborative Assessment and Management of Suicidality(CAMS): feasibility trial for next-day appointment services. *Depress Anxiety*. *28*(11), 963–972. doi: 10.1002/da.20895
- Connor, K. M. and Davidson, J. R.T. (2003), Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depress. Anxiety*, *18*, 76–82. doi:10.1002/da.10113
- Cook, D. & Beckman, T. (2006). Current Concepts in Validity and Reliability For Psychometric Instruments: Theory and Application. *The American Journal of Medicine*, *119*, doi: 166.e7-166.e16
- Cooper J., Kapur N., Dunning J., Guthrie E., Appleby L., & Mackway-Jones K. (2006). A clinical tool for assessing risk after self-harm. *Ann Emerg Med*, *48*, 459–466.
- Cosco, T. D., Kaushal, A., Hardy, R., Richards, M., Kuh, D., & Stafford, M. (2017). *Journal of Epidemiological Community Health*, *71*, 98–104. doi:10.1136/jech-2015-206980
- Costello, A. B. & Osborne, J. W. (2005). Best Practices in Exploratory Factor Analysis: Four Recommendations for Getting the Most From Your Analysis. *Practical Assessment, Research, & Evaluation*, *10*(7), 1-9.
- Crawford, M., Thana, L. Methuen, C., Ghosh, P., Stanley, S., Ross, J., ... Bjaj, P.

- (2011). Impact of screening for risk of suicide: randomised controlled trial. *The British Journal of Psychiatry*, 198(5), 379–384. doi: 10.1192/bjp.bp.110.083592
- Cronbach, L. J. (1951). Coefficient alpha and internal structure of tests. *Psychometrika*, 16, 297–334.
- de Leeuw, E., Borgers, N., & Smits, A. (2004). Pretesting Questionnaires for Children and Adolescents. In *Methods for Testing and Evaluating Survey Questionnaires* (pp. 409–429). Hoboken, NJ, USA: John Wiley & Sons, Inc. doi: 10.1002/0471654728.ch20
- de Leo, D. & Heller, T. (2008). Social Modeling in the Transmission of Suicidality. *Crisis*, 29(1), 11–19. doi: 10.1027/0227-5910.29.1.11
- Department of Education and Skills/Health Service Executive/Department of Health Ireland (2013). Wellbeing in Post Primary Schools. Guidelines for Mental Health Promotion and Suicide Prevention.
- Department of Health and Children & National Suicide Review Group (2005). *Reach Out: National Strategy for Action on Suicide Prevention 2005 – 2014*. Health Service Executive.
- Diamond, G. S. , Herres, J., Krauthamer, E., Atte, T., Scott, W., Wintersteen, M., & Gallop, R. (2017). Comprehensive Screening for Suicide Risk in Primary Care. *American Journal of Preventive Medicine*, 53(1), 48 – 54.
- Dhingra, K., Boduszek, D., & O'Connor, R. (2015). Differentiating suicide attempters from suicide ideators using the Integrated Motivational Volitional Model of suicidal behaviour. *Journal of Affective Disorders*, 186, 211-218.
- Dooley, B. & Fitzgerald, A. (2012). My World survey: National study of youth mental health in Ireland. Headstrong and UCD School of Psychology: Dublin.
- Dray, J., Bowman, J., Campbell, E., Freund, M., Wolfenden, L., Hodder, R. K., ... Wiggers, J. (2017). Systematic review of universal resilience-

- focused interventions targeting child and adolescent mental health in the school setting. *Journal Of The American Academy Of Child & Adolescent Psychiatry*, 56(10), 813-824. doi:10.1016/j.jaac.2017.07.780
- Durkheim E. (1897) *Suicide. A study in sociology* (trans. JA Spaulding & G Simpson, 1952). London: Routledge.
- Erikson, E.H. (1950). *Childhood and Society*. New York: W.W. Norton & Co.
- Everall, R., Altrows, J., & Paulson, B. (2006). Creating a Future: A Study of Resilience in Suicidal Female Adolescents. *Journal of Counseling and Development*, 84, 461-470.
- Fergus, S. & Zimmerman, M. (2005). Adolescent Resilience: A framework for understanding healthy development in the face of risk. *Annu. Rev. Public Health*, 26, 399–419. doi: 10.1146/annurev.publhealth.26.021304.144357
- Fletcher, D., & Sarkar, M. (2012). A grounded theory of psychological resilience in Olympic champions. *Psychology of Sport and Exercise*, 13, 669–678. doi: 10.1016/j.psychsport.2012.04.007
- Fletcher, D. & Sarkar, M. (2013). Psychological resilience: A review of definitions, concepts, and theory. *European Psychologist*, 18(1), 12-23. doi: 10.1027/1016-9040/a000124
- Fortune, S., Sinclair, J., & Hawton, K. (2008). Help seeking before and after episodes of self harm: a descriptive study in school pupils in England. *BMC Public Health*, 8,396.
- Freudenstein, O., Zohar, A., Apter, A., Shoval, G., Weizman, A., Zalsman, G. (2011). Parental bonding in severely suicidal adolescent inpatients. *European Psychiatry*, 26(8), 504-7. doi: 10.1016/j.eurpsy.2011.01.006.
- Garlow, S. J., Rosenberg, J., Moore, J. D., Haas, A. P., Koestner, B., Hendin, H., Nemeroff, C. (2008). Depression, desperation, and suicidal ideation in college

- students: results from the American Foundation for Suicide Prevention College Screening Project at Emory University. *Depress Anxiety*, 25(6), 482-488.
- Gautam, A. & Nagle, Y. K. (2016). Moderating Effect of Resilience: Thwarted Belongingness and Perceived Burdensomeness as Predictors of Suicidal Ideation. *Journal of Psychosocial Research*, 11,(2), 459-467.
- Giddens, J. M., Sheehan, K. H., & Sheehan, D. V. (). The Columbia-Suicide Severity Rating Scale (C-SSRS): Has the "Gold Standard" Become a Liability?. *Innovations in clinical neuroscience*, 11(9-10), 66–80.
- Glaser, B. & Strauss, A. (1967). *The discovery of grounded theory*. Chicago: Aldine.
- Glaser, B. (2012). Stop. Write! Writing Grounded Theory. *Grounded theory review*, 11,1.
- Goldston, D.B. (2003). *Measuring Suicidal Behaviour and Risk in Children and Adolescents*. Washington DC: American Psychological Association.
- Gould, M.S., Marrocco, F.A., Hoagwood, K., Kleinman, M., Amakawa, L., Altschuler, E. (2009). Service use by at-risk youth after school-based suicide screening. *Journal of the American Academy of Child and Adolescent Psychiatry*, 48, 1193-1201.
- Gould, M.S., Marrocco, F.A., Kleinman, M. Thomas, J.G., Mostkoff, K., Cote, J., & Davies, M. (2005). Evaluating iatrogenic risk of youth suicide screening programs: A randomized controlled trial. *Journal of the American Medical Association*, 293(13), 1635-1643. doi:10.1001 /jama .293.13.1635
- Greene, S., Williams, J., Layte, R, Doyle, E., Harris, E., McCrory, C.... Whelan, T. (2010) Growing Up in Ireland. Background and conceptual framework. Dublin: ESRI, Trinity College Dublin, Office of the Minister for Children and Youth Affairs.
- Greene, S., Williams, J., Layte, R, Doyle, E., Harris, E., McCrory, C.... Whelan, T. (2016). Growing Up in Ireland. Key findings: Child cohort at 17/18 years. No. 3: Life satisfaction, relationships, and mental health. Dublin: ESRI, Trinity College Dublin, Office of the Minister for Children and Youth Affairs.

- Grudens-Schuck, N., Allen, B., & Larson, K. (2004). Methodology brief: Focus group fundamentals. *Extension Community and Economic Development publications, 12*.
- Gutierrez, P. M., & Osman, A. (2009). Getting the best return on your screening investment: Maximizing sensitivity and specificity of the Suicidal Ideation Questionnaire and Reynolds Adolescent Depression Scale. *School Psychology Review, 38*, 200–217.
- Haase, J. E. (2004). The adolescent resilience model as a guide to interventions. *Journal of Pediatric Oncology Nursing, 21*, 289–299.
doi: 10.1177/1043454204267922
- Hallfors, D., Brodish, P. H., Khatapoush, S., Sanchez, V., Cho, H., & Steckler, A. (2006). Feasibility of screening adolescents for suicide risk in “real-world” high school settings. *American Journal of Public Health, 96*, 282–287.
doi: 10.2105/AJPH.2004.057281
- Hardt, J., Bernert, S., Matschinger, H., Angermeier, M., Vilagut, G., Bruffaerts, ... Alonso, J. (2015). Suicidality and its relationship with depression, alcohol disorders and childhood experiences of violence: Results from the ESEMeD study. *Journal of Affective Disorders, 175*, 168–174. doi:10.1016/j.jad.2014.12.044
- Hawton, K., Saunders, K. E., & O'Connor, R. C. (2012). Self-harm and suicide in adolescents. *The Lancet, 379*(9834), 2373-2382.
- Henefer, J., & Rodgers, A. (2013). FRIENDS for Life: A School-based Positive Mental Health Programme. Research Project Overview and Findings. Retrieved from www.nbss.ie/sites/default/files/publications/friends_report_final_lr.pdf
Dublin: National Behavioural Support Service.
- Higgins, A., Doyle, L., Downes, C., Nash, M., Morrissey, J., Brennan, M. & Costello, P. (2015). *Risk assessment and safety planning within mental health nursing*

services: an exploration of practices, policies and processes. Dublin: Health Service Executive

- Hill, R., Oosterhoff, B., & Kaplow, B. (2017). Prospective Identification of Adolescent Suicide Ideation Using Classification Tree Analysis: Models for Community-Based Screening. *Journal of Consulting and Clinical Psychology, 85*(7), 702–711.
- Hilt, L. M., Tuschner, R. F., Salentine, C., Torcasso, G., & Nelson, K. R. (2018). Development and initial psychometrics of a school-based screening program to prevent adolescent suicide. *Practice Innovations, 3*(1), 1-17.
doi:10.1037/pri0000060
- Hjemdal O., Friborg O., Stiles T.C., Martinussen, M., & Rosenvinge J.H. (2006). A new scale for adolescent resilience: grasping the central protective resources behind healthy development. *Measurement and Evaluation in Counseling and Development, 39*(2), 84–96.
- Hogan, M. (2016). Better Suicide Screening and Prevention Are Possible. *JAMA Psychiatry, 73*(11), 1111-1112.
- Horowitz, L. M., Ballard, E. D., & Pao, M. (2009). Suicide screening in schools, primary care and emergency departments. *Current Opinion in Pediatrics, 21*, 620–627. doi: 10.1097/MOP.0b013e3283307a89
- Horowitz, L. M., Bridge, J. A., Teach, S. J., Ballard, E., Klima, J., Rosenstein, D., ... Pao, M. (2012). Ask Suicide-Screening Questions (ASQ): A Brief Instrument for the Pediatric Emergency Department. *Arch Pediatr Adolesc Med. 166*(12), 1170–1176.
doi:10.1001/archpediatrics.2012.1276
- Houston, K. Hawton, K. & Shepperd, R. (2001). Suicide in young people aged 15-24: a psychological autopsy study. *J Affec Discord, 63*, 159-170.
- Jakobsen, I. S., Larsen, K. J., & Horwood, J. L. (2017). Suicide Risk Assessment

In Adolescents – C-SSRS, K10, and READ. *Crisis*. Advance online publication
doi.org/10.1027/0227-5910/a000450

- Jobes DA. (2006). *Managing suicidal risk: a collaborative approach*. New York: Guilford Press.
- Joe, S. & Bryant, H. (2007). Evidence-Based Suicide Prevention Screening in Schools. *Children Schools*, 29(4), 219-227.
- Johnson, J., Wood, A. M., Gooding, P., Taylor, P. J., & Tarrier, N. (2011). Resilience to suicidality: The buffering hypothesis. *Clinical Psychology Review*, 31, 563–591.
doi:10.1016/j.cpr.2010.12.007
- Joiner, T. (2005). *Why people die by suicide*. Cambridge, MA: Harvard University Press.
- Joiner, T. E., Jr., Walker, R. L., Rudd, D. M., & Jobes, D. A. (1999). Scientizing and routinizing the assessment of suicidality in outpatient practice. *Professional Psychology: Research and Practice*, 30(5), 447–453.
- Juhnke, G. (1996). The adapted SAD PERSONS: A suicide assessment scale designed for use with children. *Elementary School Guidance and Counseling*, 30, 252-258.
- Kaess, M., Brunner, R., Parzer, P., Carli, V., Apter, A., Balazs, J. ... Wasserman, D. (2014). Risk-behaviour screening for identifying adolescents with mental health problems in Europe. *Eur Child Adolesc Psychiatry* , doi: 10.1007/s00787-013-0490-y
- Kaiser, H. (1970). A second generation Little Jiffy. *Psychometrika*, 35, 401-415.
- Kelly, Y., Fitzgerald, A & Dooley, B. (2016). Validation of the Resilience Scale For Adolescents (READ) in Ireland: A multi-group analysis. *International Journal of Methods in Psychiatric Research* doi: 10.1002/mpr.1506.
- King, C. A., Hill, R. M., Wynne, H. A., & Cunningham, R. M. (2012). Adolescent suicide risk screening: the effect of communication about type of follow-up on adolescents' screening responses. *Journal of clinical child and adolescent psychology*, 41(4), 508–

515. doi:10.1080/15374416.2012.680188

Kline, T. J. (2005). *Psychological testing: A practical approach to design and evaluation*. London: SAGE.

Kuhn, D. (2009). Adolescent Thinking. In R. M. Lerner & Steinberg (Eds.), *Handbook of adolescent psychology* (3rd ed.). New York: Wiley.

Lamis, D. A. , Malone, P. S. , Langhinrichsen-Rohling, J., & Ellis, T. E. (2010). Body investment, depression, and alcohol use as risk factors for suicide proneness in College students. *Crisis*, 31(3), 118-27. doi: 10.1027/0227-5910/a000012

Lazarus AA. (1976). *Multimodal Behavior Therapy*. New York: Springer.

Linehan, M., Goodstein, J., Nielsen, S. & Chiles, J. (1983). Reasons for staying alive when you are thinking of killing yourself: The Reasons for Living Inventory. *Journal of Consulting and Clinical Psychology*, 51, 276-286.

Linehan, M. (1993). *Cognitive behavioural treatment of borderline personality disorder*. New York: Guilford Press.

Liu, D. W. Y., Fairweather-Schmidt, A. K., Roberts, R. M., Burns, R. A., & Anstey, K. J. (2014). Does resilience predict suicidality? A lifespan analysis. *Archives of Suicide Research*, 18, 453–464. doi:10.1080/13811118.2013.833881

Liu, D., Fairweather-Schmidt, A. K., Burns, R., Roberts, R. M., & Anstey, K. (2016). Psychological Resilience Provides No Independent Protection From Suicidal Risk *Crisis*, 37(2),130–139. doi: 10.1027/0227-5910/a000364

Lui, J. Reed, M. Girard, T. (2017). Advancing resilience: An integrative, multi-system model of resilience. *Personality and Individual Differences*, 111, 111–118.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child Development*, 71, 543–562. doi: 10.1111/1467-8624.00164

Mancini, A. D., & Bonanno, G. A. (2009). Predictors and parameters of resilience to

loss: Toward an individual differences model. *Journal of Personality*, 77, 1805–1832. doi: 10.1111/j.1467-6494.2009.00601.x

Mann, J., Apter, A., Bertolote, J., (2005). Suicide Prevention Strategies:

A Systematic Review. *JAMA*, 294(16), 2064-2074. doi:10.1001/jama.294.16.2064

Martin, G., Richardson, A., Bergen, H., Roeger, L., & Allison, S. (2005). Perceived academic performance, self-esteem and locus of control as indicators of need for assessment of adolescent suicide risk: implications for teachers. *Journal of Adolescence*, 28, 75 – 87. doi:10.1016/j.adolescence.2004.04.005

Masten, A. S. (2010). Ordinary Magic: Lessons learned from research on resilience in human development. *Education Canada.*, 49(3), 28-32.

McKay, M., Wood, J. C., & Brantley, J. (2007). *The Dialectical Behavior Therapy Skills Workbook*. Oakland, CA: New Harbinger.

McMahon, E. M., Corcoran, P., Keeley, H., Perry, I. J., & Arensman E.

(2013). Adolescents Exposed to Suicidal Behavior of Others: Prevalence of Self-Harm and Associated Psychological, Lifestyle, and Life Event Factors. *Suicide and Life Threatening Behaviour*, 43(6), 634-645.

doi: 10.1111/sltb.12045

McMahon, E. M, Keeley, H., Cannon, M., Arensman, E., Perry, I. J., Clarke, M.,

Chambers, D., & Corcoran, P. The iceberg of suicide and self-harm in Irish adolescents: a population-based study. *Soc Psychiatry Psychiatr Epidemiol*, 49(12), 1929-1935. doi: 10.1007/s00127-014-0907-z

Meichenbaum, D. (1985). *Stress inoculation training*. New York, NY: Pergamon.

Mercy, J. A., Kresnow, M., O'Carroll, P., Lee, R., Kenneth E. Powell, Potter, L., ...

Bayer, T. (2001). Is Suicide Contagious? A Study of the Relation between Exposure to the Suicidal Behavior of Others and Nearly Lethal Suicide Attempts, *American Journal of Epidemiology*, 154(2), 120–127. doi: 10.1093/aje/154.2.120

- Min, J. A., Lee, C. U., Chae, J. H. (2015). Resilience moderates the risk of depression and anxiety symptoms on suicidal ideation in patients with depression and/or anxiety disorders. *Comprehensive Psychiatry*, 56, 103–111.
doi:10.1016/j.comppsy.2014.07.0220010-440X
- Mitrou, F., Gaudie, J., Lawrence, D., Silburn, S., Stanley, F., & Zubrick, S. (2010). Antecedents of hospital admission for deliberate self-harm from a 14-year follow-up study using data-linkage. *BMC Psychiatry*, 10(82), doi:10.1186/1471-244X-10-82
- Morgan, B. & Trimble, T. (2015). Investigation of Suicidal Risk and Resilience Factors with Adolescents and Young Adults in Ireland. (Unpublished master's thesis). Trinity College Dublin, Dublin.
- Mortier, P., Demyttenaere, K., Auerbach, R. P., Cuijpers, P., Green, J. G., Kiekensa, ... Bruffaerts, R. (2017). First onset of suicidal thoughts and behaviours in college. *Journal of Affective Disorders*, 207, 291–299. doi:10.1016/j.jad.2016.09.033
- National Institute for Health and Care Excellence. (2011). Self-harm. The NICE Guideline on Longer-Term Management. National Clinical Guideline Number 133. The British Psychological Society and The Royal College of Psychiatrists.
- National Office for Suicide Prevention, Health Service Executive, Department of Health, & Healthy Ireland. (2015). Connecting For Life: Ireland's National Strategy to Reduce Suicide 2015-2020.
- National Office for Suicide Prevention, Health Service Executive. (2018). Briefing on Suicide Figures. Retrieved from <https://www.hse.ie/eng/services/list/4/mental-health-services/connecting-for-life/publications/nosp-briefing-cso-data-sept-2018.pdf>
- National Suicide Research Foundation. (2012). National Registry of Deliberate Self Harm Annual Report 2011. Cork: National Suicide Research Foundation.
- Neelman, J. (2002). Beyond Risk Theory: Suicidal Behavior in its Social

and Epidemiological Context. *Crisis*, 23(3), 114–120. doi:10.1027//

0227-5910.23.3.114

Nahaliel, S., Sommerfeld, E., Orbach, I., Weller, A., Apter, A., Zalsman, G. (2014).

Mental pain as a mediator of suicidal tendency: A path analysis. *Comprehensive Psychiatry*, 55, 944-951. doi: 10.1016/j.comppsy.2013.12.014

Nelson, C., Johnston, M. & Shivastava, A. (2010). Improving risk assessment with

Suicidal patients, *Crisis*, 31(5), 231-237. doi: 10.1027/0227-5910/a000034

O'Carroll, P., Berman, A., Maris, R., Mosicki, E., Tanney, B., & Silverman, M. (1996).

Beyond the tower of Babel: A nomenclature for suicidology. *Suicide and Life-Threatening Behavior*, 26, 237-252.

O'Connor, R.C. (2011). Towards an Integrated Motivational-Volitional Model

of Suicidal Behaviour. In O'Connor, R.C. Platt, S. & Gordon, J. (Eds.).

International Handbook of Suicide Prevention: Research, Policy & Practice. (pp.181-198) Chichester: Wiley-Blackwell.

O'Connor, R. C. & Portzky, G. (2018). The relationship between entrapment and

suicidal behavior through the lens of the integrated motivational–volitional model of suicidal behaviour. *Current Opinion in Psychology*, 22, 12–17.

doi: 10.1016/j.copsyc.2017.07.021

O'Connor, R.C., Rasmussen, S., Hawton, K. (2009). Predicting deliberate self-harm

in adolescents: a six month prospective study. *Suicide and Life Threatening Behavior*, 39, 364–75.

O'Neill, S., Ennis, E., Corry, C., Bunting, B. (2017). Factors Associated with

Suicide in Four Age Groups: A Population Based Study. *Archives of Suicide Research*, doi: 10.1080/13811118.2017.1283265

Onwuegbuzie, A. J. & Leech, N. L. (2005). On becoming a pragmatic researcher:

The importance of combining quantitative and qualitative methodologies.

International Journal of Social Research Methodology, 8(5), 375-387.

- Orbach, I. (2006). The body-mind of the suicidal person. In T. E. Ellis (Ed.), *Cognition and suicide: Theory, research, and therapy* (pp. 193–214). Washington, DC: American Psychological Association.
- Orbach, I., Feshbach, S., Carlson, G., Ellensberger, I. (1984). Attitudes towards life and death in suicidal, normal, and chronically ill children: An extended replication. *Journal of Consulting and Clinical Psychology*, 52, 1020-1027.
- Osman, A., Kopper, B., Barrios, F., Osman, J., Besett, T., & Linehan, M. (1996). The brief reasons for living inventory for adolescents (BRFL-A). *Journal of Abnormal Child Psychology*, 24, 433-443.
- Osman, A., Downs, W., Kopper, B., Barrios, F., Baker, M., Osman, J., Besett, T., & Linehan, M. (1998). The reasons for living inventory in adolescents (RFL-A). *Journal of Clinical Psychology*, 54, 1063-1078.
- Osman, A., Bagge, C. L., Gutierrez, P.M., Konick, L. C., Kopper, B. A., & Barrios, F.X. (2001). The Suicidal Behaviors Questionnaire-Revised (SBQ-R): validation with clinical and nonclinical samples. *Assessment*, 8(4), 443-454.
- Owens, D., Harrocks, J. & House, A. (2002). Fatal and non-fatal repetition of self harm. *British Journal of Psychiatry*, 181, 193-199.
- Paladino, D. & Minton, C. A. (2008). Comprehensive College Student Suicide Assessment: Application of the BASIC ID. *Journal of American College Health*, 56(6), 643-650.
- Pallant, J. (2016). *SPSS Survival Manual* (6th ed.). New York: McGraw Hill Education.
- Peña, J. B., & Caine, E. D. (2006). Screening as an approach for adolescent suicide prevention. *Suicide & Life-Threatening Behavior*, 36, 614–637.
doi: 10.1521/suli.2006.36.6.614
- Pfeffer, C., Jiang, H., & Kakuma, T. (2000). Child-Adolescent Suicidal Potential

Index (CASPI): A screen for risk for early onset suicidal behavior. *Psychological Assessment*, 12, 304-318.

Ploeg J, Ciliska D, Dobbins M, Hayward S, Thomas H, Underwood J. (1996). A systematic overview of adolescent suicide prevention programs. *Canadian Journal of Public Health*. 87, 319–324.

Podlogar, M., Rogers, M., Chiurliza, B., Hom, M., Tzoneva, M., & Joiner, T. (2016).

Who Are We Missing? Nondisclosure in Online Suicide Risk Screening Questionnaires. *Psychological Assessment*, 28(8), 936-974.

doi: 10.1037/pas0000242

Posner, K., Melvin, G., Stanley, B., Oquendo, M., & Gould, M. (2007). Factors in the assessment of suicidality in youth. *CNS Spectr.*, 12(2), 156–162.

Posner, K., Brown, G. K., Stanley, B., Brent, D. A., Yershova, K. V., Oquendo, M. A., ... Mann, J. (2011). The Columbia-Suicide Severity Rating Scale: Initial validity and internal consistency findings from three multisite studies with adolescents and adults. *The American Journal of Psychiatry*, 168(12), 1266–1277. doi: 10.1176/appi .ajp.2011 .1011 1704.

Prince-Embury, S. & Courville, T. (2008). Comparison of One-, Two-, and Three-Factor Models of Personal Resiliency Using the Resiliency Scales for Children and Adolescents. *Canadian Journal of School Psychology*, 23(1), 11-25. doi: 10.1177/0829573508316589

Prince-Embury, S. (2010). Introduction to the Special Issue: Assessing Resiliency in Children and Adolescents. *Journal of Psychoeducational Assessment*, 28, 287-290.

Punch, K. F. (2005). *Introduction to Social Research: Quantitative and qualitative approaches*. (2nd ed.). London: SAGE.

Quinlivan, L. Cooper, J. Meehan, D. Longson, D. Potokar, J. Hulme, T.... Kapur, N. (2017). Predictive accuracy of risk scales following self-harm:

- multicentre, prospective cohort study. *The British Journal of Psychiatry*, 210, 429–436. doi: 10.1192/bjp.bp.116.18999
- Reynolds, W. (1988). *Suicidal Ideation Questionnaire: Professional manual*. Odessa, FL: Psychological Assessment Resources.
- Reynolds, W., & Mazza, J. (1999). Assessment of suicidal ideation in inner-city children and young adolescent: Reliability and validity of the Suicidal Ideation Questionnaire-JR. *School Psychology Review*, 28, 17–30.
- Resnick, M. D., Berman, P. S., & Blum, R. W., Bauman, K. E., Harris, K. M., & Jones, J.(1997). Protecting adolescents from harm: Findings from the National Longitudinal Study on Adolescent Health. *Journal of the American Medical Association*, 278(10), 823-832.
- Robinson, J. Yuen, H. P., Martin, C. Hughes, A. Baksheev, G. N. Dodd, S., Bapat,, S. Schwass, W., McGorry, P., & Yung, A.R. (2011). Does Screening High School Students for Psychological Distress, Deliberate Self-Harm, or Suicidal Ideation Cause Distress – And Is It Acceptable? An Australian-Based Study, *Crisis*, 32(5), 254-236.
- Rogers, C. R. (1961) *On becoming a person*. Boston: Houghton Mifflin.
- Rosetti, M. C., Tosone, A., Stratta, P., Collazzoni, A., Santarelli, V., Guadagni, E. ... Rossi, A. (2017). Different roles of resilience in depressive patients with history Of suicide attempt and no history of suicide attempt. *Revista Brasileira de Psiquiatria*, 39, 216-219.
- Roy, A., Sarchiapone, M., & Carli, V. (2007). Low resilience in suicide attempters. *Archives of Suicide Research*, 11, 265–269. doi: 10.1080/13811110701403916
- Rutter, P. A., Freedenthal, S., & Osman, A. (2008). Assessing protection from suicidal risk: Psychometric properties of the suicide resilience inventory. *Death Studies*, 32, 142–153. doi:10.1080/07481180701801295

- Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, 57, 316–331. doi: 10.1111/j.1939-0025.1987.tb03541.x
- Ryberg, W. , Fosse1, R. Zahl, P. H., Brorson,, Møller, I. P. Landrø, N. I., & Jobes, D. (2016). Collaborative Assessment and Management of Suicidality (CAMS) compared to treatment as usual (TAU) for suicidal patients: study protocol for a randomized controlled trial. *BioMedCentral*, 17, 481. doi: 10.1186/s13063-016-1602-z
- Santrock, J.W. (2014). *Child Development: An Introduction*, (14th Ed) Boston: McGraw-Hill.
- Sattler, J. (2008). *The Assessment of Children: Cognitive Foundations*. (5th ed.). La Mesa, CA: Sattler Publisher.
- Scott, M. A., Wilcox, H. C., Schonfeld, I. S., Davies, M., Hicks, R. C., Turner, J. B. & Shaffer, D. (2009). School-based screening to identify at-risk students not already known to school professionals: The Columbia Suicide Screen. *American Journal of Public Health*, 99(2), 334–339. doi.org/10.2105/AJPH.2007.127928.
- Scott, M., Wilcox, H., Huo, Y., Turner, J. B., Fisher, P., & Shaffer, D. (2010). School-Based Screening for Suicide Risk: Balancing Costs and Benefits. *American Journal of Public Health*, 100(9), 1648–1652. doi: 10.2105/AJPH.2009.175224
- Schilling, E. A., Aseltine, R. H., & James, A. (2016). The SOS Suicide Prevention Program: Further evidence of efficacy and effectiveness. *Prevention Science*, 17(2), 157–166. doi: 10.1007/s11121-015-0594-3.
- Seligman, M. & Csikszentmihalyi, M. (2000). Positive psychology. *American Psychologist*, 55, 5-14.
- Shaffer D., Gould, M. S. , Fisher P. , Trautman, P., Moreau, D., Kleinman, M., &

- Flory, M. (1996). Psychiatric Diagnosis in Child and Adolescent Suicide. *Arch Gen Psychiatry*, 53(4), 339–348. doi:10.1001/archpsyc.1996.01830040075012
- Shaffer, D., Scott, M., Wilcox, H., Maslow, C., Hicks, R., Lucas, C. P., . . . Greenwald, S. (2004). The Columbia Suicide Screen: Validity and reliability of a screen for youth suicide and depression. *Journal of the American Academy of Child & Adolescent Psychiatry*, 43, 71–79. doi: 10.1097/00004583-200401000-00016
- Shneidman, E. S. (1993). *Suicide as a psychache: A clinical approach to self destructive behaviour*. Maryland, USA: Rowman and Littlefield.
- Shneidman, E. S. (1981). Postvention: the care of the bereaved. *Suicide and Life-Threatening Behavior*, 11, 349-359.
- Simon, G., Rutter, C., Peterson, D., Oliver, M., Whiteside, U., Operskalski, B., & Ludman, E. (2013). Do PHQ Depression Questionnaires Completed During Outpatient Visits Predict Subsequent Suicide Attempt or Suicide Death?. *Psychiatr Serv.*, 64(12), 1195–1202. doi:10.1176/appi.ps.201200587
- Singer, J. B., Erbacher, T. A., & Rosen, P. (2018). School-Based Suicide Prevention: A Framework for Evidence-Based Practice. *School Mental Health*, doi: 10.1007/s12310-018-9245-8
- Song, I. H., Kwon, S. W., & Kim, J. E. (2015). Association between suicidal ideation and exposure to suicide in social relationships among family, friend, and acquaintance survivors in South Korea. *Suicide and Life-Threatening Behavior*, 45, 376–390.
- Spitzer, R., Kroenke, K., & Williams, J. (1999). Validation and Utility of a Self-Report Version of PRIME-MD: The PHQ Primary Care Study. *Journal of the American Medical Association*, 282, 1737-1744. doi:10.1001/jama.282.18.1737
- Strauss, A & Corbin, J. (1990). *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. London: Sage.

- Strauss, A., & Corbin, J. (1994). Grounded theory methodology: An overview. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 273-285). Thousand Oaks, CA, US: Sage Publications, Inc.
- Strauss, A., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (2nd ed.). London: Sage.
- Steege S., Kapur N., Webb R., Applegate E., Stewart S. L., Hawton K., ... Cooper, J. (2012) The development of a population-level clinical screening tool for self-harm repetition and suicide: the ReACT Self-Harm Rule. *Psychol Med*, 42, 2383–2394. doi: 10.1017/S0033291712000347.
- Surgenor, P., Quinn, P., & Hughes, C. (2016). Ten Recommendations for Effective School-Based, Adolescent, Suicide Prevention Programs. *School Mental Health*, 8, doi:10.1007/s12310-016-9189-9
- Tabachnick, B.G., & Fidell, L.S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson Education.
- Tavakol, M. & Dennek, R. (2011). Making Sense of Cronbach's alpha. *International Journal of Medical Education.*, 2, 53-55. doi: 10.5116/ijme.4dfb.8dfd
- Troister, T., D'Gata, M. & Holden, R. R. (2015). Suicide Risk Screening: Comparing the Beck Depression Inventory-II, Beck Hopelessness Scale, and Psychache Scale in Undergraduates. *Psychological Assessment*, 27(4), 1500-1506. doi: 10.1037/pas0000126
- Trevethan, R. (2017). Sensitivity, Specificity, and Predictive Values: Foundations, Pliabilities, and Pitfalls in Research and Practice. *Frontiers in Public Health*, 5, doi: 10.3389/fpubh.2017.00307
- Tuisku, V., Kiviruusu, O., Pelkonen, M., Karlsson, L, Strandholm, T., & Marttunen, M. (2013). Depressed adolescents as young adults – Predictors of suicide attempt and non-suicidal self-injury during an 8-year follow-up. *Journal of Affective Disorders*,

152-154, 313-319. doi: /10.1016/j.jad.2013.09.031

- Twigg, E. Barkham, M., Bewick, B., Mulhern, B. Connell, J., & Cooper, M. (2009). The Young Person's CORE: Development of a brief outcome measure for young people. *Counselling and Psychotherapy Research, 9*(3), 160-168.
- Ungar, M., & Liebenberg, L. (2011). Assessing resilience across cultures using mixed methods: Construction of the Child and Youth Resilience Measure. *Journal of Mixed Methods Research, 5*, 126–149. doi: 10.1177/1558689811400607
- Van Heerigen, K. (2000). Beyond the Crisis. *Crisis, 21*(4), 150-153.
- Velez, C. & Cohen, P. (1988). Suicidal behavior and ideation in a community sample of children: Maternal and youth reports. *Journal of the American Academy of Child and Adolescent Psychiatry, 27*, 349-356.
- Walsh, B. (2007). Clinical assessment of self-injury: A practical guide. *Journal of Clinical Psychology, In Session, 63*, 1057–1068.
- Wasserman, D., Hoven, C. W., Wasserman, C., Wall, M., Eisenberg, R., Hadlaczky, G., ... Carli, V. (2015). School-based suicide prevention programmes: The SEYLE cluster-randomised, controlled trial. *The Lancet, 385*(9977), 1536–1544. doi: 10.1016 /S0140-6736 (14)6121 3-7.
- Weed, M. (2009). Research quality considerations for grounded theory research In sport & exercise psychology. *Psychology of Sport and Exercise, 10*, 502-510.
- Windle G., Bennett, K.M., & Noyes J. (2011). A methodological review of Resilience measurement scales. *Health Qual Life Outcomes, 9*, 8. doi: 10.1186/1477-7525-9-8.
- Wingo, A.P., Wrenn, G., Pelletier, T., Gutman, A.R., Bradley, B., & Ressler, K.J. (2010). Moderating effects of resilience on depression in individuals with a history of childhood abuse or trauma exposure. *Journal of Affective Disorders, 126*, 411–414. doi:10.1016/j.jad.2010.04.009.

Willig, C. (2013). Grounded Theory Methodology. In *Introducing Qualitative Research in Psychology*. London: City University.

Zalsman, G., Hawton, K., Wasserman, D., van Heeringen, K., Arensman, E., Sarchiapone, M., ... Zohar, J. (2016). Suicide prevention strategies revisited: 10-year systematic review. *The Lancet Psychiatry*, 3(7), 646–659.
doi: 10.1016 /S221 5-0366 (16)3003 0-X.

Appendix A: Ethical Approval



COLÁISTE NA TRÍONÓIDE, BAILE ÁTHA CLIATH | TRINITY COLLEGE DUBLIN
Ollscoil Átha Cliath | The University of Dublin

F.A.O. Megan Gaffney

School of Psychology Research Ethics Committee

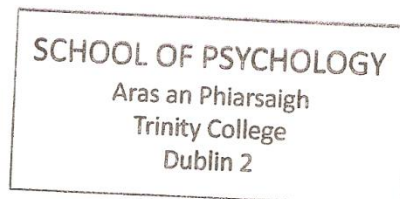
6th May 2014

Dear Megan

Following receipt of amendments (15th April 2014), I am pleased to inform you that your application entitled "Risk and resiliency factors for adolescents" has been approved by the School of Psychology Research Ethics Committee.

Yours sincerely,

Richard Carson
Chair,
School of Psychology Research Ethics Committee



Scoil na Siceolaíochta,
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 B: Stage 2 Research pack

Riskres 2015

Client ID code _____

Date _____

Birthdate _____

Listed below are a series of statements sometimes felt by young people. Please respond how often each statement applies to you.

Over the last 2 weeks , how often have you been bothered by any of the following problems? (Use “√” or circle the number to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

(PHQ-9 developed by Spitzer et al. 1999, open access)

Please read each statement and decide how true it has been for you over the **last three months**. Circle the number that best fits for you.

	Not at all true for me	Occasionally true for me	Some-what true for me	Pretty much true for me	Very true for me
1. I am easily overwhelmed by my problems.	0	1	2	3	4
2. I feel angry about the slightest things and people set me off easily.	0	1	2	3	4
3. Something has happened recently which I felt unable to cope with.	0	1	2	3	4
4. I have lost someone recently who was important to me.	0	1	2	3	4
5. Something happened in my past which has left me with painful memories.	0	1	2	3	4
6. I feel that life is just not worth living.	0	1	2	3	4
Circle yes or no					
7. I have been thinking seriously about ending my life.		Yes			No
8. I have thought about how I could end my life.		Yes			No

	Not at all true for me	Occasionally true for me	Somewhat true for me	Pretty much true for me	Very true for me
9. I feel like I don't have any choices.	0	1	2	3	4
10. I believe that things usually turn out well.	0	1	2	3	4
11. My thoughts and feelings are very upsetting or painful.	0	1	2	3	4
12. I feel totally alone.	0	1	2	3	4
13. I know how to handle upsetting feelings.	0	1	2	3	4
14. My thoughts move very quickly or feel like they're racing.	0	1	2	3	4
15. I usually succeed in the things that I do.	0	1	2	3	4
16. I feel like a burden to the people around me.	0	1	2	3	4
17. I am in control of my own actions.	0	1	2	3	4
18. I am worried because I sometimes fancy other boys/ girls.	0	1	2	3	4
19. I avoid difficult things.	0	1	2	3	4
20. I make efforts to stay fit and healthy.	0	1	2	3	4
21. I feel like there is no hope for the future.	0	1	2	3	4
22. There is someone I feel very close to.	0	1	2	3	4
23. I feel sad, unhappy, or down on myself.	0	1	2	3	4
24. I have enough support to cope with my problems.	0	1	2	3	4
26. I feel nervous or afraid and I don't understand why.	0	1	2	3	4
27. I feel ashamed.	0	1	2	3	4
28. No one I know understands me.	0	1	2	3	4
29. I don't enjoy things anymore or feel interested in them.	0	1	2	3	4
30. I am hopeful about the future.	0	1	2	3	4
31. I am restless, agitated, or constantly on edge.	0	1	2	3	4
32. I find upsetting feelings are just temporary.	0	1	2	3	4
33. I dislike myself.	0	1	2	3	4
34. I feel disconnected from my family and friends.	0	1	2	3	4
35. I take a long time to recover when something bad happens.	0	1	2	3	4
36. There is no one who could help me with my problems.	0	1	2	3	4
37. I feel under pressure to achieve what is expected from me.	0	1	2	3	4
38. I recover quickly from setbacks.	0	1	2	3	4
39. I try to pretend problems are not there.	0	1	2	3	4
40. I feel a connection to my school.	0	1	2	3	4
41. I have the freedom to make my own decisions.	0	1	2	3	4
42. I worry a lot.	0	1	2	3	4
43. I feel loved.	0	1	2	3	4
44. I do things without thinking first.	0	1	2	3	4
45. I have people I can talk to if I need to.	0	1	2	3	4
46. I am able to get through a bad experience.	0	1	2	3	4

Assessor Instructions

Do not distribute to research participants

Dear Colleague,

Many thanks for agreeing to participate in this research. There are just a few points to remember when administering the measure above:

1. When the research is introduced, participants should receive the information sheet and consent form and return the consent form. (Parent and young person for under 18's and young person only for 18 and over)
2. Please take the time to highlight informed consent, the right to withdraw, and the limits of confidentiality in relation to the disclosure of risk.
3. The participant's Pieta House code should be written on the consent form so the individual can be identified in the case they wish to access their responses under Freedom of Information at a later date. The consent form goes back to the researcher. The information sheets and additional resources can be given to young people and their families.
4. Please fill in the client ID, birthdate, and today's date on the 2 page scale (above) prior to handing the scale to the client. It's important that the client ID matches with their Pieta House assessment ID for the purposes of the research. All data will be stored separately from the consent forms.
5. This scale can be filled in prior to or during the assessment. It should be filled in directly by the client if possible but can be read to him/her if necessary.
6. Please note if there are any items which clients ask about or routinely skip.
7. Please check the responses to items PHQ item 9 and Riskres item 7 and 8 to ensure that any risk identified by the scale has been discussed and managed prior to the conclusion of the assessment process.
8. It is not necessary for you to score the measure. The research team will do this.
9. It is beneficial to have as much of the assessment data as possible completed for each client, especially the SBQ-R scores.

Many thanks for taking the time to collaborate on this joint research venture between Trinity College Dublin and Pieta House which is funded by the Irish Research Council New Foundations Scheme.

Yours Sincerely,

The Research Team

(Prof Tim Trimble, Megan Gaffney, Bailey Morgan, Trinity College Dublin)

Family/ Young Adult Information/ Debriefing Sheet



School of Psychology, Aras an Phairsaigh Trinity College Dublin

Risk and resiliency factors in Irish adolescents: an evidence based tool

During their lives, many young people experience difficult times. Too often, young people reach a crisis point before any difficulty is identified. Professionals are constantly trying to find ways to determine whether young people are at risk. They also want to find out what strengths young people have that might help them during difficult times. At the moment, there are very few screening tools which measure both risk and resilience in young people and none that have been tailored to Irish teenagers. For this reason, Trinity College Dublin and Pieta House have teamed up with the help of the Irish Research Council New Foundations Scheme to try to understand and measure these aspects in young people. The research goal is to develop an evidence based tool to screen for resiliency and risk factors in young people with the aim of providing preventative intervention prior to the young person reaching crisis point. This means young people could be offered help and support earlier, before things become totally overwhelming.

The items on the tool will be presented as part of the current assessment process in Pieta House. Young people will be asked to respond to extra items asking about distress, relationships with others, thoughts, including thoughts about their own safety, resources, strengths, and skills. The young person may be given a chance to comment on the items themselves or on the use of responding via a computer or an iPad. The young person participating will also have a choice as to whether he/ she would like to participate in the research.

All data will be stored by the researcher. The responses will remain anonymous and be identified by a code number. If any risk to a young person's safety or the safety of others is identified, this information will be shared with the treatment provider and any other appropriate agency. For all under 18's participants, families will also be notified.

All data will be stored in line with the Freedom of Information Act and Trinity College's Data Storage Policy. If you would like to view your responses, you may request this through the researcher. You have the right to withdraw from the research at any time without prejudice or consequence (under 18's may withdraw independently even if parental consent is granted). The right to withdraw continues up until the study is published. Any disclosure of risk made prior to withdrawal will still be acted upon to ensure the person's safety.

If you agree, the research team may wish to contact you again in the future for a follow up.

If you have any queries or wish to make an expression of interest in any aspect of the project, please contact:

Researcher:

Megan Gaffney

Counselling Psychologist, PhD student

Aras an Phairsaigh, School of Psychology
Psychology

Trinity College Dublin, Dublin 2

gaffneme@tcd.ie

Ph: 0863273179

Research Supervisor:

Professor Tim Trimble

CPsychologist

Aras an Phairsaigh, School of

Trinity College Dublin, Dublin 2

tim.trimble@tcd.ie

Ph: 018963905

Family Information/ Debriefing Sheet cont.

Resources for Additional Support

Console suicide helpline (free 24 hour helpline for those at risk or bereaved by suicide)
Helpline: 1800247247

Web: www.console.ie

Samaritans (free 24 hour helpline for guidance and support for those in crisis)

Helpline: 116123

Web: www.samaritans.org

Childline (free 24 hour counselling service for children and young people up to 19 years of age)

Helpline: 1800666666

Web: www.childline.ie

Teenline Ireland (free evening support for young people who feel lonely, anxious, depressed, or suicidal, hours 7-10pm)

Helpline: 1800833634

Web: www.teenline.ie

Youth Drug and Alcohol Service (YODA) (provide assessment, family therapy, counselling, family support to under 18's with a drug or alcohol problem)

Phone: 014665040

Web: www.hse.ie

AWARE (online, telephone, and face-to face support to all affected by depression)

Local Helpline: 1890303302

Web: www.aware.ie

ReachOut.com (online, interactive support service for those going through a difficult time)

Web: www.reachout.com

Bodywhys (help, support, and information for people with eating disorders and their families)

Local Helpline: 1890200444

Web: www.bodywhys.ie

Parental/ Legal Guardian Consent Form



School of Psychology, Aras an Phairsaigh Trinity College Dublin

Risk and resiliency factors in Irish adolescents: an evidence based tool

Parent/ Legal Guardian consent form

Dear Parent/ Legal Guardian,

Your child is invited to take part in a research study on risk and resilience (strengths and resources) in young people. This study is a collaboration between Trinity College Dublin, Pieta House, and is supported by the Irish Research Council New Foundations Scheme.

If you choose for your child to participate, he/she will be asked to respond to a larger number of items as part of their assessment in Pieta House. These items will ask about distress, relationships with others, thoughts, including thoughts about their own safety, resources, strengths, and skills. The reason for the extra items is to help researchers to identify more comprehensive ways of screening for risk and for identifying resources which could help your child and other children get through difficult times.

If you choose for your child to participate, your child will also have a choice as to whether he/ she would like to participate in the research. The responses to the items will be stored by the researcher. The responses will remain anonymous and be identified by a code number. If any risk to your child's safety or the safety of others is identified, you will be notified and their treatment provider in Pieta House will also be notified

All data will be stored in line with the Freedom of Information Act and Trinity College's Data Storage Policy. If you and your child would like to view the responses, you may request this through the researcher. You or your child have the right to withdraw from the research at any time without prejudice or consequence until the study is published. Identifying thoughts and feelings of distress can be difficult for any young person. It is important to continue to access psychological supports for him/her through the structures available in Pieta House and any other treatment providers which may be involved with your child.

I hereby consent for my child participate in the research outlined above. I have read and understand the above and the attached information sheet. I agree to continue to access psychological supports for my child as needed should risk be identified or if I feel he/she is in distress.

Please circle: I would/ would not like to be contacted by the research team to participate in the follow up part of this study.

Name Parent/ Legal Guardian (Please print)

Name Young Person (Please print)

Parent/ Legal Guardian Signature

Date

Young Person Consent Form (18-21 years)



School of Psychology, Aras an Phairsaigh Trinity College Dublin

Risk and resiliency factors in Irish adolescents: an evidence based tool

Consent form

Dear Service User,

You are invited to take part in a research study on risk and resilience (strengths and resources) in young people. This study is a collaboration between Trinity College Dublin, Pieta House, and is supported by the Irish Research Council New Foundations Scheme.

If you choose to participate, you will be asked to respond to a larger number of items as part of your assessment process in Pieta House. These items will ask about distress, relationships with others, thoughts, including thoughts about your own safety, resources, strengths, and skills. The reason for the extra items is to help researchers to identify more comprehensive ways of screening for risk and for identifying resources which could help you and other young people.

Your responses to the items will be stored by the researcher. The responses will remain anonymous and be identified by a code number. If any risk to your safety or the safety of others is identified, your treatment provider in Pieta House will be notified and any other party who needs to know to ensure your safety.

All data will be stored in line with the Freedom of Information Act and Trinity College's Data Storage Policy. If you would like to view the responses, you may request this through the researcher. You have the right to withdraw from the research at any time without prejudice or consequence. Identifying thoughts and feelings of distress can be difficult for anyone. It is important to continue to access psychological supports through the structures available in Pieta House and any other treatment providers which you may be accessing support from.

I hereby consent to participate in the research outlined above. I have read and understand the above and the attached information sheet. I agree to continue to access psychological supports as needed should risk be identified or if I feel in distress.

Please circle: I would/ would not like to be contacted by the research team to participate in the follow up part of this study.

Name (Please print)

Signature

Date

Young person information sheet (13-17 years)



School of Psychology, Aras an Phairsaigh Trinity College Dublin

Risk and resiliency factors in Irish adolescents: an evidence based tool

Information Sheet/ Consent Form

Dear Young person,

You are invited to take part in a research study focusing on young people's problems and the things that help them to cope with difficult situations. This study was set up by Trinity College Dublin, Pieta House, and the Irish Research Council New Foundations Scheme.

If you decide to take part, you will be asked to answer some questions as an extra part of your initial meeting in Pieta House. The questions will ask about your feelings, relationships with others, thoughts, including thoughts about your own safety, supports, strengths, and skills. The reason for the extra questions is for researchers to learn more about young people, their stressors, and their feelings.

Your answers to the questions will be linked with a code number and not your name so the researchers do not know who you are. This means your answers are confidential. If you would like to see your answers later, the researcher can look them up with your code. If you answer any question which says you are in danger of hurting yourself, your parent/ legal guardian and your therapist will be notified that your safety is at risk.

Your answers will be stored accordingly to rules outlined by Trinity College. You can decide to stop answering the research questions at any time or decide you don't want to be part of the study up until it is published. Identifying upsetting feelings can be difficult for anyone. You can choose whether you would like to take part in this study and whether you want to be contacted about it again in the future. In addition to the support in Pieta House, here is a list of other support services which you can use or give to your friends. If you have any questions about the research, you can contact the following people:

Researcher:

Megan Gaffney

Counselling Psychologist, PhD student

Aras an Phairsaigh, School of Psychology

Trinity College Dublin, Dublin 2

gaffneme@tcd.ie

Ph: 0863273179

Research Supervisor:

Professor Tim Trimble

CPsychologist

Aras an Phairsaigh, School of Psychology

Trinity College Dublin, Dublin 2

tim.trimble@tcd.ie

Ph: 018963905

I hereby consent to participate in the research outlined above.

Name (Please print)

Signature

Resources for Additional Support

Console suicide helpline (free 24 hour helpline for those at risk or bereaved by suicide)
Helpline: 1800247247

Web: www.console.ie

Samaritans (free 24 hour helpline for guidance and support for those in crisis)

Helpline: 116123

Web: www.samaritans.org

Childline (free 24 hour counselling service for children and young people up to 19 years of age)

Helpline: 1800666666

Web: www.childline.ie

Teenline Ireland (free evening support for young people who feel lonely, anxious, depressed, or suicidal, hours 7-10pm)

Helpline: 1800833634

Web: www.teenline.ie

Youth Drug and Alcohol Service (YODA) (provide assessment, family therapy, counselling, family support to under 18's with a drug or alcohol problem)

Phone: 014665040

Web: www.hse.ie

AWARE (online, telephone, and face-to face support to all affected by depression)

Local Helpline: 1890303302

Web: www.aware.ie

ReachOut.com (online, interactive support service for those going through a difficult time)

Web: www.reachout.com

Bodywhys (help, support, and information for people with eating disorders and their families)

Local Helpline: 1890200444

Web: www.bodywhys.ie

Appendix C: Item pool

I always feel lonely even when I'm with my friends.
No one I know understands me.
I feel misunderstood.
I feel totally alone
I don't feel close to others, even if I know them very well.
I spend time alone.
I feel socially withdrawn.
There is no one who could help me with my problems.
I wouldn't feel like asking anyone for help, even if I needed it.
People in my family aren't helpful.
I'd rather just deal with things by myself.
I can go to my family or friends for help.
I don't have anyone to go to for help.
I feel that life is just not worth living.
During the past month, I have thought about ending my life.
I have been thinking seriously about killing myself.
I have a plan to end my life
During the past three months, I have self harmed.
There is no point in going on with life
I feel angry about the slightest things and people.
I feel sad, unhappy, or down in myself.
I feel hopeless.
I feel like there is no hope for the future.
I don't enjoy things anymore, even if I'm interested in them.
I'm sleeping much more or much less than usual.
I just can't seem to get to grips with anything in my life.
I'd rather not face any problems in my life.
I let others do things to me without complaining or pushing back.
I feel like I don't have any choices in life.
I'm not good at solving problems.
I let things get on top of me.
I feel overwhelmed by my problems.
My feelings can change very quickly.
I am easily overwhelmed.
My thoughts and feelings are very upsetting.
I take a long time to recover when something bad happens.
I do things without thinking first.
I am restless or overactive.
I get excited by just doing things without thinking.
When making a decision, I don't think it through.
I think I'm going mad.
My feelings are painful.
I am upset.
I feel afraid and I don't understand why.
I worry a lot.

I feel nervous and scared.
I am unable to relax.
I am worried because I sometimes fancy other boys/ girls.
I worry about being gay.
I don't care what I look like or what people think of me.
I care about my body.
I don't take good care of myself physically.
I protect my body from harm.
I try to pretend problems are not there.
I distract myself from dealing with difficult things.
I avoid my problems.
I avoid difficult things in life.
I feel connected with my family.
I feel loved.
Other people care about me.
My friends are a source of comfort to me.
I look forward to going to school.
I feel a connection to my school.
I feel happy at home.
There is someone I feel very close to.
There is someone I feel able to ask for help.
I have people I can talk to if I need to.
I can tell my friends anything and feel understood.
I have enough support to cope with my problems.
I'm happy with most decisions that I make about my life.
I have the freedom to make my own decisions.
I am in control of my own actions
I am able to make some of my own choices.
I can think about a situation in different ways.
I am open to new experiences.
I am open to new opportunities.
I am open to change.
I believe that things can always be better in the future, no matter how bad they might seem right now.
I find upsetting feelings are just temporary.
I can deal with upsetting feelings because I know they will pass.
I believe problems are temporary.
I am able to get through a bad experience.
I have coped with difficult things in the past.
I love it when I have success in the things that I do.
I am capable.
I believe in my ability to cope with problems.
I know that things will almost always turn out well.
I am hopeful about the future.
I have a positive attitude.
I can usually stay calm when things are not going well.
I am able to cope with my thoughts and feelings.
I know how to handle upsetting feelings.

I can cope even if things go wrong.

I can feel positive even when I have distress.

I think before I act.

I consider all the options before making a decision.

I take care of myself physically.

I do things to stay healthy.

I make efforts to stay fit and healthy.

I try to eat healthy food whenever I can.

No matter what, I manage to always get a good night's sleep.

I am able to get through difficulties.

I don't let difficult things keep me down.

I adapt quickly to new situations.

I recover quickly from setbacks.

Something has happened recently which I felt unable to cope with.

Something has happened recently which I felt completely rejected by.

I dislike myself.

I feel shame.

I use drugs or alcohol more than I should.

I have lost someone recently who was important to me.

Appendix D: Pattern factor loadings for 46-item RISKRES

RISKRES item	Factor												
	1	2	3	4	5	6	7	8	9	10	11	12	13
I feel ashamed	1.062												
I dislike myself	.329												
I feel sad, unhappy, or down on myself													
I feel like there is no hope for the future		-											
		1.050											
My thoughts and feelings are very upsetting or painful													
I feel angry about the slightest things and people set me off easily													
No one I know understands me													
I don't enjoy things anymore or feel interested in them													
I feel totally alone													
My thoughts move very quickly or feel like they're racing													
I usually succeed in the things that I do													
I feel like a burden to the people around me													
I find upsetting feelings are just temporary													
I recover quickly from setbacks													
I am able to get through a bad experience													
I know how to handle upsetting feelings													
I believe that things usually turn out well													
There is someone I feel very close to													
I have people I can talk to if I need to													
I try to pretend problems are not there													
I feel loved													
Something has happened recently which I felt unable to cope with													
Something happened in my past which has left me with painful memories													
I have lost someone recently who was important to me													

I am easily overwhelmed by my problems		.436		
I avoid difficult things		-	.812	
I feel that life is just not worth living			.439	
I make efforts to stay fit and healthy		-	.423	
I am worried because I sometimes fancy other boys/girls			.403	
I am hopeful about the future	.346	-	.391	
There is no one who could help me with my problems			.351	
I am in control of my own actions		-	.680	
I have the freedom to make my own decisions		-	.530	
I feel like I don't have any choices	-	.333	.402	
I feel a connection to my school			.512	
I am restless, agitated, or constantly on edge			-	.391
I feel under pressure to achieve what is expected from me			.353	
I take a long time to recover when something bad happens	.312	.309		.340
I have enough support to cope with my problems				
I'm sleeping much more or much less than usual				-
				.674
I feel nervous or afraid and I don't understand why				-
				.366
I worry a lot		.320		-
				.339
I do things without thinking first				-
				.323
I feel disconnected from my family and friends				-
				.305

Extraction Method: Maximum Likelihood.

Rotation Method: Oblimin with Kaiser Normalization.^a

