Alcohol use and alcohol-related harms: exploring risk and protective factors among young people living in urban disadvantage

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Declaration Page

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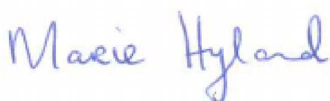
Signature  Date 14th August 2023

Summary

The aim of the research is to explore the potential risk and protective factors associated with alcohol use, binge drinking and harmful consequences of alcohol use, under the broad domains of health-related quality of life, among young people living in urban disadvantage. Furthermore, to estimate the scale and scope of alcohol-related harms to children and young people presenting with acute conditions, wholly or partially attributable to their personal consumption of alcohol, as evidenced by emergency department (ED) presentations from two acute urban hospitals, retrospectively for an 11-year period (2009-2019).

The research design was a concurrent multiple methods, convergent parallel design, whereby a quantitative approach was dominant, with a qualitative aspect nested within. Firstly, a cross-sectional survey was conducted on 15–17-year-olds from six educationally disadvantaged schools and two youth training centres, in a highly deprived region in Dublin. Self-reported data were collected on alcohol behaviours, alcohol motivations, alcohol consequences/harms, health-related quality of life domains, leisure time activities and depression levels. Secondly, anonymised secondary data were extracted from the hospital data management systems of two urban hospitals. Filters were applied using key alcohol search words and terms to relevant data capture fields, spanning both paediatric and adult emergency department presentations of children and young people aged 12–18-years old.

The key findings were obtained from both descriptive and inferential modelling. The binary logistic regression models identified the significant predictors of alcohol use, binge drinking, harmful consequences and depression levels. Moderation analysis

identified a relationship between the predictor variable alcohol use and the outcome variable harmful consequences through the influence of a third continuous moderator variable, school environment.

This study contributes to the existing data that support the premise that living in urban disadvantage demonstrates a higher prevalence of drinking behaviours among young people, compared to national and European data across predominantly middle to higher socio-economic communities, but indicated a lower frequency of alcohol consumption (fewer occasions). This compares to higher frequency (more occasions) among more affluent young people (Pedersen and Bakken, 2016).

Potential risk factors were clearly associated to socially orientated motivations, socially orientated behaviours (peer support) and a lack of structured leisure time activities, among disadvantaged young people. Higher perceived social and peer support was a potential risk factor reporting the increased likelihood of alcohol use, binge drinking and suffering harmful consequences.

Potential protective factors were clearly associated with positive school environment in decreasing the likelihood of alcohol use and binge drinking. Positive leisure time activities like reading books for enjoyment decreased the likelihood of alcohol use and binge drinking, while participating in structured leisure time evening activities and actively participating in sport potentially decreased the likelihood of depression.

Acute alcohol-related harms were identified across two vulnerable age groups, both presenting with exclusive alcohol-related harm. In addition, this study calls attention to other deficits in health-related quality of life domains and depression experienced by disadvantaged young people.

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Abbreviations

Abbreviation	Full Name
WHO	World Health Organisation
HBSC	Health Behaviour in School-aged Children
HED	Heavy Episodic Drinking
ESPAD	European School Survey Project on Alcohol and Other Drugs
HRQoL	Health-related quality of Life
SES	Socioeconomic status
AR	Alcohol-related
ED	Emergency department
PED	Paediatric emergency department
AED	Adult emergency department
PEOS	Population, Exposure, Outcomes, Study type
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analysis
WA	Western Australia
ICD	International Classification of Disease
HES	Hospital Episode Statistics
IMD	Index of Multiple Deprivation coding
BAL	Blood alcohol level
SSDP	Seattle Social Development Project
RAPI	Rutgers Alcohol Problem Index
GSHS	Global School-Based Health Survey
SLT	Social Learning Theory
SCT	Social Cognitive Theory

DEIS	Delivering Equality of Opportunity in Schools
AUDIT	Alcohol Use Disorders Identification Tool
CDI-S	Children's Depression Inventory – short version
NHTSA	National Highway Traffic Safety Administration
TUH	Tallaght University Hospital
SASA	Senior Application Support Analyst
ICT	Information, Communication, Technology department
ID	Identification number
GP	General Practitioner
NDA	No diagnosis available
A2r	Revised Audit 2
A3r	Revised Audit 3
SEH	Someone else's home
VIF	Variance Inflation factor
ABV	Alcohol by volume
YoDA	Youth Drug and Alcohol Service
JCSP	Junior Certificate School Programme
BoB	Books in a box
MECC	Making Every Contact Count
HSE	Health Service Executive
CHI	Children's Health Ireland
SBI	Screening and brief intervention
SPHE	Social, Personal, Health Education
GAA	Gaelic Athletic Association

HCP	Healthy Club Project
LOC	Loss of consciousness
PEARL	Pupils equal and reacting to light
BIBA	Brought in by ambulance
c2h5oh	Alcohol
pt	Patient
gcs	Glasgow coma scale
bsl	Blood sugar level
O/A	On arrival
Lacs	Lacerations
S/B	Seen by
C/O	Complaining of
Resp	Respiratory
P on AVPU	Patient’s level of consciousness – alert, verbal, pain, unresponsive Pain on AVPU scale
Amt	Amount
Ecg	Electro-cardiology
DSH	Deliberate self-harm
hx	History
abdo	Abdomen
SOB	Shortness of breath
Palp	Palpitations
Tachy	Tachycardia
Syncope	Fainting or passing out

Acc	According to
Tox	Toxicology
H.I.	Head injury
OD	Overdose
NOK	Next of kin
MDMA	Commonly known as ecstasy or molly
CAMHS	Children and adolescent mental health services
incon	Incontinence
A&E	Accident and Emergency
Gardaí/Garda	Law enforcement agency/police
ASAP	The Alcohol and Substance Abuse Prevention Programme
ACES	Adverse Childhood experiences
MeSH	Medical Subject Headings

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Chapter 1 - Introduction

This chapter provides a background and context to alcohol use and alcohol-related harms among young people living in urban disadvantage and then outlines the structure and format of this thesis.

1.1 Background

Globally, alcohol is a principal risk factor for disease liability and health burden. Therefore, the World Health Organisation (WHO) monitors the attributable burden through two dimensions, levels of alcohol consumption and patterns of alcohol consumption; small amounts over time or larger amounts on a few occasions (WHO, 2012). A modelling study forecasts that alcohol use will continue to be a leading risk factor for the burden of disease, particularly in developing countries until 2030 (Manthey et al., 2019). The changing patterns of alcohol behaviours by young people globally is increasing the risks of alcohol-related harms (Martinotti et al., 2017). It is a global health priority to reduce alcohol-related harms to young people (O'Donnell et al., 2017). In 2016, alcohol consumption across Europe was the highest in the world, resulting in the highest number of alcohol-related deaths and disability-adjusted life years (WHO, 2018). The WHO's European Action Plan to reduce the Harmful Use of Alcohol 2012-2020 (EAPA) explicitly targeted the reduction of alcohol-related harms by 10% by 2020 (WHO, 2012) and clearly mentioned young people as a significant cohort of concern (Degenhardt et al., 2016). Nationally, one of the main goals of the National Drug and Alcohol Strategy 2017-2025, is to prevent early use of alcohol and other drugs among young people or to minimise harm among those young people that are already using (Dillon, 2017).

1.2 Alcohol Behaviours of Young People

According to the National Policy Framework for children and young people (2019), young people in Ireland are defined as persons between the ages of 15 and 24 years and a child is defined as being under the age of 18 years (Department of Children and Youth Affairs, 2014). Although, the Oxford English Dictionary defines young people as between the ages of 14 and 17 years (Oxford English Dictionary, 2018). There are numerous variations in profiling the age range of those termed young people, but for the purpose of this dissertation, the term young people is designed to be considered between 15-18 years approximately.

Young people through their natural developmental stages have a heightened propensity for risk taking and they may investigate and trial what is perceived as adult behaviours, which includes the use of alcohol (Ellingson et al., 2018; Steinberg, 2010). According to the Irish health behaviour in school-aged children (HBSC) study by Gavin et al. (2015) initiation of risky drinking behaviours is clearly defined from age 15 years onwards, across males and females. Research has shown that alcohol dependence later in life has a strong correlation with earlier initiation of alcohol use (Hingson et al., 2006). For each year of delayed onset of alcohol use, the odds of developing alcohol dependence later are decreased by 14% (Grant & Dawson, 1997).

Young people are developmentally more vulnerable to alcohol misuse and the inherent harms which result from alcohol consumption. Adolescence is a unique period developmentally from a neurological, psychosocial and biological perspective. Therefore, alcohol consumption and binge drinking have a more profound effect on the young developing person socially, cognitively and emotionally, compared to an adult (Tapert et

al., 2002). This critical period in brain maturation means that while the limbic system (area of the brain responding to rewards and stressors) is developed, the maturation of the prefrontal cortex (area of the brain responsible for executive planning and decision-making) is typically not complete (until 25 years of age approximately). This leads to a greater propensity to risky, impulsive type behaviours without the due consideration of the consequences (Hermens et al., 2013).

O'Dwyer et al. (2019) report that harmful or risky patterns of drinking are the cultural norm in Ireland and that the majority of alcohol-related harms reported have been among those involved in heavy episodic drinking (HED), with young people most likely to do so. The majority of alcohol-related harms are experienced by those who are not alcohol dependent, but rather those who engage in low to moderate drinking. More specifically, young people who engage in heavy episodic drinking/binge drinking. This supports the prevention paradox, which states that low to moderate drinkers are more numerous in the population than problematic dependant drinkers therefore the majority of alcohol-related harms are experienced by this cohort (Antai et al., 2014; Danielsson et al., 2012; O'Dwyer et al., 2021; Rossow et al., 2013; WHO, 2012). Young people in Ireland have shown a significant increase in HED between 2015 and 2019 (Inchley & Currie, 2016; Mokinaro et al., 2020).

For young people in Ireland alcohol is an affordable, accessible choice for initiation into substance use (Comiskey et al., 2018). The European School Survey Project on Alcohol and other Drugs (ESPAD) is a cross-national study of 35 countries across Europe. It is one of the most comprehensive European data collections on substance use among young people (Kraus & Nociar, 2016). They report that most 15–16-year-olds across 35 European

countries perceived that alcoholic beverages were easily available and 78% reported that alcoholic beverages were easy to obtain (Kraus & Nociar, 2016). As alcohol consumption levels are lower for young people than adults to experience intoxication, inexperienced, risk-taking young people are at higher risk of alcohol misuse and alcohol-related harms (Ellingson et al., 2019).

Findings across major European studies agree, showing an overall average decline in young people consuming alcohol. However, they report the following trends: an increase in alcohol use within the early developmental cycle of young people, future gender convergence patterns, with some northern European data showing higher alcohol use in young females. From a national perspective, in Ireland, young females have participated in heavy episodic drinking as much as young males since 1999 (Healey et al., 2014; Inchley & Currie, 2016; Kraus & Nociar, 2016). Heavy episodic drinking is defined as drinking five or more drinks on one occasion, causing most young people a degree of intoxication. In Ireland, 15-16-year-olds have reported high levels of drinking volumes per student at 5.7 centilitres of ethanol, on the last drinking day, when the European average is 4.6 centilitres (Mokinaro et al., 2020). Denmark and Norway consumed the highest amount of ethanol at 8.8 centilitres and 6.7 centilitres respectively, on the last drinking day. Kosovo and Romania reported the lowest levels on the last drinking day at 2.5 centilitres and 3.0 centilitres respectively (Mokinaro et al., 2020).

1.3 Living in Urban Disadvantage

The term “disadvantaged” has been defined by Mayer (2003) as a multidimensional construct whereby people are denied “access to the tools and services needed for self-sufficiency”, affecting economic, social and cultural aspects of their daily

lives, which are available to other people. There are a number of interchangeable terms used within the literature, but disadvantaged is a broader concept than socio-economic deprivation. The overall health and well-being of young people is impacted by their social, cultural, and economic environment (Loring, 2014). Residents of disadvantaged communities are more susceptible to experiencing a range of health inequities resulting in potential exposure to unhealthy environments and behaviours (Roche et al., 2015). Young people living in urban disadvantage are more likely to report lower health-related quality of life (HRQoL) (KIDSCREEN Group Europe, 2006), more likely to experience alcohol-related harm (WHO, 2012), and are at greater risk of mental health issues, including depression (Vukojević et al., 2017). Hetrick et al. (2017) reports clear associations between health-related concerns, substance use, and mental health issues, among young people. According to Freeney and O'Connell (2012), deprivation is a factor of educational disadvantage often resulting in disengagement and low school connectedness, increasing the risk of suffering from anxiety, depression, and substance use (Bond et al., 2007). Dropping out of school places young people more at risk of developing substance misuse, however the risk does reduce by continued training (Esch et al., 2014).

Earlier research by the Healthy Behaviour in School-aged Children (HBSC) (Inchley & Currie, 2016) survey of 11, 13 and 15-year-olds across 42 European countries factored in material assets and activities (e.g., holidays) to measure relative family affluence and assigned all participants into low, medium or high family affluent groupings regardless of country or region. Overall, they reported that family affluence was not a predictor of adolescent alcohol consumption. However, the indicators of a young person's family affluence in the above study, may not offer an acceptable comparable measure to a young

person living in social, educational and economic disadvantage. A review of the empirical literature by Hanson and Chen (2007) showed moderating effects by family indicators, as patterns varied by socioeconomic status (SES) markers/measures (e.g., household incomes, parental education and occupational status). Overall, Hanson and Chen (2007) found no relationship between SES and alcohol use. However, only four of the twenty-eight studies related to 15–17-year-olds. Further research is needed to fully understand the drinking behaviours of 15–17-year-olds, living in urban disadvantage.

Research by Comiskey et al. (2017) highlights some of the health challenging risks experienced by those living in urban disadvantage. They report that 80% of participants reported public safety concerns due to young people drinking in open public places. Physical and mental health challenges created by the sale and use of alcohol was reported. Also, concerns were expressed about the high number of young people impacted by parental substance use in the area, leading to poor outcomes and hidden harms for young people. Often children of parents with substance misuse deal with social and financial hardship amid sub-optimal care while living in disadvantaged circumstances. Multiple risk factors including poor parental control or monitoring, lack of a secure nurturing environment and poor parental role models can lead to maladaptive behaviours by young people and lead to a greater risk of dependence on alcohol and depression later (Manning et al., 2009).

According to WHO (2012) people living in social disadvantage experience more alcohol-related harm than those of higher socioeconomic status, contributing to health inequalities. Research across the UK from 2006-2009, concurs showing that lower socioeconomic regions have produced the highest hospital admission rates based on

direct alcohol-related harms among young people (Alcohol Concern, 2011; Smith & Curran, 2010). The two allied variables - being a young person and living in urban disadvantage may increase this cohort's vulnerability further, in the present study. This prompts the question - is there a higher prevalence of harmful or risky patterns of drinking among young people living in urban disadvantage, contributing to higher alcohol-related harms? According to Mäkelä and Paljärvi (2008) and Bellis et al. (2016) associated health challenging risks disproportionately impact disadvantaged communities, regardless of similar drinking patterns, compared to higher socioeconomic drinkers. Therefore, research is required to review if factors mediate within differing socioeconomic environments, as a direct result of alcohol behaviours of young people living in urban disadvantage.

1.4 Alcohol-Related Harms

Alcohol-related harms are experienced across the developmental lifespan. In young people, the neurotoxic effects of alcohol can cause permanent brain changes, increased risks of later alcohol dependence and associated memory and learning deficits (Miller et al., 2007). Alcohol-related harms can be categorised as unintentional, for example, alcohol poisoning or intentional such as a deliberate act of violence against oneself, self-harm. Unintentional negative consequences are the most commonly recorded cause of alcohol-related harm (WHO, 2007). However, according to O'Donnell et al. (2017) self-harm has been the most frequently recorded alcohol-related injury in hospital admissions, by young people, in England.

Danielsson et al. (2012) investigated self-reported alcohol-related harms using the European School Survey Project on Alcohol and Other Drugs (ESPAD) 2007 data. Due to

limitations with the data, only 23 out of the original 35 countries were included (Ireland was excluded). They measured alcohol consumption levels, heavy episodic drinking and alcohol-related harms, due to personal alcohol use, in the past 12 months. Physical fighting and unprotected sex were the most frequently reported harms by 16-year-old boys. Performing poorly at school and problems with parents were most frequently reported harms by 16-year-old girls. The data were collected across predominantly middle to higher socioeconomic communities.

However, acute alcohol-related (AR) harms places increasing demands on emergency departments (ED) and hospital resources to respond to a range of negative consequences wholly or partially attributable to risky patterns of alcohol consumption by young people. Estimates of the prevalence of alcohol-related ED presentations to date, have been evaluated from a limited number of studies (Phillips et al., 2019). To date studies report on adult alcohol-related emergency department presentations, with data collected at limited time points, and comparing AR presentations to non-alcohol-related presentations (Hope et al., 2005).

Estimates of the burden placed on ED's due to AR presentations across all age groups, has been evaluated in a few countries, with very little correlation. The first national study of AR presentations across every (24-hour) emergency department was conducted by McNicholl et al., (2018). Alcohol-related presentations accounted for 5.9% of all ED presentations (predominately adult sample). In Belgium, over a 12-month period from one university hospital, AR presentations accounted for 1.2% of all ED visits (Verelst et al., 2012). A study of 106 Australian/New Zealand ED's at a single time point (02.00am) on a weekend nightshift reported a median of 12.5% of AR presentations (Egerton-

Warburton et al., 2014). In England, through exploratory analysis of NHS data, ED presentations due to any alcohol disorder accounted for 11.7% of the overall presentations (Phillips et al., 2019). A study by O'Dwyer et al. (2021) reports there are no systematic mechanisms in place to collect data, or official statistics relating to the burden AR presentations place on Irish emergency departments. Therefore, it is reported that the burden placed on Irish ED's, due to AR presentations, may be grossly underestimated.

A descriptive study by Kelleher and Cotter (2009) surveyed the knowledge and attitudes of emergency department doctors and nurses concerning substance use and people who use substances, in three university hospitals in Ireland. The results indicate that AR presentations may not be satisfactorily managed due to a lack of specific knowledge by front-line clinicians, even though they displayed positive attitudes towards people who use substances. In addition, challenges were identified by doctors in providing care to AR presentations in Paediatric ED's across Canada (Mabood et al., 2013). They claimed that medically stabilising young people with alcohol excess/intoxication required more time and resources, than was available to them. The typical behaviours displayed by young people while intoxicated in the ED, left doctors frustrated and struggling to develop a therapeutic relationship, creating barriers to resolving broader social issues associated with AR presentations by young people, within the hospital setting.

1.5 The Current Study

Risk and protective factors associated with alcohol use and AR harms among young people living in urban disadvantage has received limited investigation internationally. Research to date has reported on alcohol behaviours of young people in cross-national studies within predominantly middle to higher socio-economic communities (Comiskey et

al., 2018; Inchley & Currie, 2016; Kraus & Nociar, 2016). Yet little remains known specifically about alcohol use and AR harms among young people living in urban disadvantage. Collecting data and analysing acute AR presentations to emergency departments among children and young people has previously not been conducted in Ireland. The results of this study will present a more comprehensive platform to inform appropriate prevention, intervention and harm reduction planning, training and policy decisions, specific to a disadvantaged cohort.

The aim of the study was to investigate alcohol use, binge drinking and alcohol-related harms: exploring risk and protective factors as evidenced by survey data and secondary data from emergency department presentations, among young people living in urban disadvantage.

The following research questions were applied to a sample of young people living in urban disadvantage:

1. What is the prevalence and frequency of alcohol use and binge drinking?
2. What is the measure of subjective health-related quality of life across five domains: (physical well-being, psychological well-being, autonomy and parent relation, social support and peers and school environment) and perceived depression levels?
3. What is the association between alcohol behaviours and harmful consequences?
4. What are the predicted risk and protective factors associated with alcohol use, binge drinking, harmful consequences and depression?
5. Does the relationship between alcohol use and harmful consequences of alcohol use differ as a function of a moderator/mediator variable?

6. What is the scale and scope of alcohol-related harms as evidenced by self-reported negative consequences and alcohol-related emergency department presentations?

The main aims of the study and the research questions are addressed throughout the dissertation. The following section provides an overview of the dissertation by chapter.

1.6 Overview of the dissertation

Chapter 2: A narrative review of the risk and protective factors associated with alcohol use, binge drinking and alcohol-related harms among young people living in urban disadvantage

This chapter outlined the literature review protocol, including the search strategy and selection process of eligible literature. The eligible studies were discussed across three main categories; alcohol-related harms, living in disadvantage, and risk and protective factors associated with alcohol consumption. This narrative review informed this study.

Chapter 3: Methodological and ontological approaches

This chapter discussed the philosophical and epistemological framework of the study, which was based on the positivism paradigm. In addition, it introduced the theoretical framework of social learning theory, and its conceptual influences which were discussed throughout the dissertation. An overview of the study design was presented in two sections. Part 1 offered details of the study design, data management and data analysis for the schools and Youthreach survey among young people aged 15-17 years. Part 2 offered the study design, data management and data analysis for the secondary

data extracted on emergency department presentations, from two urban hospitals, located on one site.

Chapter 4: Descriptive findings of the school and Youthreach survey data – Part 1

This chapter presents the demographic information, descriptive and basic inferential findings by gender and total, among 15–17-year-olds, surveyed in DEIS band 1 schools and Youthreach centres.

Chapter 5: Correlational findings and Binary Logistic Regression model findings

This chapter provides the findings of the correlation analysis which informed the binary logistic regression models based on the data collected in DEIS Band 1 schools and Youthreach centres.

The predictor variables included five health-related quality of life domains, depression, leisure time activities, motivations for alcohol use and parental monitoring, on the outcome variables alcohol use, binge drinking and harmful consequences of alcohol use.

Chapter 6: Moderation and Mediation analysis

The chapter explored mediation and moderation models based on the binary logistic regression findings, from the data collected in DEIS Band 1 schools and Youthreach centres. Three moderation models and one mediation model were analysed.

Chapter 7. Descriptive and basic inferential findings on alcohol-related emergency department presentations from two urban hospitals – Part 2

This chapter will present specific details of alcohol-related Emergency Department (ED) presentations, retrospectively for an eleven-year period (2009-2019). The extracted secondary data relate to children and young people between the ages of 12-18 years who presented at either the Paediatric Emergency Department (PED) (age 12-15 years) or the

Adult Emergency Department (AED) (16-18 years). The data were analysed using descriptive and basic inferential analysis, as well as qualitative case histories.

Chapter 8. Integration of findings

This chapter drew on the main findings of both complimentary approaches (Part 1 and Part 2), integrating and merging both aspects of this convergent concurrent multiple-methods research design, in an intentional process. A side-by-side joint display was chosen as the method to facilitate integration of the findings and providing meta inferences. It offers clarity in presentation through visual means.

Chapter 9. Discussion and conclusion

The final chapter presents a discussion on the main findings of the study, based on the outcomes from Chapters 4, 5, 6, 7 and 8. Furthermore, the implications of the findings on young people are reviewed, along with the strengths and limitations of the study. Finally, recommendations and conclusion are discussed.

Chapter 2 – Literature Review

Introduction

Given the study rationale, aim and objectives, this chapter presents a narrative review of the risk and protective factors of alcohol use and alcohol-related harms among young people living in urban disadvantage. It provides a synthesis of the current literature available. The main objective of the review was to identify key concepts from the research questions and search for relevant articles in a comprehensive and methodological manner, providing up-to-date knowledge on the phenomenon of alcohol use and alcohol-related harms among young people living in urban disadvantage. Finally, to integrate the work of other researchers and identify central topics (Creswell & Creswell, 2017).

Search Terms

The search terms or keywords were adapted from the key concepts. These were discussed and agreed with the expert librarian from Trinity College Dublin. Thereafter, controlled vocabulary and MeSH terms utilised by various databases were appropriately selected. The keywords and inclusion criteria focused on the following main concepts: alcohol use, young people, disadvantaged, risk and protective factors, harm or injury.

Search Strategy and Selection Process

Agreement was reached on the most appropriate electronic databases to search, with the expert librarian. The searches were conducted using the following electronic databases:

Medline (National Library of Medicine)

CINAHL (Cumulative Index to Nursing and Allied Health Literature)

EMBASE (Excerpta Medica Database)

PsycINFO (Psychological Information)

A narrative review was chosen as appropriate for this study instead of a systematic review. The main aim of a systematic review is to formulate a well-defined research question or emphasise the appropriateness of a particular intervention (Bryman & Bell, 2007). A systematic review is guided by a rigorous process and a more restricted protocol. In contrast, a narrative review can address more than one research question and tends to be more wide-ranging in scope, with a less restrictive focus than a systematic review (Randolph, 2009). According to Ferrari (2015) the overall quality of a narrative review can be improved by utilising systematic methodologies and taking a systematic approach to the search and selection of articles, while still conducting a narrative review. Therefore, a systematic approach was engaged reducing any bias in the selection of articles, in a very transparent manner, but with a less restrictive focus. A narrative review was considered the most suitable for identify any gaps in the literature, for this study.

The following tables list the approved search terms by each electronic database. See Table 1, Table 2, Table 3 and Table 4 below.

2.1 Key search terms by each electronic database

Table 1: EBSCO ti/ab searches and MEDLINE using controlled vocabulary/subject headings (MESH)

EBSCO/MEDLINE
AB ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse") OR TI ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse")
AB ("young people" or "young person” or "young adults" or "youth*" or "adolescen*" or teen* OR minors) OR TI ("young people" or "young person” or "young adults" or "youth*" or "adolescen*" or teen* OR minors)
AB ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income” or poor) OR TI ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income” or poor)
AB (Harm* OR injur*) OR TI (Harm* OR injur*)
AB (Risk* or protective) OR TI (Risk* or protective)

AB ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse") OR TI ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse") OR (MH "Alcohol Drinking+") OR (MH "Alcohol-Induced Disorders") OR (MH "Alcohol-Related Disorders") OR (MH "Alcoholism")
AB ("young people" or "young person" or "young adults" or "youth*" or "adolescen*" or teen* OR minors) OR TI ("young people" or "young person" or "young adults" or "youth*" or "adolescen*" or teen* OR minors) OR (MH "Adolescent") OR (MH "Adolescent Behavior") OR (MH "Adolescent Development") OR (MH "Adolescent Health") OR (MH "Minors")
AB ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income" or poor) OR TI ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income" or poor) OR (MH "Social Class+") OR (MH "Socioeconomic Factors") OR (MH "Poverty+") OR (MH "Economic Status")
AB (Harm* OR injur*) OR TI (Harm* OR injur*)
AB (Risk* or protective) OR TI (Risk* or protective) OR (MH "Risk Factors") OR (MH "Protective Factors")

Table 2: EBSCO ti/ab searches and CINAHL using controlled vocabulary/subject headings

EBSCO/CINAHL
(MH "Risk Factors+")
(MH "Adolescence+") OR (MH "Young Adult")
(MH "Alcohol Drinking+") OR (MH "Drinking Behavior+")
AB (Risk* or protective) OR TI (Risk* or protective) OR (MH "Risk Factors") OR (MH "Protective Factors")
AB (Harm* OR injur*) OR TI (Harm* OR injur*)
AB ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income" or poor) OR TI ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income" or poor) OR (MH "Social Class+") OR (MH "Socioeconomic Factors") OR (MH "Poverty+") OR (MH "Economic Status")
AB ("young people" or "young person" or "young adults" or "youth*" or "adolescen*" or teen* OR minors) OR TI ("young people" or "young person" or "young adults" or "youth*" or "adolescen*" or teen* OR minors) OR (MH "Adolescent") OR (MH "Adolescent Behavior") OR (MH "Adolescent Development") OR (MH "Adolescent Health") OR (MH "Minors")
AB ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse") OR TI ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse") OR (MH "Alcohol Drinking+") OR (MH "Alcohol-Induced Disorders") OR (MH "Alcohol-Related Disorders") OR (MH "Alcoholism")

Table 3: EBSCO ti/ab searches and PsycINFO using controlled vocabulary/subject headings

EBSCO/PsycINFO
AB (Risk* or protective) OR TI (Risk* or protective)

AB (Harm* OR injur*) OR TI (Harm* OR injur*)
AB ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income” or poor) OR TI ("low* socioeconomic class*" or "disadvantaged" or "poverty" or "low-income” or poor)
AB ("young people" or "young person” or "young adults" or "youth*" or "adolescen*" or teen* OR minors) OR TI ("young people" or "young person” or "young adults" or "youth*" or "adolescen*" or teen* OR minors)
AB ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse") OR TI ("alcohol use" or "alcohol misuse" or "alcohol consumption" or "binge drinking" or "drink* alcohol" or "alcohol abuse")
DE "Protective Factors"
DE "At Risk Populations" OR DE "Risk Factors"
DE "Disadvantaged" OR DE "Social Deprivation" OR DE "Social Isolation" OR DE "Socioeconomic Status" OR DE "Family Socioeconomic Level" OR DE "Income Level" OR DE "Lower Class" OR DE "Social Class"
DE "Alcoholic Beverages" OR DE "Alcohol Abuse" OR DE "Binge Drinking" OR DE "Alcohol Drinking Patterns" OR DE "Binge Drinking" OR DE "Social Drinking" OR DE "Underage Drinking" OR DE "Drinking Behavior" OR DE "Alcohol Drinking Patterns" OR DE "Alcohol Use Disorder" OR DE "Alcohol Abuse" OR DE "Alcohol Intoxication"

Table 4: EMBASE Emtree subject headings

EMBASE
risk factor/exp AND working poor/exp OR socioeconomic inequality/exp OR lowest income group/exp OR poverty/exp AND young adult/exp OR adolescent/exp OR juvenile/exp OR young people/exp AND binge drinking/exp OR alcohol misuse/exp OR alcohol abuse/exp OR alcohol consumption/exp
EMBASE ti/ab searches
risk*:ab,ti OR protective:ab,ti
harm*:ab,ti OR injur*:ab,ti
low* socioeconomic class*':ab,ti OR 'disadvantaged':ab,ti OR 'poverty':ab,ti OR 'low-income':ab,ti OR poor:ab,ti
young people':ab,ti OR 'young person':ab,ti OR 'young adults':ab,ti OR 'youth*':ab,ti OR adolescen*':ab,ti OR teen*:ab,ti OR minors:ab,ti
alcohol use':ab,ti OR 'alcohol misuse':ab,ti OR 'alcohol consumption':ab,ti OR 'binge drinking':ab,ti OR 'drink* alcohol':ab,ti OR 'alcohol abuse':ab,ti

2.2 Limits and Scope

Limiters were applied to the search strategy. Studies were included if the full text was available, written in the English language and the study was published on or after the year 2000. Research funded by or connected to alcohol manufacturers, alcohol

distributors or agents were excluded, due to potential bias. Only quantitative studies were included, which reflected measured outcomes. Relevant studies from other sources e.g., reference list of included studies were also included. The inclusion and exclusion criteria were considered based on the framework - Population, Exposure, Outcomes and Study Type (PEOS). Table 5 below outlines the inclusion and exclusion criteria.

The decision to exclude research funded or connected to the alcohol industry is based purely on the potential for bias and not definitive bias. A systematic review of the perspectives of researchers on the alcohol industry's activities in alcohol research and sciences, found their concerns to be extensive, deep-rooted and unresolved (McCambridge & Mialon, 2018). It proposed an inherent conflict of interest between the commercial goals of the alcohol industry and alcohol science and alcohol policymaking. However, it must be acknowledged that this may not always be the case, especially in the case of independent, high-quality university research. An example of such independent research is McGilloway & Weafer (2021).

Table 5: Inclusion and Exclusion Criteria (PEOS) for Screening articles

PEOS	Inclusion Criteria	Exclusion Criteria
Population	Young people aged from 12-18 years. Living in urban disadvantage	Those outside the age range of 12-18 years were excluded.
Exposure	Alcohol use or misuse by young people. Young people who experienced negative consequences or harms as a direct result of their own alcohol consumption, which may result in biological, psychological or social harms.	Non-exposure to alcohol by young people.
Outcomes	Articles which include the variables risk and protective factors of alcohol use, as a measured outcome.	
Study Type	Quantitative studies	Articles published prior to 2000 were excluded, unless seminal or landmark studies. Articles published in other languages other than English. Research funded by or connected to the alcohol industry were excluded. Qualitative studies were excluded.

Full text articles were obtained by searching the electronic databases, liaising with the TCD librarian and emailing and writing directly to five authors. All searches were imported into EndNote X9, creating a library of articles and facilitating the removal of duplications.

The screening was conducted by one reviewer and involved a two-stage process. Initially 689 articles were screened by title and abstract, removing 590 articles which did not meet the eligibility criteria based predominately on age profile and alcohol construct. Then 99 articles were screened by full text, as indicated by the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) statement. Finally, 16 articles were selected for inclusion in the narrative review. Subsequently, one further article was removed as the research was funded by an agent of the alcohol industry. The PRISMA flow

chart shows a transparent reporting guide of the number of articles screened and the definitive number of 15 articles included in the narrative review (Sarkis-Onofre et al., 2021). These are shown below in Figure 1 (PRISMA flow chart).

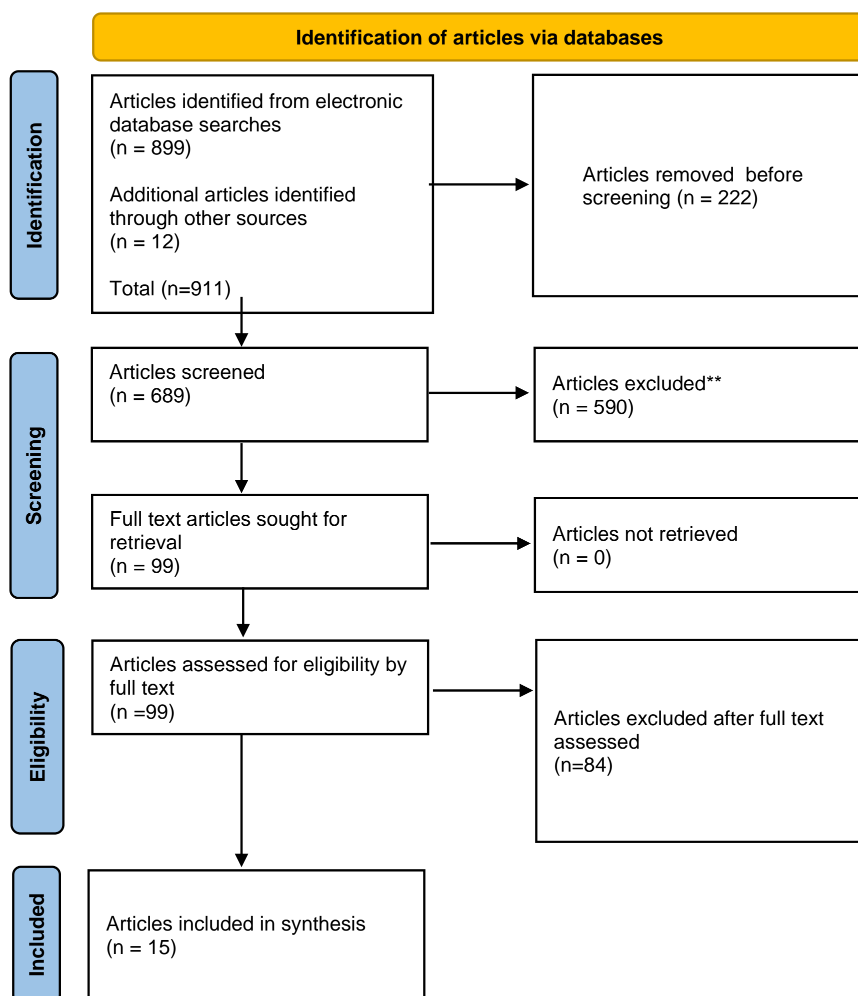


Figure 1: Article selection process using PRISMA flow chart

2.3 Data evaluation

The eligible articles (15 studies) that met the inclusion criteria were evaluated and data extracted were represented on a data chart (the data chart is separately represented in Tables, 6, 7 and 8). This process assisted in evaluating each article's data and facilitated their preliminary integration (Randolph, 2009). The points of relevance which were extracted from each study are as follows:

- Author(s)
- Year of publication
- Country of Origin (where the study was conducted)
- Design
- Participants
- Methods
- Objective
- Main Findings

The preliminary findings identified three categories or related topics among the eligible articles. The narrative review is summarized by each related topic, along with the key synthesis. Although the studies cross over more than one related topic, they have been reviewed under one of the three main categories. Details of the related topics are provided below.

Category 1: Alcohol-related harm/injury.

Category 2: Living in disadvantage may predict alcohol behaviours.

Category 3: Risk and/or Protective factors associated with alcohol consumption.

2.4 Category 1 - Alcohol-related harm/injury

The search for articles meeting the criteria for inclusion, which included alcohol-related harms or injury to young people reviewed five studies. Alcohol-related harm relates to the intentional or unintentional harm or injury to a young person. The term "harm" in its broadest context relates to negative consequences in biological, psychological and/or social aspects impacting on the young person's life, due to the consumption of alcohol. Five studies investigated acute injuries to young people

presenting to emergency departments or hospital admissions resulting directly or indirectly from alcohol use or polysubstance use, including alcohol. Their specific methodologies and findings are reviewed here (see Table 6 below).

Table 6: Alcohol-related harm/injury studies

Author (year) Country	Design	Participants	Methods	Key Findings
Lea, Black & Ashbridge (2009) Canada	Review of Canadian Hospitals Injury Reporting and Prevention Program. Between 2000 and 2003	Adolescents and young adults n= 2389 over 4-year period	• Study of Accident and Emergency Department presentation. Scale of alcohol-related injury among adolescents and young adults presenting to ED. • 10 Paediatric and 4 general hospitals. • Self-reported questionnaire including socio-demographic and event-related details around injury involving alcohol or alcohol and other substances. • Descriptive statistics and chi-square tests by age groups. • Objective: Overview of alcohol-related injury to young people presenting to ED's.	• A higher proportion of presentations were male and aged between 15-19 years. • Alcohol was involved in 2,389 cases over 4-year period. • 17% of cases involved polysubstance use. • Self-harm injuries more common in females. • Violence-related injuries more common in males
McNicholl, Goggin & O'Donovan (2018) Ireland	Descriptive prevalence study	29 Emergency Departments participated. n= 3194	• This study included adult and the three paediatric only emergency departments in Ireland. • Reviewing all alcohol-related presentations in four x 6-hr. periods. • Descriptive analysis. • Objective: To determine the prevalence of alcohol-related ED presentations nationally and compare with non-alcohol-related presentations.	• Across all ED's 5.9% accounted for alcohol-related presentations. Creating a significant burden on ED services and ambulance services. • The only findings in relation to young people indicates that eight of the ten AR presentations recorded were aged 15-17 years.
O'Donnell et al. (2017)	Population based cohort study. Review of hospital	Aged 13-17 years old.	• This study compared trends in alcohol-related injury by age and	• Across all AR injury rates, comparable data for 2009

Western Australia and England	admission data using ICD 10 codes identifying alcohol-related admissions		gender between 1990-2009 in WA and 1997-2012 (NHS) in England. • Poisson Regression. • 95% CI and associated p values. • Objective: compare trends in types of alcohol-related injury based on (non-planned) hospital admissions.	showed young people aged 16-17 years had the highest proportion of AR injury admissions across both countries.
Hoy (2017) England	Retrospective cohort study	2003-2004 Aged 12-18 years. n= 7286	• This study investigated the emergency readmission of young people with an alcohol-related injury who had first presented between 2003-2004. • Predictor variables – self-harm, assault, mental health, polysubstance use, wealth, age, gender. • Objective: Investigated the risks of alcohol-related readmission by young people in England in predicting the development of problematic drinking careers.	• This study showed that 9.3% of the cohort were readmitted. • Predictors of readmissions included living in a deprived area, other substance use, self-harm or a comorbid mental health condition.
Spirito et al. (2001) Northwest, USA	A matched case-control design	Young people aged 13-17 years. n=300	• Matched alcohol-negative patient and alcohol-positive patient who were treated for an injury in the paediatric or adult ED. (n =150 pairs) • Between group comparisons t tests. Wilcoxon signed rank tests and chi-square tests. • Objective: Examine alcohol use, injury, depression and parental monitoring from adolescents who tested positive for alcohol use, compared to alcohol negative adolescents presenting in ED.	• The alcohol-positive group reported significantly higher drinking frequency, • Higher depression levels and prior alcohol-related injuries, than alcohol-negative patients. No difference in parent's groups in monitoring of teens.

Lea, Black & Ashbridge (2009) - Canada

Lea et al. (2009) conducted a retrospective review of administrative records from the Canadian Hospitals Injury Reporting and Prevention Programme for a 4-year period. The study aimed to provide a descriptive overview of alcohol-related injuries. They reviewed alcohol-related emergency department (ED) presentations among individuals younger than 25-years-old (across three age groupings), presenting with injuries at 11 paediatric and general hospitals. Data were originally collected from either injured patients or their parents in a self-administered questionnaire, upon presenting at the ED. This included event-related and socio-demographic details. Likewise, the attending doctor completed a medical questionnaire, stating if they suspected substance use and injury detail. During the 4-year period (2000- 2003) 2,389 (0.6%) of all presentations were alcohol-related, with a higher proportion within the 15-19-year-old age bracket. Prevalence rates increased year on year. A significantly higher proportion of under 15-year-olds were female. A trend which reversed as patients got older. The study identified aged-related seasonal variations in alcohol-related presentations. Most presentations were reported at the weekends.

Polysubstance use involving alcohol was reported in a higher proportion of under 15-year-olds and 15–19-year-olds, at 20.2% and 19.8% respectively, than the older cohort of 20-24-year-olds at 7%. Overall, polysubstance use was reported by 17% of young people and young adults. The study considered the intent of the alcohol-related injury in terms of unintentional injury, violence-related and or self-harm. The highest proportion of alcohol-related injuries were unintentional across all age groups and across gender. Intentional alcohol-related injury was most common among females (23%) with self-harm

accounting for 14%. Alcohol-related injuries involving violence were predominantly reported in males over 15-years and older. Younger males represented the highest proportion of admissions.

The data collected in this study does not differentiate who consumed the alcohol. Alcohol has contributed to the injury or harm which has been sustained, but the data do not identify who consumed it (the patient or another individual). Therefore, the injury or harm may not be due wholly or partially to the consumption of alcohol by the young person or young adult, but possibly due to the consumption of alcohol by another individual. The lack of clarity on the alcohol consumer means that these findings may not inform on alcohol prevention/intervention programmes. The findings fall short of providing details on the type of injuries sustained by young people, where alcohol was recorded as a contributing factor. However, they offer a broader perspective of alcohol-related categories and trends by gender and age groups (under 15, 15-19 and 20-24 years). Based on the findings the study rightly suggests injury prevention programs will benefit from the knowledge of gender differences in alcohol-related injury outcomes.

McNicholl, Goggin and O'Donovan (2018) – Ireland

McNicholl et al. (2018) examined alcohol-related (AR) presentations to emergency departments, across 29 public hospitals in Ireland. This included the three main paediatric only emergency departments in the country. This descriptive prevalence study aimed to measure the burden of acute harms/injury from AR presentations and compare with non-AR presentations. Due to the variation in data management systems across the country, a standardized survey template was designed, and a clinical coordinator was nominated for each site. Two dates in December 2015 and two dates in January 2016, for selected

time periods (6 hours) were chosen as the data collection window. Data were retrospectively examined by the clinical coordinator based on agreed specified dates and times. The data were collated in an excel spreadsheet across the following domains: sex, age, time of arrival in ED, method of arrival, category of injury, medical condition, reference to alcohol, intoxication, mental health problems, social problems, discharge outcome and referral outcome.

Any presentation record that included the search terms “alcohol”, “alc” or “C2H5OH” was identified as an AR presentation. Any presentation record without the search terms was classified as not AR. This is the first national study of AR presentations in Ireland. It highlights the lack of information systems within hospitals to record and collect data on AR presentations. Due to the limited time points in which data were collected, the findings indicated only 10 (5.3%) AR presentations among young people aged <18 years old, from a total of 189 (5.9%) overall AR presentations recorded. The only findings in relation to young people indicates that eight of the ten AR presentations were aged 15-17 years. Although this study classifies AR injuries/harm into multiple categories which reflect intoxication and alcohol-related conditions (dependence, liver disease, direct injuries) it also includes indirect AR presentations (n=22) which relate to a third party affected by alcohol consumption and not the person presenting. This is the first study to measure the burden of AR presentations to Irish ED services, comparing AR presentations to non-AR presentations. Regardless of the inclusion of the three main paediatric-emergency departments, unfortunately, young people are grossly underrepresented within this study.

O'Donnell, Sims, Maclean, Gonzalez-Izquierdo, Gilbert & Stanley (2017) – Australia and England.

O'Donnell et al. (2017) examined trends in hospital admissions due to AR injuries among young people aged 13-17 years, from Western Australia (WA) and England. Both countries had similar health systems and comparable alcohol consumption levels. Hospital admission data relating to unscheduled admissions (sudden health issue) were included over a prolonged period (WA - 1990 to 2009 and England - 1997 to 2012). Using the International Classification of Disease (ICD 9 and ICD 10) diagnostic codes which had been identified as AR admissions in other studies, were replicated. Alcohol-related injuries were classified as intentional, undetermined, unintentional, violence-related and alcohol-related injuries. Presentations very often contained multiple codes.

In WA, an increase in admissions for AR injuries was noted among 13–17-year-olds, compared to general injury admissions which had declined. The most significant increase was noted in the 16–17-year age group, with males showing the highest admission rate for AR injury. In England, the admission rate for AR injuries among young males and females have been significantly decreasing since 2007. However, an overall increase in AR admissions (4.1%) rates in girls aged 16-17 years was noted.

In WA, the main classification of AR injury for males aged 13-17 years was unintentional, followed by intentional. Conversely, for females, intentional AR injury was double that of unintentional AR injury rates, especially in the 16–17-year age group. Indicating very different trends of AR injury by gender and age. This trend was echoed in England, with intentional AR injury by females being the highest cause of AR admission rates. Intentional AR injuries were recoded as either violence (possible assault) or self-

harm. In WA, AR injuries classified as violent increased in males and females, especially in the older age group of 16–17-year-old. Violence-related injury in England remained unchanged. Intentional AR self-harm among females showed increases in both WA and England, with decreasing rates in England since 2007. Overall, unintentional AR injury admissions rates in both males and females have increased in WA and have fallen in England.

Across all AR injury rates, comparable data for 2009 showed young people aged 16-17 years had the highest proportion of AR injury admissions across both countries, though AR injury rates were twice as high in WA boys. WA had the highest AR admission rates across all classifications of injury, except self-harm. The findings showed England had a higher proportion of AR self-harm rates among 13–15-year-olds. Further analysis in WA, indicated the average hospital admission time was 2.6 days. AR assault injuries were recorded in 15%-17% of cases. In 2009, this peaked to 27% among 16–17-year-olds. A small percentage of AR assault admissions related to rape. By country comparison, WA shows increases in AR injury rates among young people aged 13-17 years. In contrast, England's AR rates have stayed relatively constant, except for females aged 16-17 years. Concerningly, self-harm is the leading source of AR injuries, particularly among females in England and the leading source of intentional AR injury for females in WA.

The estimates of AR harm/injury in this study were limited to those AR injuries which required hospitalisation and did not factor in AR presentations to the emergency department. Therefore, the data only relate to those with more acute injuries and omits those that presented to the hospital with AR injury/harm but did not require hospitalisation. In addition, the admission to hospital may not align with the time the

alcohol was consumed and therefore may not be recorded as an actual AR injury. Both factors may culminate in an underestimation of the rates of AR injury. Another limitation was the changing of ICD codes at nonsynchronous times across both countries, which may have impacted on the reported trends. According to Hoy (2017), alcohol screening within ED's in England increased substantially during the study's duration, from 2% in 2006 to 52% in 2011, which may have influenced the decreasing AR outcomes in England. This study acknowledges the importance of identifying at risk groups by age and gender and categorising the types of AR harms to which they are exposed. The data are necessary to inform on prevention/interventions and public health initiatives to tackle AR harm. The classification of AR harms into four broad groups offers limited scope into the actual type of AR harm suffered by the young person, to need hospitalization. The study concludes with the need to address AR harm among the most disadvantaged communities.

Hoy (2017) - England

Hoy (2017) examined AR emergency readmission hospital rates among young people aged 12-18 years, in England. The study's aim was to identify a cohort of young people who were at risk of developing a problematic drinking career, based on readmission data. Previous studies have clearly shown the associations between early problematic drinking and later alcohol problems throughout the lifespan (Bonomo et al., 2004; Hingson et al., 2006). The study retrospectively examined National Health Service (NHS) Hospital Episode Statistics (HES) data for readmission records of young people aged 12-18 years, as an AR patient (non-planned admission - formally admitted) between April 2003 and March 2004. They hypothesized that readmission dynamics would provide data on young problematic drinkers who are not already in treatment, widening the scope for identifying at risk young people. They also tested multiple predictor variables on the

outcome of readmission. These consisted of comorbidity conditions, demographic characteristics and day/temperature trends (e.g., traditional drinking day or hot weather).

Between April 2003 and March 2004, 7286 young people (48.8% male/51.2% female) were admitted based on alcohol-related ICD 10 codes as their diagnosis. Over the next 3.75 years 677 (9.3%) young people with AR harm were readmitted, with an average readmission rate of 1.52. Using binary logistic regression, the following variables predicted significant likelihood of a young person returning with a subsequent alcohol admission; when the initial AR admission also included a mental health issue, self-harm, an additional substance use and living in a deprived area (Index of Multiple Deprivation (IMD) coding). These factors identified young people most at risk of AR readmission and possibly problematic drinking careers. Reported protective factors indicating less likelihood of readmission in the future included: young males were less likely than young females to return with AR readmission, those with an initial admission with alcohol as their primary diagnosis were less likely be readmitted than those with alcohol as their secondary diagnosis and being diagnosed with an injury alongside an alcohol diagnosis.

The study acknowledges the modest effect sizes in the significant regression models. One anomaly or unexpected finding was the reduced likelihood of a future AR admission if the primary diagnosis was an AR condition. It was expected that a primary diagnosis of an AR condition by a clinician would indicate a serious AR problem, which ultimately may encourage the young person to seek help. They hypothesized that this diagnosis may be a deputation for presentations without any additional complications (e.g.,, self-harm, mental health issues or another substance use) as 88.5% of cases with a primary diagnosis of AR problem had no additional complications recorded. The data

highlight the multiple issues (self-harm, mental health, disadvantaged, polysubstance use) associated with young people drinking alcohol and the impact these issues have in the perpetuation of their drinking.

Overall, young females had a higher readmission rate (10.6%), compared to significantly fewer young males at (7.9%). Young females reported higher complications (32.3%) by indicating one of the significant readmission risk factors in their AR diagnosis (mental health issue, another substance use or self-harm) compared to young males (19.6%). Young males were more likely to have an AR injury diagnosis (27.7%) compared to young females (11.2%) indicating a reduced likelihood of readmission. Finally, the demographic measuring the average level of wealth from the residential address of the young person, predicted the likelihood of AR admissions among deprived or disadvantaged young people, compared to other wealthier demographics. The study implies that this would be a controversial marker for screening young people, although the findings suggest deprivation and comorbid conditions may be useful predictors of developing problematic drinking, in contrast to single AR hospital admissions due to inexperienced initiation to drinking.

The study acknowledges the operational limitations posed by the lack of formal collection of readmission alcohol data within the HES records to facilitate screening and treatment referrals within the hospital system. The authors acknowledge ICD-10 coding variation, duplicated data and errors were recognised within the HES data. The study cohort is limited to those who have been admitted and readmitted to hospital. Young people with repeat presentations to the ED only may also indicate problematic drinking, which has not been captured in this dataset.

Spirito, Barnett, Lewander, Colby, Robsenow, Easton & Monti (2001) - USA

An older study by Spirito et al. (2001) conducted a matched case-control study comparing the risks associated with alcohol-positive and alcohol-negative status among 13–17-year old's presenting with an injury in the paediatric or adult ED of a level 1 trauma centre in the US. The main objective was to examine alcohol use and AR problems in a sample of young people presenting as alcohol-positive in the ED. The study expected the alcohol-positive sample to report significantly more alcohol use and related alcohol problems compared to a sample of matched alcohol-negative young people. In addition, it was expected that parents of alcohol-positive young people would report significantly less parental monitoring compared to parents of alcohol-negative young people.

Young people were recruited directly while presenting for treatment, at the ED department. After informed consent was obtained (patient and parent) the interviewer administered an alcohol saliva test to the alcohol-negative sample, adhering to the inclusion criterion. The alcohol-positive sample consisted of young people with a positive blood alcohol level (BAL) and needed to pass a mental status examination, before they gave their assent. To minimise confounding variables young people were matched from each group by sex, age, race and demographic characteristics until the sample consisted of 300 patients (150 alcohol-negative and 150 alcohol-positive). Structured assessment tools measured adolescent alcohol use, adolescent injury, alcohol problems, drinking and driving, depression scales, and risk-taking behaviour. These were administered by the interviewer in the ED department, who recorded the young person's answers on a laptop. Parents completed a survey to measure their parental monitoring and optionally a screening of their own alcohol use.

The results reported significantly higher school grades in the alcohol-negative group compared to the alcohol-positive group. The presenting injuries for the alcohol positive sample were classified as follows; intoxication (54%), motor vehicle crashes (18.7%), assaults (10.7%), falls (10%), other (6.7%). The alcohol-negative group presented with motor vehicle crashes (35.3%), sports injuries (22%), other (21.3%), falls (17.3%), and assault (4%). Self-reported alcohol use and alcohol-related problems were significantly higher in the alcohol-positive group, with 50% indicating risky or harmful levels requiring further assessment, compared to only 10.7% in the alcohol-negative group. In addition, the alcohol-positive group reported significantly higher prior AR injuries and more incidents of driving after drinking compared to the alcohol-negative group. The alcohol-positive group reported higher depression levels, than the alcohol-negative group. Overall, the alcohol-positive group reported significantly higher levels of risky behaviours (e.g., drink driving, sex without using contraception, damaged public property, used marijuana or cocaine) compared to the alcohol-negative group. Parental monitoring between the groups reported no differences in parental guidance on alcohol use, permission to drink alcohol, or punishment for disregarding the family rules on drinking alcohol. Young people reported their parents wanted to know where they were going at night more often in the alcohol-negative group than the alcohol-positive group.

As the study expected, the alcohol-positive group reported greater frequency and prevalence of alcohol use and more risky behaviours, than the alcohol-negative sample. The average BAL of young people presenting with AR injury was 40% higher than the legal driving limit for adults in the US. The findings indicate that those presenting with AR injuries had other complex issues including depression and polysubstance use (73% reported marijuana use) and met the criteria for further evaluation/referral.

Unexpectedly, self-reported parental monitoring results did not show differences between the groups. The study suggests that parents completing the questionnaire, while attending the ED due to their child's AR crisis, may perceive their monitoring/drinking attitudes to be a little stricter than they actually were in practice. Challenging behaviours associated with the alcohol-positive group may be associated to some of the more complex issues and risk behaviours they display, regardless of similar parental monitoring to the alcohol-negative group.

The unique methods and recruitment process of this study allowed for good comparisons of young people who had presented at ED for AR presentations and non-AR presentations, who were matched demographically to reduce confounding variables. Specific AR injuries were compared. The alcohol-positive cohort sustained AR injuries wholly or partially as a direct result of their own personal consumption of alcohol, unlike other studies which included AR injuries sustained by the young person as a result of a third-party consuming alcohol. However, the timing and environment of the data collection within the ER, during their presentation for an AR injury may consciously or unconsciously have impacted the alcohol-positive group (both the young person and their parents) self-reported responses, which is a limitation of the study (although those with severe injuries or severe pain were excluded). The study examined indicators of risk associated with each group.

2.4.1 Discussion – Alcohol-Related Harms/Injury

According to Phillips et al. (2019) estimates of the prevalence of alcohol-related presentations to date, have been evaluated from only a limited number of studies. All the above studies have employed different methods. Some studies retrospectively reviewed data from ED presentations, some retrospectively reviewed data from hospital admissions

or hospital readmissions, over a period of years. One study selected limited time points to prospectively review ED presentations across numerous emergency departments. One study recruited and collected data within the environment of the ED, during the young person's AR presentation. The variation in study designs clearly highlights the lack of systematic reporting processes within all the hospital management systems to automatically track AR presentations. This review has emphasised the limitation of data collected only on AR hospital admissions and demonstrates that data collected from ED presentations is more comprehensive and inclusive.

AR presentations were identified by various means; the researchers used ICD codes, used limited alcohol search terms and filters, conducting BAL tests on young people, and appointed a hospital coordinator to review AR presentations. Two studies compared gender and age groupings, while others compared alcohol-related (AR) presentations to non-alcohol-related presentations, and readmission rates. More detailed comparisons between presenting injuries by gender and age would identify more vulnerable at-risk children and young people.

The term alcohol-related injury had two very important distinctions across the studies. Some studies applied the term to a young person which had personally consumed alcohol, others included indirect AR harms, whereby a third party had consumed the alcohol. Not all of the studies clearly emphasised this difference. This is important to differentiate between direct and indirect alcohol consumption in any future studies.

There was only one national study conducted in Ireland (McNicholl et al., 2018). The study unsuccessfully measured outcomes relating to children and young people due to their extremely low representation (n=10). To date, there is no substantial data on

direct AR presentations to ED's among children and young people, in Ireland. McNicholl et al., (2018) did however review important variables around the ED presentations and the outcome for the patient. (e.g., method of arrival to the ED, triage category and discharge outcome) generating richer contextual data. Throughout all the studies, AR diagnostic details were broadly grouped into classifications, lacking essential detail on the presenting complaints of young people. A greater understanding of the presenting injuries and diagnostic injuries is needed to direct harm-reduction prevention/intervention strategies appropriately.

2.5 Category 2 - Living in disadvantage may predict alcohol behaviours

The search for articles meeting the criteria for inclusion, which involved young people living in urban disadvantage or measured socioeconomic factors which may predict alcohol behaviours reviewed five studies (see data chart presented in Table 7 below).

Table 7: Living in disadvantage may predict alcohol behaviour - relevant studies

Author (Year) Country	**Design**	**Participants**	**Methods**	**Key significant Findings**
Bellis et al. (2007) UK	Cross Sectional survey	15–16-year-old School children n=10,271	• Survey-based data collection from 132 secondary schools. • Logistic regression identified independent predictors of risky drinking behaviour. • Objective: Examine relationships between economic, behavioural and demographic factors that predicted risky drinking behaviours like binge drinking, frequent drinking and drinking in public settings	• This study examined different predictor variables against the outcome variables binge drinking, frequent drinking and public drinking. • Schools assigned an approximate level of deprivation by regional quintile. • Deprivation did not predict the likelihood of frequent drinking or binge drinking. • Deprivation predicated the increased likelihood of drinking in public settings.
Cambron et al. (2018) Seattle, USA	Theory-driven longitudinal Study	Students at baseline: grade 5 (10-year-olds) to post-test grade 9 (14–15-year-olds) n = 808	• Paper and pencil interviews from 18 elementary schools. • Objective: to estimate the trajectories of smoking and alcohol use from 5th grade to 9th grade across associated socioeconomic, family and peer factors.	• The study was included as the age profile of the participants at post-test was appropriate. • The study considers the neighbourhood socioeconomic factors on alcohol use over time.
Evans et al. (2019) Australia	Secondary analysis of Longitudinal cluster-randomized controlled trial of harm reduction and drug education.	Students aged 13, 14 and 15 years n=1,752	• Survey of 21 Victorian schools >3 years. • Schools were randomly allocated to the intervention or control conditions. • Chi-square tests analysed differences in gender, locality (urban/rural) and SES.	• This study did not meet all the criteria for inclusion, but the results reported interesting correlations between low SES and alcohol use and alcohol-related harms, in a slightly younger cohort.

			• Linear regression models predicted the effects of gender, locality and SES on the outcome variables alcohol consumption and alcohol harms. • Objective: Determine if patterns of alcohol use and alcohol harm differed by demographic profile.	
Pedersen & Bakken (2016) Norway	Cross sectional survey design	Students aged 15-17 years	• They compiled a district level socio-economic index across seven SE domains from 15 districts in Oslo. • Electronic survey of students during school lesson. • Mean, SD, Chi-square tests and multilevel logistic regression and binomial logistic regression. • Objective: Using a combination of district level socio-economic data and surveys they examined patterns of substance use in different city districts to determine if substance use exists in a social and symbolic landscape.	• This study examines both disadvantaged and more affluent socio-spatial divisions in relation to substance use. • Those living in urban (city centre) districts, with low socioeconomic scores reported the highest prevalence of daily smoking and alcohol problems/harms. • Disadvantaged districts report more harmful use of substances, in contrast to young people living in affluent areas.

Clarke et al. (2013) New Zealand	Data extracted from National Survey	Māori students aged 12-14 years and aged 15-18 years n=1,702	• Describes associated factors of binge drinking among Māori young people. • Reports on negative consequences/ harms associated with alcohol use. • Frequencies and Multinomial regression models. • Objective: Describe the patterns of drinking alcohol among Māori young people by gender, age, deprivation level and location (urban/rural).	• This study addresses the unequitable factors of binge drinking among an underserved population living in urban deprivation. The demographic profile of heavy binge drinkers was more likely to be male, slightly older students and from higher deprivation living, than lower deprivation living.

Bellis, Hughes, Morleo, Tocque, Hughes, Allen, Harrison and Fe-Rodriguez (2007) - England

Bellis et al. (2007) conducted a cross-sectional survey among 10,271 young people aged 15-16 years old, in the North-West of England. They examined how economic and demographic factors may predict drinking behaviours. Drinking behaviours were defined as frequent drinking, binge drinking and drinking in public settings (e.g., streets, parks, pubs and clubs), all associated with the increased likelihood of more long-term dependent, harmful AR problems. From 132 secondary schools, an approximate level of deprivation was assigned based on the Index of Multiple Deprivation 2004 (IMD) (Indices of Deprivation, 2004). A regional quintile of deprivation was assigned to students based on the location of their school. The survey was administered during school lessons, by school staff.

Of those surveyed, 88% reported they drank alcohol at least once within the past 6 months. The significant findings indicated that of the 88% of drinkers, the likelihood was that they were female, from the most deprived regional quintile, white or mixed race, have money to spend and are actively involved in sport or youth groups as a leisure time activity. Deprivation predicated the increased likelihood of drinking in public settings (rather than at home or in someone else’s home) with no gender differences. Deprivation did not predict the likelihood of frequent drinking or binge drinking. Being male predicted the increased likelihood of frequent drinking. Being male, white or mixed-race ethnicity, or being a member of a sports team or youth group predicted an increased likelihood of binge drinking. Obtaining alcohol from other siblings or friends was associated with binge drinking.

Protective factors included being a member of a sports team or youth group with regard to reducing both drinking frequently and drinking in public settings. Parents supplying alcohol was a protective factor in binge drinking and drinking in public settings. This finding indicated that drinking in a supervised environment with the family, can reduce the AR risks.

A strength of the study was the analysis of factors predicting both frequent drinking and risky drinking patterns, among young people. Deprivation levels were allocated by school location, which the researchers believed may limit the studies inferences to wider populations.

Cambron, Kosterman, Catalano, Guttmannova and Hawkins (2018) - USA

Cambron et al. (2018) examined the relationship between neighbourhood socioeconomic factors, smoking and alcohol use, while considering family functioning and peer risk differences, over time. Data were extracted from the Seattle Social Development Project (SSDP) longitudinal study. Data were collected from 18 schools, disproportionately from high-crime neighbourhoods in Seattle, USA. Initially, 808 respondents participated (approximately aged 11 years to 15 years, over four waves of the study). Alcohol use was measured across the four waves using an ordinal variable requesting details on alcohol use within the past month only. Using latent growth curve modelling, smoking and alcohol use trajectories were assessed. The results indicated that living in disadvantaged neighbourhoods was associated with children and young people smoking and using alcohol, beyond the expected growth, across the four waves. Higher family-level socioeconomic factors were found to be protective in early smoking, but not alcohol use. This suggests that family-level and neighbourhood-level socioeconomics are distinctly

different in their effects. Lower family functioning, families which permitted alcohol use and deviant peers predicted increased alcohol use.

This study highlights the significant role neighbourhood, family and peers play in the initiation and progression of smoking and alcohol use, in children and young people over time. It adds to the limited findings on living in a disadvantaged neighbourhood and the attributable increased risk of poor family functioning and involvement with deviant peers. The study's objective was to ascertain early onset patterns of smoking and alcohol use in a young cohort over time, rather than measure risky patterns of behaviour. A limitation of the study was the extraction of data from the SSDP study, which was originally conducted in 1985 and was not methodologically designed to test for neighbourhood outcomes. A more up-to-date study of contextual factors impacting the early onset of smoking and alcohol use among children and young people, would facilitate efforts to reduce both short-term and long-term harms.

Evans, Lester, Midford, Cahill, Foxcroft, Waghorne & Venning (2019) - Australia

Evans et al. (2019) conducted secondary analysis on data collected from 21 Victorian (Australia) schools, over a three-year period (Drug Education in Victorian Schools harm minimization drug education programme). Initially, 1752 students aged 13, 14 and 15 years participated. The objective was to ascertain the role of gender, socioeconomic status and locality on alcohol consumption and AR harm, among young people, over time. The schools were firstly assigned to low/high socioeconomic status (SES), and regional/metro/rural locations. Schools within each stratum were further partitioned into socioeconomic categories based on government funding to SES schools (low, medium and high) and by major regional/metro/rural locations. Alcohol uptake was measured as

having consumed one standard drink in the past 12 months. Risky drinking was identified by consuming five or more standard drinks on the occasions when they drank. Harms were measured using the alcohol harm index, measuring ten items of harm experienced over the past 12-month period (e.g., feeling sick/hung over, memory lapses, verbal or physical abuse and regretting sex). The study intended to examine patterns of alcohol use based on demographic profiles.

The results show no gender differences in drinking uptake, risky drinking patterns or AR harm, indicating a gender convergence within this cohort. Interestingly, socioeconomic status highlighted vulnerabilities for those from low SES. Low SES risky drinkers reported experiencing more AR harms than high SES risky drinkers, even though alcohol consumption levels between low, medium and high SES students were no different. This highlights the exposure to greater risks of AR harm by low SES students. Demographic localities showed higher alcohol consumption levels across drinkers and risky drinkers from rural regions compared to metro/major regional areas. However, despite the variation in consumption levels across localities, there were no differences in AR harms.

This study contributes to the data on demographic factors impacting on alcohol behaviours and AR harm. Low SES students and living in rural areas placed young people more at risk, compared to medium and high SES students and living in metro/major regional areas. The demographic groups may not be proportionally representative of the population, which is a limitation in this study. Also, differences were measured across average levels between the demographic groups. A strength of the study was measuring

alcohol use, risky drinking and AR harms. Harm reduction programmes can be customised to encompass those with greater vulnerability from low SES and rural living groups.

Pedersen and Bakken (2016) - Norway

Pedersen and Bakken (2016) conducted research in Norway's capital, Oslo, investigating the differences in alcohol consumption and alcohol problems, alongside other substance use, among young people (aged 15-17 years) living in different urban socioeconomic areas. They used seven socioeconomic indicators to select district-level scores to be included in the study sample. Data were extracted from the Young in Oslo (2012) study, which surveyed 6,508 young people during their school lesson. Data were collected on parental characteristics (education, how well off, how many books in their homes, parental monitoring and parental alcohol use). Alcohol use among young people was measured by asking the frequency of alcohol consumption. Those reporting regular use were classified as "alcohol users". A shortened version of the Rutgers Alcohol Problem Index (RAPI) (White and Labouvie, 1989) reported alcohol problems/harms. The study analysed the frequency of substance use and alcohol problems/harms across 15 city districts.

Young people from more affluent areas reported the highest frequency of alcohol consumption. The study suggests strong associations between parental socioeconomic status, parental drinking norms and access to alcohol (which is expensive in Norway) affecting levels of alcohol use among young people living in affluent districts of Oslo. Those living in urban (city centre) districts, with low socioeconomic scores reported the highest prevalence of daily smoking and alcohol problems/harms. The study suggests the co-occurrence of low socioeconomic index scores and living close to the city centre

created additional risk. The study concurs with previous research, implying those from the most disadvantaged districts report more harmful use of substances, in contrast to young people living in affluent areas. When the study controlled for family and individual risk factors they found the association of neighbourhood districts no longer significant. This suggests that living in disadvantaged districts alone does not predict alcohol problems. A strong predictor of increased likelihood of substance misuse was poorer school performance. Low grades predicted significant risk.

The study concludes with observations on the health versus social risks dichotomy of substance users from districts of more affluence, who report multiple substance use, but with reduced risks. In disadvantaged districts the opposite scenario is true. A limitation of the study was the lack of any measures on the prevalence of alcohol use – how much alcohol young people drank on a typical drinking occasion. Although, young people from more affluent districts reported more frequent drinking, it is possible that young people from disadvantaged districts consumed larger amounts of alcohol on typical drinking occasions, but on fewer occasions, increasing the risks of alcohol problems/harms. The study design does not factor in this construct, but accepts cultural norms, social contagion and peer influences could impact on alcohol behaviours and attitudes, within districts or between adjacent districts.

Clark, Robinson, Crengle, Sheridan, Jackson and Ameratunga (2013) – New Zealand

Clark et al. (2013) sought to examine factors associated with binge drinking among Māori young people aged 12-14 years (junior students) and aged 15-18 years (senior students). Data were extracted from a national survey on health and well-being - Youth ’07. Data were originally collected from 115 secondary schools in New Zealand. Only those

of Māori ethnicity were included in this study (n=1702). Based on New Zealand's residential Deprivation Index (2006), participants were assigned into three categories – low deprivation (20%), medium deprivation (35%), and high deprivation (45%) and were classified as living in either rural (16.6%) or urban (83.4%) areas. Drinking behaviours were defined as non-binge drinkers (1-4 standard drinks in a 4-hour period), binge drinkers (5-9 standard drinks in a 4-hour period) and heavy binge drinkers (10 or more standard drinks within a 4-hour period).

The results show that 31.5% of Māori young people were defined as binge drinkers and a further 30.4% reported heavy binge drinking, as their usual pattern of consuming alcohol. The demographic profile of heavy binge drinkers was more likely to be male, slightly older students and from high deprivation living, than low deprivation living. Young people reported AR problems and harms in the past year. Binge drinking and heavy binge drinking were significantly associated with higher reported AR problems/harms, including concerns from family and friends to cut down on their alcohol use, issues with their schoolwork, having unprotected sex, unwanted sex, participation in acts that got them into trouble, being injured after drinking, requiring medical assistance after drinking, being hurt or hurting someone else or involved in a car crash. Other factors strongly associated with binge drinking were friends who used alcohol and supplied alcohol, accessing alcohol from other adults and purchasing their own alcohol.

The study recognised the limitations of the data, which did not represent all Māori young people. This study relates to a specific ethnic group and therefore the findings cannot be generalized to other ethnic groups or the wider population in New Zealand.

The study accepts that the data were collected only from secondary schools and excludes Māori young people attending alternative education streams or young people who have opted out of school, which increases their vulnerability further. Māori young people reported the highest prevalence of alcohol drinking than any other ethnic group in New Zealand (but less frequently). They were living predominately in urban disadvantage and experienced inequities in AR harm.

2.5.1 Discussion – Living in disadvantage may predict alcohol behaviours.

The above reported studies showed vague commonalities in their approach to measure various variables against deprivation indices. Two studies based their deprivation measures on school locations, and three based their deprivation measures broadly on residential neighbourhoods/districts, while factoring in urban/rural settings. There was broad consensus that controlling for context of where young people live or attend school based on levels of deprivation, was developmentally important in accounting for differences in alcohol behaviours and AR harms. Health inequities and increased risks of AR harm have been associated with disadvantaged regions.

Three of the five studies measured AR problems/harms. The results of these studies agreed that more disadvantaged areas reported higher alcohol problems/harms, than higher SES areas. However, there remains some ambiguity around the compatibility of comparing results relating to alcohol users, frequent drinkers, binge drinkers and heavy binge drinkers. Bellis et al. (2007) found no association between frequent drinkers or binge drinkers and deprivation. Evans et al. (2019) reported no differences in drinking levels between SES groups. Cambron et al. (2018) reported living in disadvantage was associated with greater early onset of alcohol use and growth. Pedersen and Bakken

(2016) indicated that those from more affluent districts were more frequent drinkers than those from lower SES districts. While Clark et al. (2013) found heavy binge drinkers were more likely to be from high deprivation areas.

Nearly all studies used a sample of young people which were assigned to at least two or more SES categories. The exception was Clark et al. (2013) who choose a sample of young people of particular ethnicity who proportionately lived in areas of mid to high socioeconomic deprivation. The choice to prioritise only one of the major ethnic groups in New Zealand leads to possibly additional cultural factors which may mediate or moderate the observed results. None of the studies recruited purely from a disadvantaged region, including young people of all demographic profiles, but with one common contextual characteristic.

2.6 Category 3 - Risk and protective factors associated with alcohol consumption

The search for articles meeting the criteria for inclusion, which examined risk and protective factors associated with alcohol use, among young people, reviewed five studies. (see data chart presented in Table 8 below).

Table 8: Risk and Protective Factors associated with alcohol consumption studies

Author (Year) Country	Design	Participants	Methods	Key significant Findings
Huang et al. (2022) Native Hawaiian and Pacific Islanders	Prospective study of longitudinal data from a substance use intervention programme	n= 120 11–14-year-olds Low-income urban area n= 120	• Data collected at two time points (32 weeks apart) Self-reported data from young people. • Descriptive analysis. • Hierarchical regressions were conducted to determine if time 1 factors were significant predictors of substance use behaviours at time 2. • Objective: Investigated risk and protective factors at the individual, family and school level on substance use.	• Overall, 16% reported drinking alcohol. • The association between risk and protective factors with each substance use outcome are presented. Young people with more positive school environment reported drinking less at time 2. School is a protective factor for substance use for NH/PI young people.
Pengpid & Peltzer (2012) Thailand	Global school cross sectional survey Multi-stage stratified cluster sample design	Students aged 13 to 15 years n= 2767	• Self-reported school-based survey measuring alcohol misuse and the associated variables. • Objective: Assess the prevalence of alcohol use among adolescents and the associated risk variables. • This study measured poverty, health risk behaviours, psychosocial distress, peer support, parental support and school attendance as associated factors to alcohol use.	• Physical fighting and smoking was positively associated with alcohol use in both boys and girls. • Poverty and lack of parental connectedness in girls associated with alcohol use. • Injury, sexual behaviour and other substance use in boys associated with alcohol use.
Chung & Joung (2019) South Korea and United States	Two national survey datasets. Three stage cluster sampling design	School students aged 14-18 years n=120	• The study identified risk factors associated with binge drinking. • Descriptive statistics, chi-square tests, logistic regression tests. • Objective: To identify the characteristics and risk factors associated with binge drinking among young people from South Korea and America.	• It addresses risk factors under sex, age, academic achievement, fight related injury, smoking, team sports, depression and sleep.

Danielsson, Romelsjo & Tengstrom (2011)	Longitudinal Cohort study 2001-2003	Sweden Students aged 13 years (time 1) n= 1605 Students aged 15 years (time 2) n=1561	• Self-reported questionnaires at two time points – 2001 and 2003. • Examining gender-specific risk and protective factors of heavy episodic drinking among young people. • Frequency and Chi-square analysis. Univariate and multivariable logistic regressions analysis.	• Risk factors predicting heavy episodic drinking included smoking and peers which drank alcohol. • Protective factors included high parental monitoring and secure attachment to parents.
Lukács et al. (2021)	Cross-sectional survey design	Hungarian students aged 14-18 years n= 864 and University students 19-27 years n = 1585	• School based self-reported questionnaire. • Descriptive statistics, chi-square tests. Multivariable binary logistic regression analysis. • Objective: Measure binge drinking with associated sociodemographic factors – family, economic status and school performance.	• For the purpose of the Literature review only school students were considered. • Overall, 19% of school students reported binge drinking, higher percentage being male. Poor school performance and binge drinking significantly correlated.

Huang, Nishioka, Zane & Uchigakiuchi (2022) – Hawaiian and Pacific Islander

Huang et al. (2022) studied the underserved population of Hawaiian and Pacific Islander (NH/PI) young people, who typically report lower SES and poorer school performance, than Asian Americans. Young people aged 11-14 years participated in a self-reported survey at two time points. A subset of the original participants were then chosen based on ethnicity, low SES and other criterion based on social inequities, and a family history of self-reported substance use (n=120). They examined the effect of risk and protective factors on substance use. Alcohol use was measured across three items and scored together (e.g., how many occasions during the last 30 days they had consumed alcohol). Higher scores indicating higher alcohol use. Ecological risk and protective measures included individual factors; resistance to peer pressures, problem-solving skills, and behavioural problems (e.g., social, anxious/depressed, aggression), family relations and school environment. Overall, 16.1% reported drinking alcohol. The only significant protective factor reported in alcohol use was school environment. Those that reported positive academic attitudes towards their grades, positive relationships with teachers and peers and reported good school connection consumed alcohol less frequently at time 2, among NH/PI young people. This study found no significant results relating to family or individual factors. Based on the selection criterion, young people in this sample may have been predisposed or susceptible to weaker parental relationships. The measures in this study may not be capturing the adequate predictors of alcohol use for NH/PI young people.

The main limitation of the study was the lack of representation of young people's substance use experiences, from different regions of Hawaii. Following the trajectories of

substance use over time, may be more beneficial during developmental transitional periods in young people's lives, rather than the short period of 8 months from baseline to post-test. Risk and protective factors which predict substance behaviours may evolve over time. School-based interventions may reduce the risks for NH/PI young people's exposure to alcohol and other substances. Although, a deeper understanding of the particular protective nuances of young people's academic attitudes may better focus substance use strategies (e.g., positive relationships with teachers can serve as significant adult role models; school connectedness may increase attendance and academic performance). The small sample size did not offer scope for gender comparisons.

Pengpid and Peltzer (2012) - Thailand

Pengpid and Peltzer (2012) analysed secondary data from the Thailand Global school-based Health Survey (GSHS) 2008. They used a two-stage cluster sample design to recruit 2,767 students aged 13 years to 15 years. The aim of the study was to identify risk and protective factors associated with alcohol use among young people, in Thailand. Previous studies in Thailand had identified risk factors, but little was known about protective factors or the role of psychological distress in predicting alcohol use. Students self-reported the frequency and prevalence of their alcohol use. The study measured factors associated with potential risk of alcohol use including tobacco smoking or other drug use, family-level poverty (going hungry at home in the past 30 days) being exposed to bullying, involved in a physical fight in the past 12 months, sexual intercourse in the past 12 months, physically inactive, psychological issues (loneliness, anxiety, sadness or suicidal ideation). Protective factors included; school attendance, peer support at school, parental school support, parental relationships and parental monitoring.

The results showed overall 14.8% of young people reported current alcohol use. Current tobacco smoking was reported by 8.2%, illicit drug use by 6%, sexual intercourse in the past 12 months was reported by 11%, with proportionately higher levels reported by males than females. One or more psychological issues were reported by 26.6% of young people, with no gender differences. Multivariable logistic regression among males reported an association between alcohol use and increasing age (15 years old), smoking, illicit drug use, sexual intercourse in the past 12 months, physical fighting and having been injured in the past 12 months. Multivariable logistic regression among females revealed an association between alcohol use and family-level poverty, smoking, physical fighting and a lack of positive parental support. Socio-cultural norms deterring females from alcohol use in Thailand, may ascribe to some of the gender differences in alcohol use and the associated risk factors. Psychological indicators did not reveal an association with alcohol use.

The study revealed several limitations. As participants were recruited from schools only, this may not be representative of young people nationally, as young people engaging in alcohol use may differ between students and non-students. Measuring psychological variables with single item questions influences the α value, making it more difficult to get an acceptable Cronbach alpha value for measures with few or single items (Field, 2018), which restricts their quantitative quality. This may have influenced the lack of psychological risk or protective outcomes. The study acknowledges additional risk factors which require investigation in future research including - academic performance, alcohol expectancies and adverse childhood experiences. The study did not consider rural or urban differences but successfully compared gender outcomes. The results highlight an

array of health risk behaviours associated with alcohol use among young people in Thailand.

Chung and Joung (2019) – America and South Korea

Chung and Joung (2019) examined common risk factors associated with binge drinking among South Korean and American young people, aged approximately 14-18 years old. Data were extracted from two national surveys conducted in 2015. The sample was nationally representative from each country (South Korean= 45,815, America n= 11,465). The main aim of the study was to examine and compare associated risk factors related to binge drinking (i.e., sex, school grade, academic performance, fight-related injury, smoking, the number of team sports in the past 12 months, depression lasting 2 weeks or more in the past 12 months, and average sleep duration) among young people, from South Korea and America. The definition of binge drinking was defined by each countries own data set measures. Participants were grouped into either non-binge drinking and binge drinking categories. Descriptive statistics reviewed percentages and differences between non-binge drinkers and binge drinkers by characteristics, for each country. Logistic regression models reported on the association of risk factors.

Overall, binge drinking in the past 12 months was reported by 11.6% of South Koreans and 16% of Americans in the past 30 days. Significant differences were observed between the non-binge drinking and binge drinking groups across all the independent variables, except for sex among American young people. Among young people in America, those with reported higher academic performance indicated less binge drinking. In South Korea young people with “A” grades reported slightly higher levels of binge drinking than those with “B” grades, with binge drinking levels increasing as grades decreased

thereafter. Through logistic regression modelling seven common risk factors were identified as being associated with binge drinking, across both countries: Being a young female; being in a higher year in school (older); having experienced a fight-related injury; being a current smoker; having initiated smoking preteens; participation in three or more team sports and young people reporting depression levels, all increased the likelihood of engaging in binge drinking. There were two factors identified specific to South Korean young people. Those reporting inadequate sleep increased the likelihood of binge drinking. As young Americans reported decreasing academic performance, the likelihood of engaging in binge drinking increased, but in South Korea the lowest risk group was those reporting grade “B” and not grade “A”, although as grades decreased further, the risk of binge drinking increased.

This study informs on comparative risk factors associated with binge drinking, between two uniquely different countries. The results highlight concerning risks of binge drinking for young females, similarly across both countries. Equally, the association between fight-related injuries and binge drinking concurs with the earlier study among young people in Thailand (Pengpid & Peltzer, 2012). Increased participation in team sports increased the risk of binge drinking, which may be consistent with social events and peer pressure to participate in drinking games or team bonding activities involving alcohol (Terry-McElrath et al., 2011). The co-occurrence of mental health issues and alcohol use among young people has been significantly outlined in this study. The rates of reported depression were 31% and 25% among American and South Korean young people respectively, which increased their risk of binge drinking.

This study accepts several limitations. The definitions of binge drinking were different for both countries in terms of amounts and duration, so no direct comparisons on prevalence and frequency were possible. Both were cross-sectional studies, restricting attempts to interpret the causal relationships between associated risk factors and binge drinking. The study only differentiates between those defined as binge drinkers and non-binge drinkers and does not consider young people engaged in other levels of alcohol use. Protective factors were not considered. Although comparing across two nations, the study does contribute to the understanding of common and unique health-related and demographic factors associated with binge drinking, across two nations.

Danielsson, Romelsjo and Tengstrom (2011) - Sweden

Danielsson et al. (2011) examined gender differences in risk and protective factors in predicting heavy episodic drinking (HED) among young people in Sweden. This longitudinal study collected data at two time points, with a two-year interval. Young people were 13 years old at baseline, with follow-up at age 15 years (n=1,222). The majority were administered during class time, with absentee students being sent the questionnaire to their home. Heavy episodic drinking was defined as the equivalent of five standard drinks on at least one occasion (at both time points). The study considered a multiple risk approach to both risk and protective factors considering individual, family, community and societal factors. Risk factors included: alcohol debut, parents supplying alcohol, friends who drink alcohol, smoking, truancy and bullying and available money each month. The protective factors included: time with family, parental relationships and peer relationships, parental monitoring and school environment.

The analysis was undertaken separately for males and females. Variables were dichotomized and examined in relation to HED at the two time points and the influence of risk and protective factors on HED, using univariate logistic regression analysis. The results showed 13% of males and females reported HED at least once at age 13, and 46% (males) and 38.8% (females) reported HED at least once at age 15 years. Nearly all the analysed risk factors significantly increased the likelihood of boys and girls engaging in HED, at each time point, except early alcohol debut. One of the strongest predictors of HED was having friends that drank alcohol and smoked, among both males and females. Parents supplying alcohol increased the risk of HED, especially for young females at both age 13 and at follow-up 2 years later. For males, truancy was associated with increased risks of HED. In relation to protective factors some gender differences arose. Parental monitoring and parental relationships were found not to have a protective effect over time. However, parental monitoring had a more protective effect than school environment for both young males and females. Overall, family relationships showed a protective factor in the likelihood of HED, even in the face of risk factors. Higher parental monitoring and parental relationships decreased the risk of HED even for young people who had friends that drink alcohol, had parents who supplied alcohol and had money to spend.

The longitudinal design and high retention rate were a strength of the study. The study focused on both risk and protective factors in the prediction of HED, with a gender-specific focus. The two-year follow-up period saw the transition from early initiation of HED by a small percentage of young people to higher proportions by age 15 and the relative importance of associated factors in HED. Early HED was a strong predictor of the increased likelihood of HED two years later, especially among young males. The study only

reviewed heavy episodic drinking and dis not consider any other patterns of alcohol use or AR harms.

Lukács, Szabó, Horváth, Máté, Erdős, Molnár & Paulik (2021) - Hungary

Lukács et al. (2021) investigated the frequency of binge drinking and the associated factors among 14–18-year-old secondary school students, in Hungary. This cross-sectional study surveyed 864 students, using self-administered questionnaires, during class time. The study aimed to measure the frequency of binge drinking and factors associated with binge drinking across demographic, family, lifestyle factors and school performance. Binge drinking was defined as drinking five or more drinks on one occasion (males), or four or more drinks on one occasion (females), at least once in the past month. Consuming less alcohol than this dichotomized as a non-binge drinker. Overall, 19% reported binge drinking (21.5% male, 17% female), 11% smoking and 7% reported trying illicit drug use, over their lifetime. Using descriptive statistics and multivariable binary logistic regression analysis the associated factors were measured; gender, parental education, family-level economic status, academic performance, smoking and illicit drug use. The results indicated that parental educational levels were low/medium (low, medium or high). The family-level economic status was considered good (Likert scale from very low - very good). Academic performance was predominately rated good (poor, medium or good). The most significant predictor of increased likelihood of being a binge drinking was smoking. Students reporting ever using an illicit drug increased their likelihood of being a binge drinker. Good family-level economic status was considered a protective factor in lowering the likelihood of becoming a binge drinker, while parental educational levels showed no significant correlation. Young people who reported lower

academic performance reported higher binge drinking. Those that rated their school performance as “poor” or “medium” had a significantly higher likelihood of being a binge drinker. The results clearly outline the correlation between binge drinking and lower academic performance.

The study analysed separately the same variables in a slightly older cohort of university students, aged between 19-27 years (n= 1,585). This age group was outside the scope of this narrative review, but the study offered comparative data between secondary school students and university students. Binge drinking increased to 37.2% for university students. The study advocates for “active parenting behaviour” in the prevention of harmful binge drinking among young people. However, parental monitoring, parental support or parental relationships were not included as possible protective factors for analysis. The positive correlation between binge drinking, smoking and illicit drug use offers potential for prevention and harm reduction strategies around alcohol use, while simultaneously impacting on smoking and illicit drug use.

The study recognises that different risk and protective factors may be present among the two different samples obtained, based on two developmentally different age groups and drinking cultures. The study design was cross-sectional, inferring no cause-and-effect relationships. The study has limited its examination of alcohol behaviours to binge drinking or non-binge drinking. The findings add to the literature from an Eastern European country, where less is understood about binge drinking behaviours, than in Western European countries.

2.6.1 Discussion – Risk and protective factors associated with alcohol consumption

All of the above studies aimed to measure the association between risk and/or protective factors associated with varying levels of alcohol consumption. Two of the studies were longitudinal in their design and three studies were cross sectional. All data were collected as part of school-based surveys. The sample age group in three of the studies focused on early teens (11-14 years, 13-15 years and 13 and 15- year-olds). This resulted in a low proportion of students reporting various levels of alcohol consumption, possibly focusing on the initiation or experimentation stage, of alcohol use. Two of the studies focused on a slightly older sample, recruiting young people aged 14-18 years. Two studies measured associated factors related only to alcohol use or non-alcohol use. The other three studies measured associated factors related only to binge drinking or non-binge drinking. None of the studies used multiple measures of alcohol consumption within the same study or considered the associated factors of alcohol-related harm.

The identification of potential risk and protective factors was justified in most studies by their inclusion in earlier research nationally or by region. Only one significant factor was common to all the studies - academic performance/school environment. Family relations/parental support, peer support, smoking and illicit drug use were popular measures used in nearly all of the studies. Three of the studies included psychological measures, including depression. The results in two studies reported psychological indicators showing no association with alcohol use but the third study showed an association with depression being a risk factor of binge drinking. Only two studies considered physical inactivity or participation in team sports as potential risk factors. The

reviewed studies have shown the fundamental and coexisting factors that exist that may need to be considered across different domains; individual, family and community.

2.7 Conclusion

In conclusion, the search for the included articles was developed using systematic search properties. It was anticipated that this systematic focus would divulge studies that encapsulated all the search terms within individual studies. However, during the screening process it became apparent that there were no studies which incorporated all the proposed variables of this study - exploring risk and protective factors of alcohol use, binge drinking and alcohol-related harms, among young people living in urban disadvantage. The literature has reported on limited studies reviewing AR harms using various methodologies, as evidenced by ED presentations, hospital admissions and hospital readmissions. The limited findings report 15–19-year-old males had the highest alcohol-related ED presentations, with a higher proportion of females being under the age of 15 years-old. A higher proportion of AR hospital admissions were between the ages of 16-17-years-old. Predictors of AR hospital readmission were living in a deprived region, self-harming or comorbid mental health issues. Overall, an increased risk of AR harms were associated with living in a disadvantaged region. However, consensus across studies was not found in relation to levels of alcohol use, frequent drinking, binge drinking as a result of living in a deprived or disadvantaged region. Positive school environment was found to be a common protective factor associated with alcohol behaviours across the literature.

The review of the literature has provided a greater knowledge of what has already been achieved by other researchers. It has also identified areas which are uncharted

which offers possibilities for expanding the current knowledge of alcohol behaviours specific to young people living in urban disadvantage and subsequent AR injuries/harms. The present study will endeavour to ameliorate previous studies inconsistencies and research gaps, within the limitations of this study's cross-sectional design.

Internationally, there is extremely limited data pertaining to alcohol-related ED presentations, which captures all the acute AR harms which require clinical attention, firstly within ED and then possibly hospitalisation, among children and young people. The literature which captures only hospital admissions or readmissions, excludes a high proportion of presentations that require clinical attention, but not hospitalisation. Nationally, there is no statistically relevant data capturing ED presentations among children and young people. Limited data are available in terms of specific presenting complaints or doctor's diagnosis and few studies offer gender or age comparisons, among children and young people.

This study will endeavour to considerably add to and breach the gaps on the current findings on alcohol-related harms/injury among children and young people. It will only include AR harms/injury which are wholly or partially due to the child or young person's own personal consumption of alcohol. This will be the first study in Ireland to extract retrospectively 11 years of data from two hospital's data management systems, providing full details across each AR presentation including triage comments. The breadth of the data will offer specific details of the type of AR harms/injuries suffered and discharge outcomes, by gender and age group comparisons. This study will measure both objective AR harms/injury to children and young people, presenting to the ED of two Irish

urban hospitals, and measure subjective self-reported AR harms by young people, through a survey of alcohol behaviours.

Most of the studies in the literature reported extracting secondary data from surveys that were not originally designed to measure deprivation, socio-economic status or disadvantage, but assigned deprivation indices afterwards. This study will collect original data from designated educationally disadvantaged schools and training centres, located in one of the most deprived regions in Ireland. This study's participants will include both young people attending mainstream schools and young people who have dropped out of mainstream education early and are attending alternative training.

According to Getz and Bray (2005) there are numerous stages of alcohol behaviours - initiation, experimentation, frequent drinkers, HED and binge drinking. A unique conceptual aspect of this study focuses on outcomes from two stages of alcohol behaviours, alcohol use and binge drinking. Not all alcohol behaviours result in adverse consequences, this study importantly identifies risk and protective factors associated with alcohol consumption which causes negative consequences, harm or injury, among young people living in urban disadvantage. Differentiating the predictors of harmful alcohol behaviours is necessary to facilitate appropriate prevention and intervention programmes.

Chapter 3: Methodological and ontological approaches

3.1 Introduction

This chapter will outline the study’s main aim and research questions based on young people living in urban disadvantage. Alcohol use and alcohol-related harms has been widely researched among adults and college students across all socio-economic populations. However, young people living in urban disadvantage is a very under-researched cohort. This chapter details the philosophical paradigm, the theoretical perspective, along with the research design and methods employed in this study. This deductive research strategy is located within the wider philosophical paradigm of positivism (Comte, 1798-1857) as described by Crotty (1998). The theoretical perspective is based on the social learning theory framework (Bandura, 1971; Bandura et al., 1961). As a multi-method concurrent research design, the methods section was approached systematically by presenting the methods employed in the survey design as part 1, and the methods employed in the collection of secondary hospital data as part 2.

3.2 Aims and research questions

The aim of the study was to investigate alcohol use and binge drinking, exploring risk and protective factors and alcohol-related harms as evidenced by survey data and secondary data from emergency department presentations, among young people living in urban disadvantage.

The following research questions were applied to a sample of young people living in urban disadvantage:

1. What is the prevalence and frequency of alcohol use and binge drinking?

2. What is the measure of subjective health-related quality of life across five domains: (physical well-being, psychological well-being, autonomy and parent relation, social support and peers and school environment) and perceived depression levels?
3. What is the association between alcohol behaviours and harmful consequences?
4. What are the predicted risk and protective factors associated with alcohol use, binge drinking, harmful consequences and depression?
5. Does the relationship between alcohol use and harmful consequences of alcohol use differ as a function of a moderator/mediator variable?
6. What is the scale and scope of alcohol-related harms as evidenced by self-reported negative consequences and alcohol-related emergency department presentations?

3.3 Philosophical Paradigm

Philosophical assumptions or worldviews should be explored prior to planning research. Personal beliefs on the nature of reality, the theory of knowledge and how the researcher explores this belief in what can be known, offers clarity to the research strategy (Crossan, 2003). The philosophical and epistemological framework used in this study is based on the positivism paradigm. Historically, as psychology moved into the laboratory and skills relating to experimentation and analysis aligned more with the physical sciences, positivism as a precise epistemological position or theory of knowledge, as popularised by Auguste Comte (early 1800's) emphasised the scientific perspective (Howitt & Cramer, 2017). The positivist approach to empirical social research applies natural science principles, like observation, objectivity, measurability and replication

when explaining social phenomena (Bryman, 1984). Positivism looks to substantiate hypotheses and elicit the truth (Howell, 2013).

According to Guba and Lincoln (1994) ontology relates to the study of being or the nature of reality under investigation. This ontological position posits that an objective reality can be observed in a sample of the population, through a set of variables, offering explanation through scientific procedures, for generalisation to a wider population (Masue et al., 2013). This objective reality is autonomous of the researcher, therefore meaning is found through realism and not through the perception of the researcher. Social phenomena have their own independent reality which can be revealed through research using positivist methodology (Scotland, 2012).

This positivist assumption means the researchers input is limited in collecting data and remains neutral. Statistical analysis is the basis for analysing data in an objective manner, and reaching dispassionate findings which are quantifiable (Kitchin, 2015). This implied relationship between the ontological and epistemological values for this study are intrinsic to the choice of methodology to explore the research objectives (Mesel, 2013). The objective truth can be elucidated and predicts future behaviour (Turyahikayo, 2014). This philosophical position and its principles will fortify the methodology and be consistently engaged throughout the research process (Halcomb, 2015).

Self-reporting survey questionnaires offer an optimum choice in meeting the fundamentals of positivism. The main principles of positivism are realised; objectivity is realised through the self-administering process which is independent of the researcher. Concepts are operationalised to allow for quantitative measurement. Replication is possible through validated instruments which can be used to collect the same data and

conclude the same results. Quantitative methods of analysis and interpretation of results explains associations between measurable variables in terms of causality and prediction which is the basis for generalising to larger populations and predictions of human behaviour (Masue et al., 2013). Determinism assumes all actions have effects and determinable, predictable outcomes. These effects can be reduced to a set of concepts which can be defined and measured (Giddings & Grant, 2007). Although, the acknowledgement of philosophical perspectives offers clarity, the questions raised around a specific phenomenon or social problem (research questions) determines the methodology selected (Clark, 1998; Mackenzie & Knipe, 2006; Mesel, 2013).

According to Clark (1998) and Crotty (1998) quantitative and qualitative methodologies should not be considered diametrically opposed or incompatible when considering ontological and epistemological assumptions underpinning research. They assert it is possible to align qualitative methods within a positivist paradigm, and quantitative methods within a non-positivist paradigm. In this study, content analysis was conducted on one (free text comments) variable from the secondary hospital data. It portrayed only the manifest content of the text, with no implied or latent interpretation, representing a value-free approach. By examining frequency counts within the text, it allowed quantitative analysis of originally qualitative data (Wilkinson, 2000). This mirrors the characteristics of the scientific approach, being objective, measurable and replicable and reflects the positivist paradigm (Dieronitou, 2014).

The researcher acknowledges and is cognisant to the pitfalls of value-free processes across the selection of variables, choosing the correct inferential statistical tests and interpretation of results. In addition, an integral component of this study is the

contextual setting, within a disadvantage region. Therefore, generalities to a larger population must be mindful of these contextual factors (Fox, 2008; Ryan, 2015). Positivism has evolved since its inception, but it's objectivist perspective as a scientific method of gaining knowledge in social sciences, devoid of subjective feelings or beliefs holds true (Crotty, 1998). Fundamentally the scientific positivist epistemology represents the researcher's philosophy.

Philosophical paradigms inform our views of how knowledge is gained. Theories help provide a framework, to define the aims, research questions and methodologies. They link conceptual propositions with the phenomenon under investigation. The theoretical perspective is reviewed in the next section.

3.4 Theoretical perspective

The theoretical perspective chosen in this study is social learning theory. It was developed by psychologist Albert Bandura (Bandura et al., 1961), based on his experimental observations of modelling aggression. The bobo doll experiment tested his theory of social learning by observing children's behaviour after they watched adult models behaving aggressively towards a bobo doll, and later imitated their behaviours (Artino Jr, 2007). Since then, social learning theory has been applied to numerous social and developmental studies of behaviour, including violence, crime and deviance, sexuality, education and personality (Akers & Jensen, 2017; Anderson & Kras, 2005; Bahn, 2001; Bandura, 2017; Hogben & Byrne, 1998; Rotter et al., 1972). In addition, social learning theory has been applied to the use and misuse of alcohol among college students and adolescents (Aliiaskarov & Bakiev, 2014; Burke & Stephens, 1999; DeMartino et al., 2015; Durkin et al., 2005; LaBrie et al., 2007; Miller et al., 2008; Preston & Goodfellow,

2006). The guiding framework of social learning theory and later modifications including social cognitive theory are used as the archetype.

Social learning theory (SLT) (Bandura, 1971; Bandura et al., 1961) later renamed social cognitive theory (SCT) (Bandura, 1986) posits that people learn from observing the attitudes, behaviours and reinforcing outcomes of others (models). Young people are surrounded by models within their community and wider influences, e.g., parents, siblings, friends, teachers, classmates and social media. Observed behavioural information is encoded and later adopted or imitated, if the young person identifies with the model and the resultant reinforcing consequences experienced by the model (Akers & Jennings, 2019). Learning is more likely when positive consequences are observed in others, and the valued reinforcements are emulated into new behaviours (vicarious learning) (Borsari & Carey, 2006). However, reinforcement can be positive (e.g., peer acceptance) or negative (e.g., avoid peer rejection). Differential reinforcement is contingent on the environment in which the behavioural consequences are obtained. Differential association refers to the direct association and acceptance of social norms (as a consequence of the association) from significant close social groups (family, peers, school) who engage in certain behaviours (Durkin et al., 2005). Other less direct sources include the media and social media (Telzer et al., 2018). Opportunities for observational learning depend on the functional value placed on specific social associations, so those perceived as more influential models will be observed more. Another element affecting the learning process is definitions. Definitions are attitudes expressed towards certain behaviours (e.g., moral values) which define the behaviour as appropriate or inappropriate (Akers et al., 1995). Internalising social norms and modelling these

behaviours for future rewards stems not only from the environment but also through mediated cognitive processes.

Four main cognitive processes are deployed in effective modelling - attention, retention, motor reproduction and motivation (Bandura, 1971). Attention is first required to the preferred associations through arousal or valued past reinforcement. Attentional processes ensure the selected model's characteristics are attended to. Retention of the modelled behaviour into mental images and symbolic coding for long term memory retrieval is required for delayed imitation of behaviours. Motor reproduction considers the replication of mental images of representational behaviours into overt actions. Deficits in physical attributes or skills to reproduce the symbolic behaviour into new patterns of behaviour often requires self-observation and self-correction, over time. Finally, motivation plays a powerful role in all elements of the cognitive process of social learning – to attend, to retain, to reproduce and to want to perform the new behaviours, which have previously been unexpressed. Cognitive processes are influenced by vicariously observed differential consequences which are perceived as positive outcomes or negative outcomes. Therefore, the motivation to perform new behaviours is dependent on hypothesised future consequences. Cognitive processes permit anticipated expectancies and self-efficacy, to motivate and direct new behaviours in the belief of achieving a desired outcome. (see Figure 2 for simple diagram of the four cognitive processes)

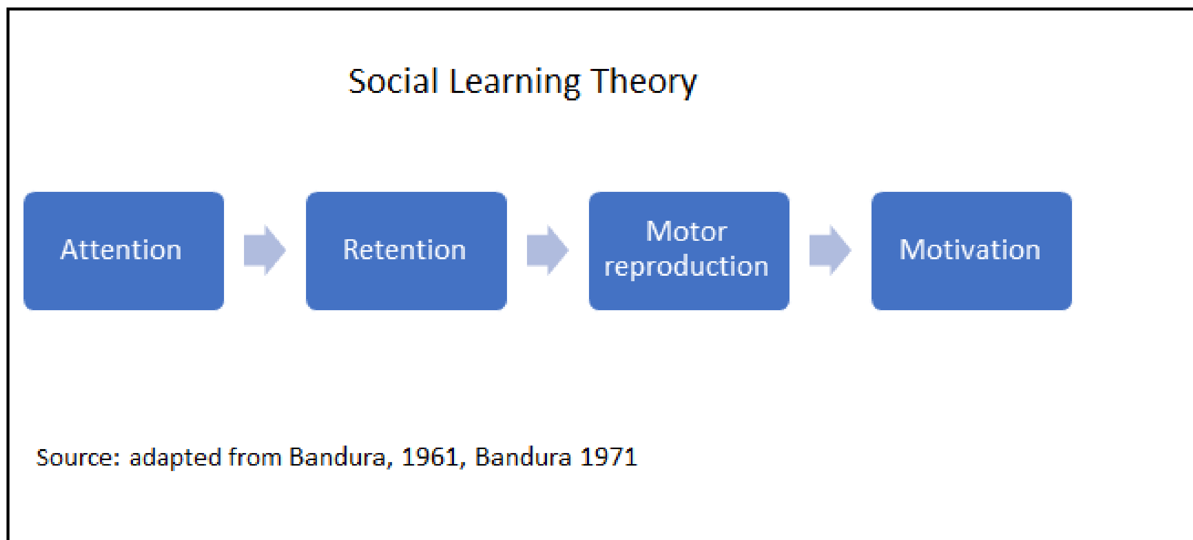


Figure 2: Cognitive processes involved in social learning theory

According to Bandura (1973) behaviour partially shapes the environment and the subsequent environment impacts the behaviour. In 1986, Bandura proposed “reciprocal determinism” - the interaction of three mediating constructs: behaviour, environmental factors and psychological processes. These constructs must be considered mutually. Changes in one element will collectively impact the other two constructs. The fluidity of these constructs over time and different contexts must also be considered (Borsari & Carey, 2006) See figure 3 below.

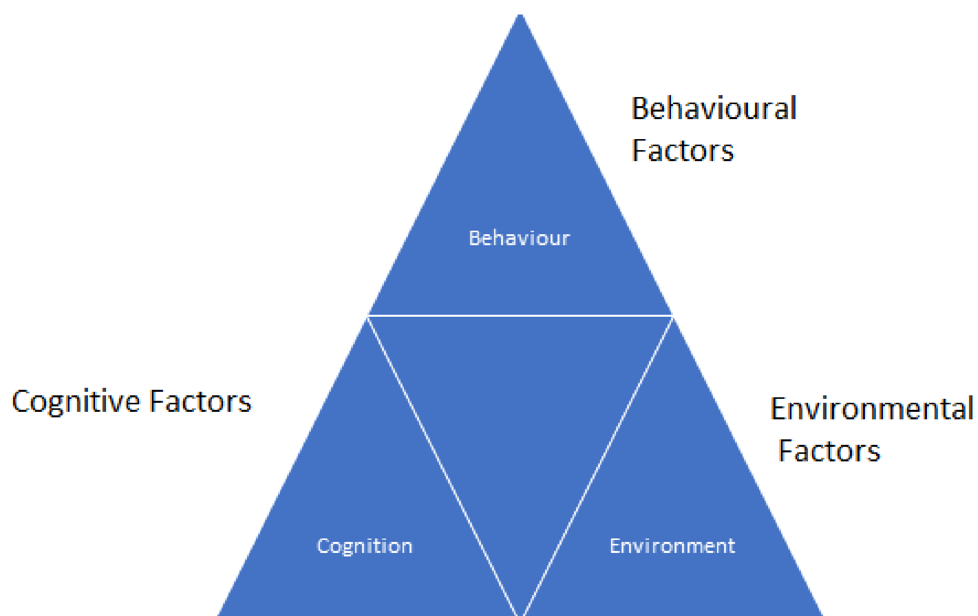


Figure 3: Bandura's triadic reciprocal determinism

It is hypothesised that the basic tenets of the social learning theory framework will bridge the predictor variables with the outcome variables alcohol use, binge drinking, and alcohol-related harms, in a disadvantaged environment.

- Differential associations are explored through the variables - parental relationships, peer relationships, school environment and leisure time activities.
- Definitions are explored through the variables -parental monitoring, autonomy, parental emotional support and social supports.
- Cognitive process and anticipated expectancies are explored through self-reported motivations to drink alcohol.
- Negative reinforcement is explored through the variables - negative consequences of consuming alcohol and alcohol-related harms.
- Self-efficacy and psychological processes are explored through the variables - depression, psychological well-being and physical well-being.

Therefore, it is theorised there will be an association between the study's predictor variables (outlined above) and the outcome variables, alcohol use, binge drinking and alcohol-related harms. The theoretical perspective aligns with the philosophical paradigm as the proposed formulations of social learning theory guide the data that were collected in a reliable, replicable and objective manner.

3.5 Overview of study design

This study used a concurrent multiple method, convergent parallel design with one quantitative aspect consisting of: a cross sectional survey design, using validated instruments across six post-primary schools (DEIS) and two Youthreach Centres (Part 1). The second aspect extracted secondary data on alcohol-related Emergency Department (ED) presentations from two urban hospitals, located on the one site, over an eleven-year period. This second aspect used a concurrent nesting strategy, whereby a quantitative approach was the dominant strategy, with a less dominant qualitative approach nested within (Creswell, 2002), This offered additional context and depth to reporting on alcohol-related ED presentations among children and young people aged 12-18 years, retrospectively from 2009-2019 (Part 2). See Figure 4 for overview of research design strategy indicating the merging and interpretation phases within part 1 and part 2. The methodological aspects of both facets of the research (Part 1 & Part 2) will be discussed separately.

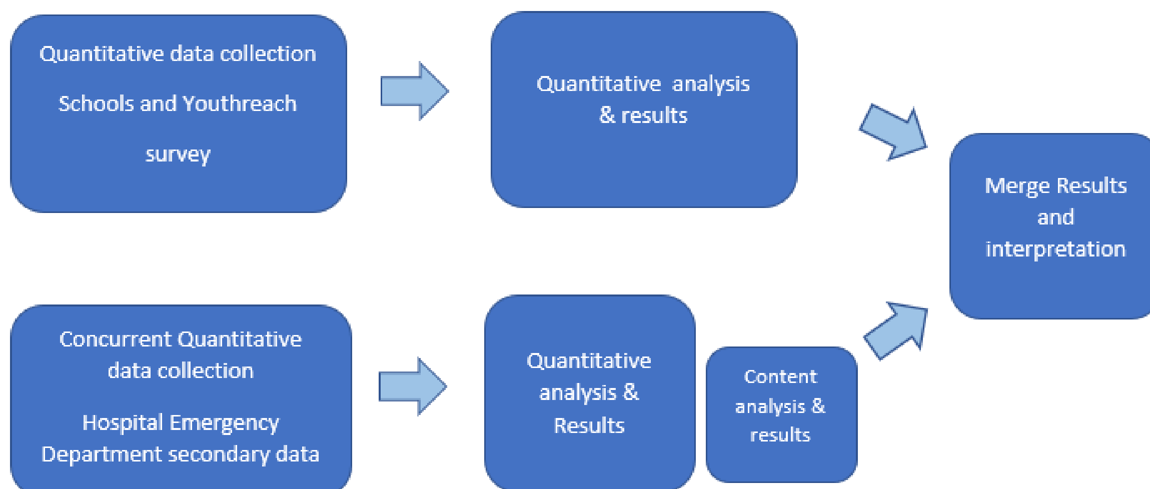


Figure 4: Concurrent Multiple Methods - Convergent Parallel Design

3.5.1 Part 1 – Cross Sectional Survey Design

Ethical Considerations

Prior to recruitment, ethical approval was granted by the Faculty of Health Sciences Ethics Committee, Trinity College Dublin, in February 2019 (see Appendix 1 for ethical approval). The researcher followed the guidelines of The Code of Professional Ethics (PSI, 2019) and the Ethical Conduct in Research Professional Guidance (NMBI, 2021). The researcher complied with legal security checks and was successfully vetted by An Garda Síochána (Irish police force) to conduct research with young people. In addition, Children First Safeguarding training and GDPR training was also undertaken by the researcher. The recruitment and data collection phase of the self-report survey from post-primary schools and Youthreach centres was fully completed between March–May 2019. Therefore, the participants and the study's design were not impacted by the COVID-19

global pandemic. In Ireland, the impact of the pandemic resulted in public restrictions and school closures from March 2020.

Sample

The sample consisted of young people (n=307) aged 15, 16 and 17 years of age, living in urban disadvantage (52.4% female: 56.4% aged 16 years). A clustering procedure was employed to recruit from six post-primary schools, which are designated as educationally disadvantaged schools (Delivering Equality of Opportunity in Schools - DEIS Band 1) (Department of Education, 2022) and two youth training centres, all explicitly serving a disadvantaged community, in a highly disadvantaged urban region in Ireland, as defined by the Pobal HP Deprivation Index, Pobal (2017). Contact was made by letter initially, with six post-primary schools all designated as Delivering Equality of Opportunity in Schools (DEIS band 1). These schools are designated as educationally disadvantaged as guided by the definition in the Education Act, Section 32 (9) “the impediments to education arising from social or economic disadvantage which prevents students from deriving appropriate benefit from the education in schools” (Government of Ireland, 1998).

Deprivation is a factor of educational disengagement and low school connectedness (Bond et al., 2007; Freeney & O'Connell, 2012), therefore, the inclusion of young people who had opted out of mainstream education into alternative youth training were included. Contact was made with two Youthreach centres offering alternative education and training for young people within the same urban disadvantaged region. Youthreach cater for vulnerable early school leavers and help them achieve an education and promote personal development (Breslin, 2015).

Recruitment

Through numerous emails and in person meetings with all eight principals, written permission was granted from all sites to conduct the study with their students. This was a requirement before ethical approval could be sanctioned. Students attending 4th year and 5th year in six post-primary DEIS Band 1 schools and students aged 15–17-year-olds from the two Youthreach centres made up the sampling frame and were all invited to participate. The study excluded young people living in the region but attending schools outside the region and young people attending schools in the region, which were not designated as educationally disadvantaged. The sampling frame offers a good level of statistical representativeness (Gomm, 2008).

Consent forms for parents and assent forms for students (see Appendix 2) were drawn up, along with information leaflets for teachers (see Appendix 3), parents/guardians (see Appendix 4) and students (see Appendix 5) outlining the research aims, objectives, methodology, explaining the nature of participation, the right to withdraw, confidentiality, voluntary participation and written consent. After ethical approval was granted, each site was contacted again, and the researcher met with the designated representative (gatekeeper).

Each principal nominated one gatekeeper per site. The nominated gatekeepers were mainly teachers, one chaplain and one school counsellor. It was vital to secure their buy-in and that of their colleagues, in recognising the value of the schools participation in the study. A teacher information leaflet was disseminated through the gatekeeper. All the gatekeeper relationships were proactively managed in a professional, courteous and respectful manner, whilst also gently pushed the research agenda along in a timely

manner. It was important that the overall impact of the schools participation in the study was a positive one for all involved, staff and students. The gatekeepers were essential advocates for the research from within, as they reminded the students about returning their consent forms if they wanted to participate in the study. The researcher nurtured these valuable relationships for the duration of the project and met with each gatekeeper on a number of occasions. Letters of gratitude were sent on the completion of the project.

As pre-arranged with the gatekeeper, the researcher then attended each site and personally explained the study to the students directly in appropriate language, addressing any queries. This was to ensure that all students fully understood the purpose, their role and the consequences of their consent to participate, within their competencies. Envelope packs comprising parent and student information leaflets and consent forms were disseminated by hand, by the researcher, to all students in attendance on the day, across the eight sites (621 students). Study recruitment posters were displayed in each school and Youthreach centres (see Appendix 6).

A seven-day period of reflection was offered before participants returned the signed consent forms to the gatekeepers. The researcher was available to offer additional information throughout the seven-day reflection period, for teachers, parents or students. After seven or more days, the researcher collected the returned signed consent forms (parent consent and student assent) from the eight sites. The survey questionnaires were prepared and collated in advance of the data collection days. No incentive was offered to young people or their parents to participate.

Sample size estimation

Based on power analysis established by Cohen (1992) the sample size calculation proposes a maximum of 107 participants, based on an estimate of more than eight predictors. A sample size of 107 was required to detect a medium effect (r=.50). α= .05 at 80% power. Therefore, the sample size for this study was adequate (n=307).

The total sample frame was 928 students in this cross-sectional design. However, the actual sample in attendance on the school's preferred dates for dissemination of information and the information packs, by the researcher, was 621 students. Across the eight sites this reflects a 33% non-attendance, in this disadvantaged urban region. According to school attendance data for post-primary schools 2016/2017 reported by TUSLA (2020), nationally DEIS schools reflected a mean percentage of student/days lost at 10.2% and a mean percentage of 22.8% of students missing 20 days, which is higher than non-DEIS post primary schools at 7.5% and 13.3% respectively (Miller, 2018). There were 365 students who returned double consent, signed by both parent and student. Due to further absenteeism on the data collection days, 307 participants completed the survey questionnaire (n=307). See Table 9 below for sample determination.

Table 9: Sample dynamics and determination

Students in attendance on day of study talk and dissemination of information packs. (Across all eight sites)	**Students meeting the criteria or inclusion (Parent consent and student assent)**	**Students in attendance on the day of data collection (Across all eight sites)**
621	365	307
	Recruitment rate 59%	Survey rate 84.5%

Data Collection

Students completed the self-report survey questionnaires during school hours, on school or Youthreach premises. The survey questionnaires were group administered by the researcher in hardcopy and students individually completed them. Each student was encouraged to work independently, so as not to be influenced by their peers and keeping their answers private. The survey questionnaire took approximately 35 minutes to complete. The research team made every effort to mitigate against reluctant or partial responders. The students were assured there was no right or wrong answers, that it was not a test. They were encouraged to ask questions or seek clarification if needed, they were reassured the researchers were there to help them. Due to literacy issues experienced by some disadvantaged young people, there was an extra researcher on site to read the survey questionnaire personally with any student, if they needed assistance. A small proportion of students had special needs assistants, who did this for them.

As each student handed up their survey questionnaire the researcher glanced through the survey for any accidental omissions and clarified if the student wished to complete this section or ascertain had they had made a conscious decision to skip any sections. No pressure was placed on any student to answer all the questions. Nearly all

the students completed all sections of the survey questionnaire. Completed survey questionnaires were collected by the researcher, placed in a box, which was sealed and removed off site, keeping them confidential.

An attendance protocol and survey questionnaire checklist (see Appendix 7) was drawn up to ensure compliance with school policy and continuity in briefing and debriefing all the students. Contact support details were offered in a Debrief sheet handed to the participant on completing the survey (see Appendix 8). In addition, each school or Youthreach centre had a guidance counsellor working on site, on the day of the data collection, in case any student needed support. The researchers were not aware of any participant needing to avail of this service, on the data collection day. For students who had previously supplied double consent but were absent on the day of the data collection, gatekeepers were encouraged to administer the survey questionnaire on their return or contact the researcher to administer. Unfortunately, due to the busy schedules of the gatekeepers, this was unsuccessful.

Survey Instruments

The instruments utilised in this study were age appropriate and have been widely used in cross-national studies. There were seven instruments used in total. One instrument (ESPAD, 2015) had 12 subsections. The survey was designed that all seven instruments could be completed within the timeframe of one class period. Confidence in the survey instruments utilised in this study, were assessed through the properties of validity and reliability.

Validity relates to the accuracy of the instrument to measure the construct it intended to measure. Reliability relates to the ability of the instrument to consistency

measure the construct to produce the same results, given the same conditions. Reliability must first be established before an instrument can be valid (Field, 2018; Polit & Beck, 2008). Measuring the internal consistency of an instrument has been identified as an acceptable approach for evaluating reliability. Cronbach's alpha coefficient is a widely used test of internal consistency and compares each item within the measure with the other items. It identifies the proportion of variance within the measure. The correlation coefficient measures the reliability of the instrument (e.g., a coefficient > 0.70 is regarded as reliable) (Pallant, 2013). This study measured the Cronbach's alpha coefficients for all instruments with sufficient items within the scale (see Appendix 9 for survey questionnaire).

Demographic information

Demographic information was obtained to provide a background profile of the young people.

Alcohol Use Disorders Identification Tool (AUDIT) and Revised Alcohol Use Disorders Identification Tool (AUDIT revised).

Young people reported their alcohol consumption using the survey instruments; Alcohol Use Disorders Identification Tool (AUDIT) (Babor et al., 2001) and AUDIT revised (Cortés-Tomás et al., 2017). The AUDIT contains ten items. The AUDIT is psychometrically satisfactory showing an internal consistency reliability of Cronbach's alpha value $\alpha = .75$ (Babor et al., 2001). In the present study the Cronbach's alpha value $\alpha = .78$.

The AUDIT revised (Cortés-Tomás et al., 2017) offers additional accuracy in measuring alcohol consumption and binge drinking in terms of the actual number of standard drinks consumed and was designed to improve alcohol screening specifically

among young people. Stratified sampling was evaluated on 906 young people between the ages of 15-17 years (Cortés-Tomás et al., 2017). AUDIT A2R was supplemented with a visual chart showing pictures of typical drinks which are sold on-premises and off-premises, along with the appropriate standard drink measure. The young person inserted the number of drinks consumed beside the appropriate drink on the picture chart, this was then converted to grams of alcohol to accurately account for the number of standard drinks consumed. A standard drink equals 10g of alcohol in Ireland (Hope, 2009). The responses were then grouped into one of five options: 1 or 2 drinks, 3 or 4 drinks, 5 or 6 drinks, 7 to 9 drinks and 10 or more drinks.

In addition, A3R used an adjusted definition of binge drinking; seven or more standard drinks for males and six standard drinks for females, over a two-hour period. Young people reported how often they engaged in this behaviour from six options, ranging from "never" to "13 or more times" per month. These redefined items A2R and A3R offer high levels of sensitivity (98.9%) and specificity (96.8%) to identify with greater precision the strength of the alcohol drink, not just the number of drinks consumed and the detection of binge drinking (Motos Sellés et al., 2020). The mean inter-item correlation is .439 in the present study.

Rutgers Alcohol Problem Index (RAPI)

The Rutgers Alcohol Problem Index (RAPI) (White & Labouvie, 1989) assessed negative or harmful consequences of adolescent problem drinking using the 18-item shorter version. The 23-item scale has a reliability of .92, the shorter 18-item correlates .99 with the longer version (White & Labouvie, 1989). Cronbach's alpha values of $\alpha = .88$ were robust in the present study.

Kidscreen-27

Young people's health-related quality of life (HRQoL) was assessed using the Kidscreen-27, a self-report tool comprising five dimensions, physical well-being, psychological well-being, autonomy and parent relations, social support and peer relations, and school environment. Designed for children and young people aged 8-18 years, it uses a five-point likert scale across 27 items. Higher scores indicate higher HRQoL. Normative data from a nonclinical European sample is compared using t-scores with a mean of 50 (SD = 10) (KIDSCREEN Group Europe, 2006). Kidscreen-27 offers optimal internal consistency reliability of Cronbach's alpha values ranging from $\alpha = .80$ to .84 (Ravens-Sieberer et al., 2014). Equally robust reliability is shown in the present study, with Cronbach's alpha values ranging from $\alpha = .78$ to .86.

Children's Depression Inventory

The depressive symptoms of young people were determined using the Children's Depression Inventory – short version (CDI-S) (Kovacs, 2003). This self-report tool measures the extent and severity of depressive symptoms in children and young people aged 7-17 years. Raw scores were converted to t-scores for statistical comparison to international data. Higher scores indicate higher depressive symptoms. It is psychometrically robust with a Cronbach's alpha value of $\alpha = .80$ (Kovacs, 2003). Reliability analysis in the present study shows Cronbach's alpha value $\alpha = .85$.

European School Survey Project On Alcohol And Other Drugs (ESPAD Report, 2015)

Sub-sections of the European school survey project on alcohol and other drugs (Kraus & Nociar, 2016) were used to complete a more comprehensive assessment of the

overall alcohol behaviours of young people. Originally designed for use on 15–16-year-old students it offered self-reporting outcomes on the following items:

- how often they engaged in certain leisure time activities (C03)
- birth country of the young person and parents (C46)
- the highest level of schooling for father (C47)
- the highest level of schooling for mother (C48)
- how well off is the family compared to other families in Ireland (C49)
- how often parents set rules, parental care and warmth, and friends care and warmth (C51)
- how often parents monitor the young person's whereabouts on a Saturday night (C52)
- alcohol consumption in last 7 days (008)
- alcohol purchases off-premises in last 30 days (009)
- alcohol purchases on-premises in last 30 days (010)
- context of drinking on the last day (011)
- how often certain motivations were involved in drinking alcohol (012).

In the present study the reliability analysis of Cronbach's alpha values α =.81. The ESPAD sub-sections are not scale items but offer descriptive frequencies. In the present study ESPAD measures with 10 or more items (ESPAD 12) showed good internal consistency reliability of Cronbach's alpha value = .91.

Ease of Access to Alcohol

Three questions were extracted from the National Highway Traffic Safety Administration (NHTSA) Underage Drinking Questionnaire (NHTSA, 2001). They pertained

to the ease of access by which young people obtained alcohol products without identification of legal age and the use of fake identification. These were not scale items but offered descriptive frequencies. Although, no reliability or validity data on the questionnaire was found, it has been widely used in community-based alcohol interventions across the USA (Lasser et al., 2010).

Research fieldworkers

In order to minimise the disruption to the schools and Youthreach schedules, the survey questionnaires were prepared in advance with the individual identification numbers assigned by school/year/class before arriving on site. Data collection schedules were strictly adhered to in order to disrupt as little class time as possible. Based on the number of returned consent forms from each site, extra field researchers were recruited for the task of on-site data collection, when needed. Field researchers were instructed on all aspects of the survey instrument. They were vetted by An Garda Síochána (Irish police) and had completed the Children First Safeguarding training. A Field Researcher Protocol (Banka, 2018) was drawn up (see Appendix 10). This ensured consistency across procedures in the field, when research assistants were required to assist with data collection at a number of sites. It also set out protocols around concerns or complaints procedures.

Data management

Initially, all the collected data were quickly scanned for missing data or omissions while on site. Once the sealed boxes had been returned to TCD, the collected survey questionnaires were first screened for issues of concern and scored by hand. Based on each participant's overall survey scores from the AUDIT, AUDIT Revised and Children's

Depression Inventory measures, the researcher decided whether any participant's scores raised significant concerns for their welfare that referral to their principal may be considered. The field researchers were not involved in this process. A very small percentage of young people (under 2%) were deemed at risk. This was discussed with the researcher's supervisors and the decision was made to raise the concerns with the relevant principal, in line with the research guidelines for the protection of children. The Research Referral Form – Confirmation of Child Protection referral to School Principal (see Appendix 11) was evoked. In addition, a formal research complaint form was drawn up to allow any grievances to be dealt with in a formal manner. No formal for informal complaints were received (see Appendix 12).

Each participant was assigned a personal identification number to ensure confidentiality. A separate master sheet holds the personal information of each participant, which is the only means of linking the participant with their personal identification number. This master sheet is stored separately in a password protected folder, on a TCD desktop computer. All survey questionnaires are identified only by the participant's personal identification number, to protect their identity and their data. Hardcopy survey questionnaires are stored in a fireproof locked safe. Only the researcher has access to the data. Data entry and analysis were completed on IBM SPSS Statistics V26 (IBM Corp., 2016).

Quality control and data auditing

After all the data were manually screened, it was entered into SPSS V26 and checked. On completion of the entry and checking system, an audit was conducted. Thirty-one random questionnaires were selected, which represented approximately 10% of the

sample. There were 160 variables entered for each questionnaire. A total of 4,960 data points were inspected, and four errors were identified and corrected. This is an error rate of .08%. A further 5% audit was undertaken at a later date, after health-related quality of life and depression scores were converted to t-scores from the Kidscreen-27 and Children's Depression Inventory. A further 15 questionnaires were randomly selected. A total of 2,400 data points were inspected and 1 error was identified and corrected. This is an error rate of .04%. No variances were found based on issues with t-score conversions.

Data Analysis

The statistical analysis plan included descriptive, inferential, statistical modelling and mediation and moderation analysis, in order to answer the research questions.

Descriptive analysis

Descriptive statistics described the sample data based on the self-reported survey behaviours. Descriptive statistics were presented in frequencies and percentages by male, female and totals and where appropriate mean, median, mode, standard deviation, minimum and maximum was shown. Both health-related quality of life (Kidscreen-27) and depression measures (Children's Depression Inventory) were reported against interpretive guidelines for t-scores among young people from a normative sample, of similar age and gender. See Chapter 4 for results.

Inferential analysis

Initially, it was established that normal distribution had been violated across all the main variables. Therefore, non-parametric tests were conducted to establish correlations and differences between groups. Unlike descriptive statistics which only describes the sample population, inferential analysis reported on the associations

between alcohol behaviours and health-related quality of life factors, depression, leisure time activities and parental monitoring. Inferential analysis used the sample data to draw estimations about disadvantaged population values (Delaney, 2009). Mann-Whitney U tests analysed the gender differences for ordinal data and Fisher's exact tests analysed gender differences for nominal data. Spearman's correlation analysis measured the direction and strength of the significant relationships between variables for inclusion in the statistical modelling. See Chapter 5 for results.

Statistical Modelling

Statistical modelling was conducted to assess the predictive relationship between the key predictor variables (HRQoL, depression, leisure time activities, motivations, AUDIT scores, perceived wealth, context of alcohol use and parental monitoring) on the outcome variables alcohol use, binge drinking, harmful consequences of alcohol use and depression. Due to the violation of normality, it was not possible to conduct linear or multiple regression tests. Instead, binary logistic regressions models identified potential predictors of alcohol use, binge drinking, harmful consequences of alcohol consumption and depression levels. A backward elimination method was used. All predictor variables were entered into the model first. Predictor variables were then automatically compared, and the least significant variables removed one-by-one from the model (significance level is $\leq .05$). The model refits and recomputes after each insignificant variable is removed. This procedure eliminated the variables which did not contribute to the prediction equation. This variable selection method follows the law of parsimony and assesses the joint predictive ability of all variables, as all variables are included in the model from the start, unlike forward or stepwise selection (Chowdhury & Turin, 2020).

To investigate further the recognised relationship between the predictor variable alcohol use and the outcome variable harmful consequences of alcohol use, both moderation and mediation analysis were tested for their suitability to address the mechanism by which this predictive relationship functions. This explored how alcohol use as the independent variable exerts its influence on the dependent variable harmful consequences, through an assumed third variable. As there was no evidence of a sequential causal relationship between all the variables, moderation analysis was considered the most appropriate test. Moderation analysis was completed using bootstrapping due to the violation of normality. See Chapter 6 for full results.

Post Analysis and Dissemination

This study prospectively and proactively tried to address ethical concerns within the research design and protocols. These were discussed in detail above, but when cumulatively considered in retrospection, the following were successful in their application:

Attendance Protocol: This set out the protocol for reporting in and out of each research site to reduce the disruption to school activities and classes and to adhere to school/Youthreach security measures (Appendix 7).

Field Research Protocol: Two additional field researchers assisted with the data collection process. This was designed to offer help to any student that may have literacy issues, to answer any questions and watch the student's reactions and body language, for any signs of distress (Appendix 10).

Survey Questionnaire Checklist: This guaranteed the instructions were clear, accurate and identical for each research site. It ensured the students fully understood the survey

questions, understood there was no right or wrong answers, and were comfortable to ask questions. The students were reminded that they could withdraw at any stage (Appendix 7)

Debrief Sheet: A debrief sheet was handed to each student after completing the survey. This offered contact details of support services, if needed (Appendix 8).

School counsellor or pastoral guidance: Support services were on hand at each site on the day of data collection, for any student needing to avail of this service, as a result of their participation in the study.

Research Referral Form: This form was designed to safeguard any vulnerable students that scored excessively high on the AUDIT, Revised AUDIT and Children's Depression Inventory. In an exceedingly small percentage of students, this form was invoked and returned to the principal, for the safety of the student (Appendix 11).

Complaints Form: This form set out the formal procedure in the event of a complaint, so as the researcher could addressed any complaints in a formal and prompt manner. The researcher received no complaints either formal or informal (Appendix 12).

These measures were designed to meet the child protection and ethical obligations of the study. Overall, the safety and well-being of the students was maintained.

Overall, the survey results were aggregated for the purpose of this study, however, a personal report was produced for each participating site. The report was made available to the principal (Board of Governors). In addition, a poster was produced for each school and Youthreach centre reporting their own survey results. Due to the low number of participants in the two Youthreach centres, their results were aggregated, and one poster

was produced. The posters were designed to be displayed at each site, for the benefit of the participating students and their peers. Appendix 13 presents a sample poster.

3.5.2 Part 2 – Extracted secondary data on Alcohol-related harms

Methodology: collection of secondary data from ED presentations from two hospitals

The two hospitals are located on one site, in an urban suburb 19.3Km from the capital city of Dublin. The university hospital has 495 adult beds, with over 3,200 staff employed. It forms part of the Dublin Midlands Hospital Group, which provides services to over 1.2 million people (Tallaght University Hospital, 2020). The paediatric hospital has 67 beds and is governed by Children's Health Ireland. The reported secondary data relate to young people between the age of 12-18 years who presented at either the Paediatric Emergency Department (PED) (age 12-15 years) or the Adult Emergency Department (AED) (16-18 years), with acute conditions wholly or partially attributable to their personal consumption of alcohol. Anonymised secondary data were extracted from the hospitals data management system for the period 2009 to 2019.

Extraction of hospital data

To access anonymised Emergency Department (ED) presentations from two busy urban hospitals, contact was first made with the hospitals Research Ethics Committee. The Chairperson of the TUH/SJH Research Ethics Committee reviewed the ethics application and classified the study as a service evaluation. There were no ethical issues with proceeding. See Appendix 14 -REC: 2019-06 Chairman's Action letter. In addition, ethical approval was granted by the Ethics Committee of the School of Nursing, Trinity College Dublin in March 2020, see Appendix 15.

Data were retrieved from the hospitals symphony patient management system, by the Senior Application Support Analyst (SASA) from the Information, Communication, Technology (ICT) department. Contact was initially made with the SASA by email. This was followed by three meetings with the manager, to fully understand the type of data, the hospital records, the extraction methodology, agreement on the research sample and reported factors.

Anonymised secondary data on emergency department presentations spanned both paediatric ED services (age 12-15 years) and adult ED services (aged 16-18 years). An excel report extracted the relevant data capture fields for both paediatrics and adult ED attendances for 12–18-year age group, retrospectively for a 11-year period (2009-2019). Filters were applied using key alcohol search words and terms. The applied filters retrieved data involving two diagnosis fields; the first is information provided by the triage nurse called "presenting complaint". The second is the doctor's diagnosis called "diagnosis". In addition, filters were applied to the free text comment box called "triage comments". The free text comment box allowed the triage nurse to report freely further information on event related details - context, behaviours or medical observations relating to the alcohol-related harm/injury, for each presentation. See Appendix 16 for key search words and phrases.

To ensure the data were anonymised, the names and dates of birth were removed and replaced with a unique identification number (Unique ID). Duplications were filtered out by applying a unique identification number (ID) to each presentation. Each unique identification number was proceeded by -1, which represented one visit. The symphony data management system records multiple visits over a 30-day period only, with repeat

presentations indicated by -2, - 3, -4 after the unique identification number, which signified a young person had returned to the ED within a 30-day period with some relationship to the same complaint 2, 3, or 4 times. After 30 days repeat presenters register under a new unique ID, which is a limitation of the symphony system.

Eleven excel files were downloaded representing each year, spanning from 2009 to 2019 inclusively. It is very possible that data were omitted which did relate to alcohol-related harms due to the young person's consumption of alcohol, which was not captured within the excel files. This may be due to the omission of key search words or miss spelt errors when personnel input the data into the symphony management system. Based on the methodological approach utilised, the data provide a significant representation of the ED presentations, by young people, due to alcohol consumption, over an eleven-year period. Multiple variables make up the data set. An explanation of the specific variables and their coding are itemised below.

The main variables which make up the data set include:

Variable 1 - Repeat presentations

Within a 30-day period of the initial presentation, all repeat visits to the ED relating to the initial presentation are recorded on the symphony data management system as a repeat visit. After 30 days the system records a repeat visit as a new presentation.

Variable 2 - Yearly presentations

2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018 and 2019 inclusive.

Variable 3 - Emergency department

Paediatric emergency department or adult emergency department. Two hospitals located on one urban site.

Variable 4 - Arrival mode

The principal means by which a patient arrives at the Accident and Emergency department. There were six recoded modes:

- ambulance
- car
- taxi
- An Garda Síochána
- public transport
- walked

Variable 5 - Gender

Male or female

Variable 6 - Age

Age 12, 13, 14, 15, 16, 17 and 18 years old.

Variable 7 - Referral source

Relates to a person, organisation, hospital or entity that directs the patient for third party medical services, to the emergency departments. There were five main sources of referral:

- self
- An Garda Síochána
- other hospitals or clinical departments
- general practitioner (GP)
- other (other was not defined on the symphony management system)

Variable 8 - Triage category

The patient is assigned a triage category based on the results of an initial assessment by medical or nursing staff in the ED. The triage category (see Table 10) is used to determine the patient's priority for treatment and to inform the patient of their waiting time (HSE, 2021)

Table 10: Triage Categories

Red Triage category	1	Immediate	
Orange Triage category	2	Very urgent	≤10 minutes
Yellow Triage category	3	Urgent	≤60 minutes
Green Triage category	4	Standard	≤120 minutes
Blue Triage category	5	Non-urgent	≤240 minutes
Source: Irish Children's Triage System (2nd Edition, January 2021)			

Variable 9 - Presenting complaint

The primary symptom that a patient states as the reason for seeking medical advice/care at triage stage. Presenting complaints have been recoded and reduced to ten categories:

- collapse
- laceration/wound/injury
- ingestion
- pain
- intoxication/overdose
- convulsions/seizures
- respiratory/heart
- psychosocial

- did not wait
- other

The category "laceration/wound/injury" includes presenting complaints like soft tissue injury, burns, abrasions, sprains, bruising, falls, fractures. The category called "other" includes presenting complaints like dizziness, fever, weakness, nausea, flu like symptoms, confusion and weakness.

Variable 10 - Diagnosis

The process whereby a medical doctor identifies an unforeseen/unexpected illness, condition or injury from the signs and symptoms after a health history, physical exam and possibly further tests while the patient is attending the emergency department. Diagnosis has been recoded and reduced to eleven categories:

- alcohol excess/intoxication/overdose
- laceration/wound/injury
- did not wait
- no diagnosis available (NDA)
- convulsions/seizures
- ingestion
- respiratory/heart
- psychosocial
- collapse
- normal clinical exam
- other

The category called "other" includes diagnosis including non-accidental injury, tonsillitis, back pain, orthopaedic problems, constipation, gastritis, chest pain, syncope, migraine, and appendicitis.

Variable 11 - Discharge outcome

Discharge outcome is the decision to release the patient from the care of the ED and the ultimate decision/outcome on where to transition the patient to. The discharge outcomes were recoded and reduced to eight categories:

- admitted to hospital
- discharged
- did not wait
- referred to clinic/day care services
- referred to GP
- referred to social worker
- refused treatment/no follow up
- not defined

Variable 12 - Discharge Destination

The specific destination the patient will transition to after discharge from ED. The discharge destinations were recoded and reduced to three categories:

- hospital/clinic
- home
- other ("other" relates to don't know, missing data and not yet allocated)

Variable 13 - Free text Comment Box

The final variable was the free text comment box which was populated by the triage nurse for each presentation. The text combines event-related details relayed by the patient, paramedics, An Garda Síochána, family or friends, and the observations of the triage nurse.

Data audit

Initially, the excel files were checked for duplications based on each presentation being assigned a unique identifying number, for the purpose of anonymity. This was achieved by using the excel conditional formatting function in Microsoft office, on all unique identifying numbers within the column. Duplications were found and interrogated to ensure distinctiveness. Duplications were highlighted to preserve the authenticity of the supplied data, in excel format. In addition, data were retrieved which did not directly relate to the young person sustaining an alcohol-related harm, wholly or partially attributable to their personal consumption of alcohol. This was identified through the "triage comments". Data were included if the filter terms were identified within the "triage diagnosis", "doctor's diagnosis" or "triage comments". However, on closer inspection of all the "triage comments", not all the data were applicable. The most common erroneous inclusion was the comment "denies taking alcohol". These data was highlighted only to preserve the authenticity of the supplied data, in excel format. All variables were recoded, and an upload file prepared for export to SPSS. A 5% audit was completed to ensure the excel files had imported correctly into IBM SPSS V26. The audit examined 66 cases across 14 factors (924 data points) and found the data to be 100% correct.

Once an SPSS file had been created, duplications were then removed. The data set was then recoded and filtered to ensure only those that had consumed alcohol were included in any further analysis (alcohol taken – Yes/No), removing the erroneous inclusions. This process was intended to preserve the integrity of the original secondary data retrieved, while guaranteeing only the relevant data were included for further analysis.

Data Analysis (Quantitative with a nesting qualitative strategy)

The variables (1-12 as described above) were mainly categorical in nature. So, the data were analysed in the form of frequency counts across categories or levels. Observing how many young people presenting at the hospital emergency departments fell into certain categories, across the variables. By completing Chi-Square test for independence, it compared the overall differences in the categories between the expected values if there was no association and the observed frequencies (Field, 2018). An assumption of chi-square is a minimum of 5 or greater in the expected cell frequency, or when the categorical variable is multinomial (three or more groups) then 80% of cells have expected frequencies of 5 or more (Pallant, 2013). Where the assumptions were violated, then Fishers exact test were conducted.

The details recorded in the free text comment box “triage comments” (variable 13 as described above) revealed the event-related complexities and human element behind the alcohol-related presentations, which may have been lost through purely quantitative analysis. So, the triage comments were analysed both quantitatively and qualitatively to maximise the benefits of a nested strategy, gaining a more comprehensive perspective than using the predominant quantitative method only, which had its limitations.

The triage nurse inserted triage comments relating to each presentation, offering valuable event-related context and background to the patient's alcohol-related injury/condition. A qualitative description design was employed, using content analysis as advocated by Graneheim and Lundman (2004); Stemler (2015); Wilkinson (2000). Categories were identified at a semantic or explicit level, from the observed history and perspectives of the nursing personnel. This was achieved by a recursive process of colour coding and recoding the "triage comments" within the excel files across the eleven years of data. This approach may be perceived as simplistic or superficial without theoretical confines. However, probing underlying assumptions and conceptual ideas at a more latent level was not appropriate, given the factual data under analysis and the main aims of the research. The approach was thorough, authentic and quantified on the basis of prevalence. Prevalence related to the number of triage comments (number of presentations by young people) relevant to a particular experience or condition which was identified as a risk category (Howitt & Cramer, 2017).

The results derived from the triage comments were presented as individual case histories, per risk category (see Chapter 7, section 7.6) which reflected the exact details provided for that particular presentation. The quantitative results (frequencies and chi-square tests) derived from the triage comments were reported by risk category, by paediatric emergency department, by adult emergency department and by gender (see Chapter 7, section 7.4 and 7.5)

Validity and Reliability

Content analysis is a systematic and empirical method of classifying and coding text material (Burla et al., 2008) and can be ratified as a consistent method, using

intercoder reliability assessment. A random selection of free text comments was chosen, and an independent researcher conducted their own analysis. It revealed a high degree of intercoder agreement and consistency across the two coders, offering reliability in the coding process undertaken (Lacy et al., 2015). Increasing the credibility and reliability of the selected categories.

3.6 Chapter Summary

This chapter reviewed the positivist philosophical approach and the theoretical perspective of the social learning theory framework, employed in this study. It endeavoured to identify and discuss their main propositions and reflect on their application to this study. In addition, the social learning theory offered examples of the diverse use of the framework within multiple social science arenas. Finally, relating the main concepts of the social learning theory to the independent and dependent variables (Creswell & Creswell, 2017). A comprehensive discussion is presented on the essential methods used in this concurrent multiple-methods convergent parallel design, which incorporated the main components of the cross-sectional survey design and the secondary emergency department hospital data. The next chapter presents the findings of the school and Youthreach survey (Part 1), using descriptive and basic inferential analysis.

Chapter 4 – Descriptive Findings of School Survey Data

4.1 Introduction

The aim of the study is to examine alcohol use, binge drinking and alcohol-related harms; exploring risk and protective factors among young people living in urban disadvantage. This chapter will offer specific details of the study participants; the recruitment rate, demographic information, alcohol behaviours, various health related quality of life factors such as physical and psychological well-being, parental and peer relations, school environment, leisure activities and depression levels. These will be reported through descriptive and basic inferential statistics.

4.2 Description of the sample

A total of 307 young people aged between 15-17 years participated in the survey. The average age was 15.96 years with a standard deviation of .66. The participants identified as 144 (46.9%) male, 159 (51.8%) female and 3 (1%) as other. Though it is important to recognise all gender identifications, for the statistical purposes of this study, all gender comparisons will be between males and females. This rationale is based on ethical principles, as reporting on such a small sample of "other" participants (n=3) separately may compromise their anonymity. Therefore, figures in total columns may read higher than the combined figure of males and females, as they also include participants that identified as "other".

A substantial proportion of young people reported they were of white race/ethnicity (n=258, 84.6%), with a smaller proportion reporting black race/ethnicity (n= 38, 12.5%) and the remaining young people reporting Asian or bi-racial/ethnicity (n=9, 2.9%). A high proportion of the young people lived with their mother, father, brothers

and/or sisters and were born in Ireland. Nearly a quarter of participants reported suffering with a medical condition (n=74), with asthma being reported by 50% of those (n=36) followed by eczema (n=7) and asthma and eczema (n=5). Various other diagnoses make up the remaining of those suffering with a medical condition (n=26). See Appendix 17 for demographic details and other reported medical conditions.

Disadvantaged Status

All participants were either attending a DEIS band 1 post-primary school or a Youthreach centre located in an urban disadvantaged region. To assess the perceptions of the participant's disadvantaged status, they were asked "how well off is your family compared to other families in this country? The majority reported (n=267) that they were about the same or better off, compared to other families, in this country. The results are reported in Table 11. The highest level of education attained by their parents are reported in Table 12.

Table 11: Frequencies of perceived wealth, by gender

Wealth compared to other families (n=302)				
	Male n, %	Female n, %	Total n, %	Mann Whitney-U
Very much better off	9, 6.3%	7, 4.5%	16, 5.3%	*p* = .059
Much better off	21, 14.7%	14, 9%	35, 11.6%	
Better off	37, 25.9%	30, 19.4%	68, 22.5%	
About the same	58, 40.6%	87, 56.1%	148, 49%	
Less well-off	15, 10.5%	14, 9%	29, 9.6%	
Much less well-off	3, 2.1%	3, 1.9%	6, 2%	
Very much less well-off	0, 0%	0, 0%	0, 0%	
No significant differences between males and females at p≤0.05				

Table 12: Highest level of school of father and mother

Highest level of Schooling		
Highest level of Schooling (father) (n=303)		
	n	%
Completed primary school or less	20	6.6%
Some secondary school	61	20.1%
Completed secondary school	84	27.7%
Some college or university	24	7.9%

Completed college or university	48	15.8%
Don't know	60	19.8%
Does not apply	6	2%

Highest level of Schooling (mother) (n=305)		
Completed primary school or less	14	4.6%
Some secondary school	54	17.7%
Completed secondary school	79	25.9%
Some college or university	37	12.1%
Completed college or university	82	26.9%
Don't know	37	12.1%
Does not apply	2	.7%

4.3 Alcohol behaviours of young people.

The alcohol behaviours of young people are reported over numerous domains including prevalence, frequency, AUDIT scores, volume of standard drinks consumed, binge drinking, last 7 days consumption by alcohol product, off-premises purchases (e.g., shop or petrol station), on-premises purchases (e.g., bar, restaurant or nightclub), context of drinking, motivations to drink, consequences of drinking and ease of access to alcohol. All measures are compared across males and females. Young people were asked to complete all survey questions.

The Alcohol Use Disorders Identification Tool (AUDIT) contains ten questions. Three questions on alcohol consumption, three questions on alcohol dependence and four questions on alcohol-related problems, which offers sub-scores along with a total score across the ten questions. Questions 1 to 8 are based on a likert scale of five options, questions 9 and 10 are based on a likert scale of three options. Total Scores are calculated and assigned to four risk level categories from (i) low risk level, (ii) risky or hazardous level, (iii) high risk or harmful level and (iv) high-risk with possible dependence level. As part of this measure young people were asked "How often do you have a drink containing alcohol?" They were offered the following options to choose

from (0) never, (1) monthly or less, (2) 2-4 times a month, (3) 2-3 times a week, (4) 4 or more times a week. Over one quarter, 27% (n=83) reported never using alcohol and almost three quarters 73% (n=222) reported using alcohol of varying frequencies.

The data for the AUDIT measure were not normally distributed (Kolmogorov-Smirnov test) and violated the assumption of an independent samples t-test, therefore an alternative non-parametric Mann-Whitney U test was conducted, to examine gender differences across the alcohol behaviours of young people consuming alcohol. Significance level was set at $p \leq .05$. Confidence level was 95%. The findings show significant gender differences on two specific alcohol behaviours (AUDIT A2 and A10) out of the ten surveyed. See Table 13 below for AUDIT frequencies by gender and total.

Table 13: AUDIT frequencies by gender and total

	Male n, %	**Female** n, %	**Total** n, %	**Mann-Whitney U**
A1. How often do you drink? (n=305)				
Never	44, 30.8%	38, 24.1%	83, 27.2%	*p* = .33
Monthly or less	64, 44.8%	78, 49.4%	144, 47.2%	
2-4 times a month	29, 20.3%	38, 24.1%	67, 22%	
2-3 times a week	4, 2.8%	4, 2.5%	9, 3%	
4 or more times a week	2, 1.4%	0, 0%	2, .7%	
A2. How many drinks containing alcohol do you have on a typical day when you are drinking? (n=228)				
1 or 2	23, 22.5%	40, 32%	64, 27.8%	***p* =.025***
3 or 4	24, 23.5%	32, 25.6%	57, 24.8%	Male mean rank=124.49
5 or 6	30, 29.4%	34, 27.2%	64, 27.8%	Female mean rank=105.44
7 to 9	11, 10.8%	15, 12%	27, 11.7%	*U*=5305.50
10 or more	14, 13.7%	4, 3.2%	18, 7.8%	z= -2.242
A3. How often do you have six or more drinks on one occasion? (n=305)				
Never	75, 52.4%	89, 56.3%	165, 54.1%	*p* = .627
Less than monthly	40, 28%	37, 23.4%	79, 25.9%	
Monthly	22, 15.4%	26, 16.5%	49, 16.1%	

Weekly	5, 3.5%	6, 3.8%	11, 3.6%	
Daily or almost daily	1, .7%	0, 0%	1, .3%	
A4. How often in the last year have you found you are unable to stop drinking once you started? (n=305)				
Never	124, 86.7%	138, 87.3%	266, 87.2%	*p*= .816
Less than monthly	12, 8.4%	16, 10.1%	28, 9.2%	
Monthly	6, 4.2%	3, 1.9%	9, 3%	
Weekly	0, 0%	1, .6%	1, .3%	
Daily or almost daily	1, .7%	0, 0%	1, .3%	
A5. How often in the last year have you failed to do what was normally expected of you because of drinking? (n=304)				
Never	127, 89.4%	144, 91.1%	275, 90.5%	*p* = .665
Less than monthly	13, 9.2%	9, 5.7%	22, 7.2%	
Monthly	2, 1.4%	4, 2.5%	6, 2%	
Weekly	0, 0%	1, .6%	1, .3%	
Daily or almost daily	0, 0%	0, 0%	0, 0%	
A6. Needed a first drink in the morning, after a heavy drinking session? (n=305)				
Never	130, 90.9%	151, 95.6%	285, 93.4%	*p* = .120
Less than monthly	9, 6.3%	1, .6%	10, 3.3%	
Monthly	2, 1.4%	5, 3.2%	7, 2.3%	
Weekly	0, 0%	1 .6%	1, .3%	
Daily or almost daily	2, 1.4%	0, 0%	2, .7%	
A7. Feeling of guilt or remorse after drinking? (n=306)				
Never	105, 73.4%	111, 69.8%	219, 71.6%	*p* = .518
Less than monthly	25, 17.5%	34, 21.4%	60, 19.6%	
Monthly	11, 7.7%	8, 5%	19, 6.2%	
Weekly	1, .7%	5, 3.1%	6, 2%	
Daily or almost daily	1, .7%	1, .6%	2, .7%	
A8. Unable to remember what happened the night before, because of your drinking? (n=306)				
Never	96, 67.1%	111, 69.8%	210, 68.6%	*p* = .845
Less than monthly	35, 24.5%	27, 17%	62, 20.3%	
Monthly	7, 4.9%	14, 8.8%	22, 7.2%	
Weekly	1, .7%	6, 3.8%	7, 2.3%	
Daily or almost daily	4, 2.8%	1, .6%	5, 1.6%	

A9. Have you or someone else been injured because of your drinking? (n=305)				
No	111, 78.2%	132, 83%	247, 81%	*p* = .286
Yes, but not in the last year	10, 7%	9, 5.7%	19, 6.2%	
Yes, during the last year	21, 14.8%	18, 11.3%	39, 12.8%	
A10. Has a relative, friend, or health care worker been concerned about your drinking? (n=306)				
No	131, 91.6	155, 97.5%	290, 94.8%	***p* = .022***
Yes, but not the last year	3, 2.1%	2, 1.3%	5, 1.6%	Male mean rank=156.22
Yes, during the last year	8, 5.6%	2, 1.3%	10, 3.3%	Female mean rank=147.25
				U=10693.50, *z* =-2.295
****Significant at p ≤.05***				

The findings show significant gender differences on two specific alcohol behaviours (AUDIT A2 and A10) out of the ten behaviours surveyed. Males reported consuming a higher number of alcoholic drinks on a typical day when drinking (median 5 or 6 drinks) than females (median 3 or 4 drinks). Furthermore, a higher proportion of males reported a relative, friend, doctor or other health care worker had been concerned about their drinking or suggested they cut down. See Table 14 below for summary of AUDIT scores by three domains – alcohol consumption, alcohol dependence and alcohol problems. See Table 15 for summary by gender.

Table 14: (a) Summary of AUDIT scores by 3 domains and total.

	Consumption (n=306)	**Dependence (n=306)**	**Alcohol-Problems (n=306)**	**Total (n=306)**
Mean	2.82	.42	1.67	4.91
Median	2.00	.00	.00	3.00
Mode	.00	.00	.00	.00
Std. Deviation	2.62	.995	2.65	5.38
Minimum	.00	.00	.00	.00
Maximum	12.00	6.00	14.00	26.00

Table 15: Summary of 3 domains and total AUDIT scores, by Gender

	Consumption		Dependence		Alcohol-Problems		Total	
	Male (n=143)	Female (n=159)	Male (n=143)	Female (n=159)	Male (n=143)	Female (n=159)	Male (n=143)	Female (n=159)
Mean	2.92	2.73	.475	.37	1.89	1.50	5.20	4.66
Median	2	2	.00	.0	.00	.00	3	3
Mode	.0	.0	.00	.0	.00	.00	.00	.00
Std. D.	2.819	2.443	1.053	.951	2.863	2.467	5.790	5.041
Minimum	.0	.0	.0	.0	.0	.0	.0	.0
Maximum	12	10	6	6	14	14	26	26

To analyse gender differences on the scores of the three AUDIT domains, along with total AUDIT scores a Mann-Whitney U test was conducted. The findings suggest there is no significant differences between males and females on alcohol consumption scores (p=.915), alcohol dependence scores (p=.248), alcohol-related problem scores (p=.453) and total AUDIT scores (p=.829). See Appendix 18 for Table of gender differences in Audit scores. See Table 16 below for frequencies by risk categories based on total AUDIT scores, by gender.

Table 16: Frequencies by risk category on total Audit scores , by gender

	Male n, %	Female n, %	Population n, %	Category
Score 0-7	103, 72%	119, 74.8%	225, 73.5%	Low Risk
Score 8-15	32, 22.4%	33, 20.8%	66, 21.5%	Risky or Hazardous
Score 16-19	3, 2.1%	5, 3.1%	8, 2.7%	High risk and harmful
Score 20 or more	5, 3.5%	2, 1.2%	7, 2.3%	High risk/dependency
	143, 100%	159, 100%	306, 100%	

Revised AUDIT Measure

The Revised AUDIT measure considers alcohol consumption by young people in terms of actual number of standard drinks consumed (A2r). The responses were then grouped into one of five options; 1 or 2 drinks, 3 or 4 drinks, 5 or 6 drinks, 7 to 9 drinks and 10 or more drinks. In addition, young people were asked during the past 6 months,

what was the average number of days per month they would binge drink? (A3r). A revised definition of binge drinking was used; seven or more standard drinks for males and six standard drinks for females, over a 2-hour period. Young people were offered six options ranging from "never" to "13 or more times" per month. See Table 17 below for frequencies by gender and total.

Table 17: Frequencies of Revised AUDIT R2 and R3, by gender.

	Male n, %	**Female** n, %	**Total** n, %	**Mann Whitney-U**
R2. How many standard drinks do you tend to have on a day when you drink? (n=227)				
1 or 2	17, 17.2%	22, 17.7%	40, 17.7 %	*p* = .076
3 or 4	13, 13.1%	29, 23.4%	42, 18.6%	
5 or 6	16, 16.2%	26, 21%	43, 19%	
7 to 9	20, 20.2%	16, 12.9%	36, 15.9%	
10 or more	33, 33.3%	31, 25%	65, 28.8%	
R3. During the past six months what is the average number of days per month you would binge drink? (Binge drinking =seven or more standard drinks for males and six standard drinks for females, over a 2-hour period) (n=303)				
Never	80, 56.3%	94, 59.9%	176, 58.1%	*p* = .692
Less than once per month	39, 27.5%	34, 21.7%	74, 24.4%	
Between 1 and 4 times	14, 9.9%	21, 13.4%	36, 11.9%	
Between 5 and 8 times	5, 3.5%	4, 2.5%	9, 3%	
Between 9 and 12 times	1, .7%	4, 2.5%	5, 1.7%	
13 or more times	3, 2.1%	0, 0%	3, 1%	

Significant at p <.05

Overall, 42% of disadvantaged young people reported they were binge drinking over the past six months. (Binge drinking =seven or more standard drinks for males and six standard drinks for females, over a 2-hour period). Overall, nearly 45% reported drinking 7 to 9 standard drinks or more on a day when drinking, with no gender differences.

ESPAD 2015 Subsection 008

To examine recent alcohol consumption using the ESPAD 2015 Subsection 008, young people were asked on how many days in the last 7 days they consumed alcohol. Young people indicated their answer by inserting the number of days in the box provided, e.g., 0 = none, 7 = every day. Young people were asked in the last 7 days how many glasses of beer, wine, spirits or mixed drinks they had consumed. They indicated their answer by placing a number in the box provided for each alcohol group, e.g., 0= have not had any beer, 0= have not had any wine, 0=have not had any spirits, 0= have not had any mixed drinks. The findings are reported in Table 18.

Table 18: Frequencies of alcohol consumption in the last seven days, by gender

ESPAD 008	Male n, %	Female n, %	Total n, %	Mann-Whitney U
(a) In the last 7 days how many days have you had an alcoholic drink? (n=306)				
None	109, 76.2%	114, 71.7%	225, 73.5%	*p* =.348
1 day	24, 16.8%	30, 18.9%	56, 18.3%	
2 days	9, 6.3%	13, 8.2%	22, 7.2%	
3 days	1, .7%	2, 1.3%	3, 1%	
(b) How many bottles or glasses of beer have you had in the last seven days? (n=304)				
No beer	118, 83.1%	139, 88%	259, 85.2%	*p* = .219
1 beer	1, .7%	4, 2.5%	5, 1.6%	
2 beers	6, 4.2%	1, .6%	9, 3%	
3 beers	5, 3.5%	3, 1.9%	8, 2.6%	
4 beers	3, 2.1%	3, 1.9%	6, 2%	
5 beers	1, .7%	4, 2.5%	5, 1.6%	
6 beers	3, 2.1%	2, 1.3%	5, 1.6%	
7 beers	2, 1.4%	1, .6%	3, 1%	
8 beers	1, .7%	1, .6%	2, .7%	
10 beers	1, .7%	0, 0%	1, .3%	
13 beers	1, .7%	0, 0%	1, .3%	
(c) How many glasses of wine or sparkling wine have you had in the last seven days? (n=303)				
No wine	140, 99.3%	150, 94.9%	294, 97%	***p* = .027***
1 glass	1, .7%	4, 2.5%	5, 1.7%	Male mean rank =146.55

2 glasses	0, 0%	2, 1.3%	2, .7%	Female mean rank= 153.08
3 glasses	0, 0%	1, .6%	1, .3%	*U* =10652
4 glasses	0, 0%	1, .6%	1, .3%	z = -2.205
(d) How many glasses of spirits have you had in the last seven days? (n=304)				
No spirits	120, 84.5%	130, 82.3%	253, 83.2%	*p* = .588
1 glass	10, 7%	7, 4.4%	17, 5.6%	
2 glasses	3, 2.1%	7, 4.4%	11, 3.6%	
3 glasses	2, 1.4%	3, 1.9%	5, 1.6%	
4 glasses	1, .7%	6, 3.8%	7, 2.3%	
5 glasses	0, 0%	1, .6%	1, .3%	
6 glasses	3, 2.1%	2, 1.3%	5, 1.6%	
8 glasses	1, .7%	0, 0%	1, .3%	
9 glasses	1, .7%	0, 0%	1, .3%	
12 glasses	0, 0%	1, .6%	1, .3%	
15 glasses	0, 0%	1, .6%	1, .3%	
18 glasses	1, .7%	0, 0%	1, .3%	
(e) How many glasses of mixed drinks have you had in the last seven days? (n=303)				
No mixed drinks	125, 88.7%	129, 81.6%	257, 84.8%	*p* = .072
1 glass	6, 4.3%	6, 3.8%	13, 4.3%	
2 glasses	3, 2.1%	7, 4.4%	10, 3.3%	
3 glasses	2, 1.4%	3, 1.9%	5, 1.7%	
4 glasses	2, 1.4%	3, 1.9%	5, 1.7%	
5 glasses	3, 2.1%	6, 3.8%	9, 3%	
6 glasses	0, 0%	2, 1.3%	2, .7%	
7 glasses	0, 0%	1, .6%	1, .3%	
8 glasses	0, 0%	1, .6%	1, .3%	

Significant at p <.05

The findings report 26.5% of young people reported consuming an alcoholic drink during the last 7 days. A Mann-Whitney U test suggests no significant differences between males and females in the number of days they consumed alcohol, during the last 7 days. Nearly 17% reported consuming spirits, during the last 7 days, 15% reported consuming mixed drinks during the last 7 days, nearly 15%

reported consuming beer during the last 7 days. Only 3% reported consuming wine or sparkling wine during the last 7 days. A Mann-Whitney U test suggests no significant gender differences in how many glasses of beer, spirits or mixed drinks young people consumed, during the last 7 days. A significant gender difference was noted in how many glasses of wine or sparkling wine was consumed by females (mean rank = 153.08, n=158) and males (mean rank = 146.55, n= 141), U = 10652, z= 2.205, p=.027, during the last 7 days.

ESPAD 2015 Subsections 009 & 10

To ascertain if young people are purchasing alcoholic drinks (off-premises and on-premises) for their own consumption, they were asked which type of drinks they had purchased, (beer, cider, alcopops, wine and spirits) on how many occasions, over the last 30 days (if any). The ESPAD 2015 Subsection 009 and 10 offered 5 different drink types and asked the number of occasions each drink type was purchased in the past 30 days. Young people were offered a range of 6 specified number of occasions, from 0 occasions to 20 or more occasions, per drink type. Table 19 provides the frequencies of the number of occasions young people purchased specific alcohol drinks from shops, petrol stations (off- premises) by gender. Table 20 provides the frequencies of the number of occasions young people drank specific alcohol drinks in pubs, nightclubs (on- premises) in the past 30 days, by gender.

Table 19: (a) Frequencies of the number of occasions alcohol was purchased (off-premises) in the last 30 days, by drink type, by gender

ESPAD 009	**Male** **n, %**	**Female** **n, %**	**Total** **n, %**	**Mann Whitney-U**
(a) On how many occasions have you purchased beer? (n = 295)				
0 occasions	114, 80.9%	146, 97.3%	262, 88.8%	***p* = .000***
1-2 occasions	17, 12.1%	4, 2.7%	23, 7.8%	Male mean rank =158.50
3-5 occasions	5, 3.5%	0, 0%	5, 1.7%	Female mean rank=134.25
6-9 occasions	4, 2.8%	0, 0%	4, 1.4%	*U* = 8812.00
10 – 19 occasions	1, .7%	0, 0%	1, .3%	*z* = -4.592
(b) On how many occasions have you purchased cider? (n=295)				
0 occasions	108, 77.1%	132, 87.4%	243, 82.4%	***p* = .012***
1-2 occasions	14, 10%	14, 9.3%	28, 9.5%	Male mean rank =154.52
3-5 occasions	9, 6.4%	4, 2.6%	14, 4.7%	Female mean rank=138.10
6-9 occasions	5, 3.6%	1, .7%	6, 2%	*U* = 9377.50
10-19 occasions	2, 1.4%	0, 0%	2, .7%	*z* = -2.512
20 or more occasions	2, 1.4%	0, 0%	2, .7%	
(c) On how many occasions have your purchased alcopops? (n=292)				
0 occasions	126, 91.3%	110, 73.3%	239, 81.8%	***p* = .000***
1-2 occasions	9, 6.5%	19, 12.7%	29, 9.9%	Male mean rank =130.63
3-5 occasions	1, .7%	14, 9.3%	15, 5.1%	Female mean rank=157.26
6-9 occasions	1, .7%	5, 3.3%	6, 2.1%	*U* = 8435.50
10-19 occasions	1, .7%	1, .7%	2, .7%	*z* = -4.048
20 or more occasions	0, 0%	1, .7%	1, .3%	
(d) On how many occasions have you purchased wine? (n=288)				
0 occasions	134, 98.5%	139, 93.9%	277, 96.2%	*p* = .159
1-2 occasions	1, .7%	7, 4.7%	8, 2.8%	
3-5 occasions	0, 0%	1, .7%	1, .3%	
6-9 occasions	0, 0%	0, 0%	0, 0%	
10-19 occasions	1, .7%	0, 0%	1, .3%	
20 or more occasions	0, 0%	0, 0%	0, 0%	
(e) On how many occasions have you purchased spirits? (n=296)				
0 occasions	109, 78.4%	117, 76.5%	228, 77%	*p* = .696
1-2 occasions	19, 13.7%	21, 13.7%	42, 14.2%	
3-5 occasions	3, 2.2%	9, 5.9%	12, 4.1%	
6-9 occasions	6, 4.3%	5, 3.1%	11, 3.7%	
10-19 occasions	2, 1.4%	0, 0%	2, .7%	
20 or more occasions	0, 0%	1, .7%	1, .3%	

Significant at p <.05

The above findings indicate that 23% (n=68) of young people purchased spirits from a shop, petrol station (off-premises) on one or more occasion, in the past 30 days, for their own consumption. A Mann-Whitney U test suggests no gender differences across males and females in this behaviour. Furthermore, 18% (n=53) of young people reported purchasing alcopops (off-premises) on one or more occasion, in the past 30 days, for their own consumption. A Mann-Whitney U test suggests a significantly higher proportion of females (mean rank = 157.26) than males (mean rank = 130.63) participated in this behaviour. Interestingly, 17.6% (n= 52) of young people purchased cider (off-premises) on more than one occasion, in the past 30 days, for their own consumption. A Mann-Whitney U test suggests a significantly higher proportion of males (mean rank =154.52) than females (mean rank=138.10) participated in this behaviour.

Table 20: Frequencies of the number of occasions young people drank alcohol in a pub or nightclub (on-premises) in the last 30 days, by gender

ESPAD 10	**Male n, %**	**Female n, %**	**Total n, %**	**Mann-Whitney U**
(a) On how many occasions have you drank beer in a pub, nightclub? (n=291)				
0 occasions	109, 79.6%	142, 94.7%	253, 86.9%	***p* = .000***
1-2 occasions	18, 13.1%	8, 5.3%	27, 9.3%	Male mean rank= 155.62
3-5 occasions	7, 5.1%	0, 0%	8, 2.7%	Female mean rank=133.99
6-9 occasions	2, 1.5%	0, 0%	2, .7%	*U* = 8683 *z* = -3.944
(b) On how many occasions have you drank cider in a pub, nightclub? (n=294)				
0 occasions	102, 73.4%	135, 89.4%	240, 81.6%	***p* = .000***
1-2 occasions	21, 15.1%	12, 7.9%	33, 11.2%	Male mean rank= 158.06
3-5 occasions	11, 7.9%	4, 2.6%	15, 5.1%	Female mean rank=133.94
6-9 occasions	2, 1.4%	0, 0%	3, 1%	*U* = 8749

10-19 occasions	2, 1.4%	0, 0%	2, .7%	*z* = -3.637
20 or more occasions	1, .7%	0, 0%	1, .3%	
(c) On how many occasions have you drank alcopops in a pub, nightclub? (n=287)				
0 occasions	124, 92.5%	100, 67.1%	226, 78.7%	***p* = .000***
1-2 occasions	7, 5.2%	32, 21.5%	41, 14.3%	Male mean rank=122.96
3-5 occasions	2, 1.5%	10, 6.7%	12, 4.2%	Female mean rank=159.13
6-9 occasions	1, .7%	6, 4%	7, 2.4%	*U* = 7431
10-19 occasions	0, 0%	1, .7%	1, .3%	*z* = -5.243
(d) On how many occasions have you drank wine in a pub, nightclub? (n=285)				
0 occasions	131, 97.8%	141, 95.9%	276, 96.8%	*p* = .390
1-2 occasions	2, 1.5%	6, 4.1%	8, 2.8%	
3-5 occasions	1, .7%	0, 0%	1, .4%	
(e) On how many occasions have you drank spirits in a pub, nightclub? (n=289)				
0 occasions	111, 82.8%	121, 80.1%	235, 81.3%	*p* = .512
1-2 occasions	15, 11.2%	16, 10.6%	32, 11.1%	
3-5 occasions	5, 3.7%	9, 6%	14, 4.8%	
6-9 occasions	1, .7%	5, 3.3%	6, 2.1%	
20 or more occasions	2, 1.5%	0, 0%	2, .7%	

Significant at p <.05

Table 20 provides the findings on the frequencies of the number of occasions young people drank specific alcohol drinks in pubs, nightclubs, restaurants (on-premises) in the past 30 days, by gender. A significantly higher proportion of males reported drinking beer (mean rank =155.62) and cider (mean rank= 158.06) on more occasion, on premises, than females (mean rank = 133.99 and 133.94 respectively). Females reported significantly higher proportions of occasions (mean rank = 159.13)

drinking alcopops on premises, than males (mean rank=122.96). Interestingly, considering the age profile of the sample, a slightly higher percentage of young people reported drinking beer, cider and alcopops on-premises than off-premises purchases for the same products, in the last 30 days.

ESPAD 2015 Subsection 11

This section reports the differences in males and females in the context in which they consume alcohol (if any). Young people reported on the last day they drank alcohol, where they were when they were drinking. They were given seven options including: I never drank alcohol, at home, at someone else's home, out on the street, in a park, or other open area, bar or pub, nightclub or restaurant. They were also offered a free text section to describe any other places. Young people were requested to mark all options that applied. Table 21 below presents the results.

Table 21: Frequencies by gender on the context of alcohol consumption, on the last day of drinking

ESPAD 11	Male n, %	Female n, %	Total n, %
On the last day you drank alcohol, where were you when you drank? (n=304).			
I never drank alcohol	39, 27.5%	33, 20.9%	73, 24%
At home	21, 14.8%	26, 16.5%	47, 15.65%
At someone else's home (SEH)	27, 19%	31, 19.6%	58, 19.1%
Out on the street or park	22, 15.5%	15, 9.5%	37, 12.2%
At a bar or pub	7, 4.9%	14, 8.9%	21, 6.9%
In a nightclub	10, 7%	8, 5.1%	18, 5.9%
In a restaurant	1, .7%	5, 3.2%	6, 2%
Other place	3, 2.1%	10, 6.3%	13, 4.3%
At home/ on street	3, 2.1%	1, .6%	4, 1.3%
SEH / on street	3, 2.1%	4, 2.5%	7, 2.3%
At home/ SEH	1, .7%	2, 1.3%	3, 1%
SEH / bar or pub	1, .7%	1, .6%	2, .7%
SEH /nightclub	2, 1.4%	1, .6%	3, 1%
At home/ bar or pub	2, 1.4%	1, .6%	3, 1%
Bar or pub/nightclub	0, 0%	1, .6%	1, .3%
SEH/bar or pub/nightclub	0. 0%	5, 3.2%	5, 1.6%

The findings of Table 21 report 19.1% of young people consumed alcohol in someone else's home, on the last day they drank. There were no reported gender differences between males and females in this location, based on their last day of drinking. Furthermore, 9.2% of young people reported multiple locations of (more than one context) when consuming alcohol, on the last day of drinking.

ESPAD 2015 Subsection 012

ESPAD subsection 012 contains statements relating to possible motivations or reasons why young people may consume alcohol. Young people were asked to consider 12 statements including; because it helps me enjoy a party, to fit in with a group, to forget about my problems. They were offered 5 options to choose from and asked how often

they thought each statement applied to them over the last 12 months. (1) never, (2) seldom, (3) sometimes, (4) mostly and (5) always. Normality by gender was assessed using histograms and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000 across all variables, which violates the assumptions of normality. Therefore, a Mann-Whitney U test was conducted to compare genders findings. The findings are shown in Table 22.

Table 22: Frequencies on motivations of alcohol consumption in the last 12 months, by gender

ESPAD 12	**Male** n, %	**Female** n, %	**Total** n, %	**Mann-Whitney U**
(a) How often did you drink because it helps you enjoy a party? (n=304).				
Never	56, 39.7%	60, 37.7%	117, 38.5%	*p* = .646
Seldom	16, 11.3%	23, 14.5%	39, 12.8%	
Sometimes	25, 17.7%	34, 21.4%	60, 19.7%	
Mostly	29, 20.6%	33, 20.8%	62, 20.4%	
Always	15, 10.6%	9, 5.7%	25, 8.2%	
(b) How often did you drink because it helps when you feel depressed or nervous? (n=301).				
Never	102, 72.9%	115, 73.2%	220, 73.1%	*p* = .961
Seldom	17, 12.1%	16, 10.2%	33, 11%	
Sometimes	9, 6.4%	15, 9.6%	24, 8%	
Mostly	8, 5.7%	7, 4.5%	15, 5%	
Always	4, 2.9%	4, 2.5%	9, 3%	
(c) How often did you drink to cheer up when you are in a bad mood? (n=303)				
Never	98, 69.5%	111, 70.3%	212, 70%	*p* = .697
Seldom	13, 9.2%	18, 11.4%	31, 10.2%	
Sometimes	14, 9.9%	18, 11.4%	32, 10.6%	
Mostly	11, 7.8%	8, 5.1%	19, 6.3%	
Always	5, 3.5%	3, 1.9%	9, 3%	
(d) How often did you drink because you like the feeling? (N=302)				
Never	67, 47.5%	77, 49%	147, 48.7%	*p* = .854
Seldom	20, 14.2%	18, 11.5%	38, 12.6%	
Sometimes	22, 15.6%	27, 17.2%	49, 16.2%	
Mostly	23, 16.3%	28, 17.8%	51, 16.9%	
Always	9, 6.4%	7, 4.5%	17, 5.6%	

(e) How often did you drink to get high? (n=301)				
Never	101, 72.1%	131, 83.4%	235, 78.1%	***p* = .029***
Seldom	17, 12.1%	6, 3.8%	23, 7.6%	Male mean rank=157.31
Sometimes	7, 5%	8, 5.1%	15, 5%	Female mean rank=141.59
Mostly	10, 7.1%	9, 5.7%	20, 6.6%	*U* = 9827
Always	5, 3.6%	3, 1.9%	8, 2.7%	*z* = -2.178
(f) How often did you drink because it makes social gatherings more fun? (n= 302)				
Never	56, 40%	58, 36.7%	115, 38.1	*p* = .935
Seldom	8, 5.7%	18, 11.4%	27, 8.9%	
Sometimes	31, 22.1%	34, 21.5%	66, 21.9%	
Mostly	30, 21.4%	34, 21.5%	65, 21.5%	
Always	15, 10.7%	14, 8.9%	29, 9.6%	
(g) How often did you drink to fit in with a group you like? (n=301)				
Never	100, 71.4%	128, 81.5%	231, 76.7%	***p* =.042***
Seldom	16, 11.4%	12, 7.6%	28, 9.3%	Male mean rank=156.94
Sometimes	16, 11.4%	11, 7%	28, 9.3%	Female mean rank=141.92
Mostly	6, 4.3%	4, 2.5%	10, 3.3%	*U* = 9878
Always	2, 1.4%	2, 1.3%	4, 1.3%	*z* = -2.037
(h) How often did you drink because it improves parties and celebrations? (n= 303)				
Never	55, 38.3%	65, 41.1%	122, 40.2%	*p* = .334
Seldom	14, 9.9%	18, 11.4%	32, 10.6%	
Sometimes	29, 20.6%	37, 23.4%	67, 22.1%	
Mostly	22, 15.6%	25, 15.8%	48, 15.8%	
Always	21, 14.9%	13, 8.2%	34, 11.2%	
(i) How often did you drink to forget your problems? (n= 299)				
Never	96, 69.1%	111, 71.2%	210, 70.2%	*p* = .589
Seldom	16, 11.5%	14, 9%	30, 10%	
Sometimes	10, 7.2%	21, 13.5%	31, 10.4%	
Mostly	9, 6.5%	8, 5.1%	17, 5.7%	
Always	8, 5.8%	2, 1.3%	11, 3.7%	
(j) How often did you drink because it's fun? (n=301)				
Never	51, 36.2%	56, 35.9%	108, 35.9%	*p* = .997
Seldom	13, 9.2%	12, 7.7%	25, 8.3%	
Sometimes	24, 17%	25, 16%	50, 16.6%	
Mostly	28, 19.9%	42, 26.9%	70, 23.3%	
Always	25, 17.7%	21, 13.5%	48, 15.9%	

(k) How often did you drink to be liked? (n=300)				
Never	112, 80%	144, 92.3%	260, 86.7%	***p* = .002***
Seldom	12, 8.6%	6, 3.8%	18, 6%	Male mean rank=158.21
Sometimes	10, 7.1%	4, 2.6%	14, 4.7%	Female mean rank=139.79
Mostly	5, 3.6%	2, 1.3%	7, 2.3%	*U* = 9561
Always	1, .7%	0, 0%	1, .3%	*z* = -3.112
(l) How often did you drink so you won't feel left out? (n=302)				
Never	102, 72.3%	127, 80.9%	232, 76.8%	*p* = .069
Seldom	18, 12.8%	14, 8.9%	33, 10.9%	
Sometimes	10, 7.1%	12, 7.6%	22, 7.3%	
Mostly	10, 7.1%	4, 2.5%	14, 4.6%	
Always	1, .7%	0, 0%	1, .3%	

Significant at p <.05

The findings indicate that the highest percentage of young people were motivated to drink alcohol "because it's fun" (64.1%) followed by "because it makes social gatherings more fun" (61.9%) and "because it improves parties and celebrations" (59.8%). There were no gender differences across the above motivations. However, gender differences were significantly more apparent across three of the statements. A higher proportion of males (mean rank=157.31) than females (mean rank=141.59) were motivated more often to drink alcohol "to get high". A higher proportion of males (mean rank=156.94) than females (mean rank =141.59) were motivated more often to drink alcohol "to fit in with a group". Finally, a higher proportion of males (mean rank=158.21) than females (mean rank=139.77) were motivated more often to drink alcohol "to be liked".

Rutgers Alcohol Problem Index (RAPI)

RAPI is an 18-item measure of adolescent drinking problems and relates to negative consequences or harms which may happen while the young person is drinking or as a result of alcohol use. Young people were offered 18 possible negative problems or

consequences that may result from their alcohol use. They were asked to indicate how many times each happened to them while they were drinking alcohol or as a result of alcohol use from a likert scale of 5 items; (1) Never, (2) 1-2 times, (3) 3-5 times, (4) 6-10 times, (5) more than 10 times. Normality by gender was assessed using histograms, detrended normal Q-Q plots and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000 across all variables, which violates the assumptions of normality. Therefore, a Mann-Whitney U test was conducted to compare genders findings. The findings are shown in Table 23.

Table 23: Frequencies on negative drinking problems, by gender

RAPI 18	**Male** **n, %**	**Female** **n, %**	**Total** **n, %**	**Mann-Whitney U**
(1) How many times you got into fights, acted badly, or did mean things. (n=304)				
Never	102, 71.3%	120, 76.4%	225, 74%	p = .314
1-2 times	26, 18.2%	23, 14.6%	50, 16.4%	
3-5 times	9, 6.3%	11, 7%	20, 6.6%	
6-10 times	4, 2.8%	1, .6%	5, 1.6%	
More than 10 times	2, 1.4%	2, 1.3%	4, 1.3%	
(2) How many times you went to school or work high or drunk? (n= 305)				
Never	123, 86%	148, 93.7%	275, 90.2%	**p =.022***
1-2 times	10, 7%	8, 5.1%	18, 5.9%	Male mean rank=157.28
3-5 times	7, 4.9%	2, 1.3%	9, 3%	Female mean rank=145.32
6-10 times	1, .7%	0, 0%	1, .3%	U = 10399
More than 10 times	2, 1.4%	0, 0%	2, .7%	z = -2.292
(3) How many times you caused shame or embarrassment to someone? (n=303)				
Never	113, 79.6%	131, 83.4%	247, 81.5%	p = .299
1-2 times	15, 10.6%	19, 12.1%	35, 11.6%	
3-5 times	8, 5.6%	6, 3.8%	14, 4.6%	
6-10 times	4, 2.8%	0, 0%	4, 1.3%	
More than 10 times	2, 1.4%	1, .6%	3, 1%	
(4) How many times you neglected your responsibilities? (n=301)				
Never	110, 77.5%	116, 74.8%	229, 76.1%	p = .679

1-2 times	22, 15.5%	29, 18.7%	51, 16.9%	
3-5 times	4, 2.8%	9, 5.8%	14, 4.7%	
6-10 times	4, 2.8%	1, .6%	5, 1.7%	
More than 10 times	2, 1.4%	0, 0%	2, .7%	
(5) How many times have relatives avoided you? (n= 299)				
Never	129, 91.5%	150, 97.4%	283, 94.6%	***p* = .023***
1-2 times	4, 2.8%	3, 1.9%	7, 2.3%	Male mean rank=152.64
3-5 times	4, 2.8%	1, .6%	5, 1.7%	Female mean rank=143.75
6-10 times	2, 1.4%	0, 0%	2, .7%	U = 10203
More than 10 times	2, 1.4%	0, 0%	2, .7%	z = -2.277
(6) How many times you felt you needed more alcohol than you used to use in order to get the same effect. (n=305)				
Never	107, 74.8%	127, 80.4%	237, 77.7%	*p* = .306
1-2 times	22, 15.4%	14, 8.9%	36, 11.8%	
3-5 times	8, 5.6%	13, 8.2%	22, 7.2%	
6-10 times	3, 2.1%	2, 1.3%	5, 1.6%	
More than 10 times	3, 2.1%	2, 1.3%	5, 1.6%	
(7) Tried to control your drinking by trying to drink only at certain times of the day or certain places? (n=304).				
Never	110, 77.5%	131, 82.9%	243, 79.9%	*p* = .212
1-2 times	14, 9.9%	13, 8.2%	29, 9.5%	
3-5 times	9, 6.3%	8, 5.1%	17, 5.6%	
6-10 times	4, 2.8%	5, 3.2%	9, 3%	
More than 10 times	5, 3.5%	1, .6%	6, 2%	
(8) How often you had withdrawal symptoms, that is felt sick because you stopped or cut down your drinking? (n=303).				
Never	125, 88.7%	150, 94.9%	279, 92.1%	***p* = .045***
1-2 times	8, 5.7%	5, 3.2%	13, 4.3%	Male mean rank=155.00
3-5 times	5, 3.5%	1, .6%	6, 2%	female mean rank=145.54
6-10 times	3, 2.1%	2, 1.3%	5, 1.7%	U = 10434
More than 10 times	0, 0%	0, 0%	0, 0%	z = -2.004
(9) How many times have you noticed a change in personality? (n= 305)				
Never	104, 72.7%	114, 72.2%	221, 72.5%	*p* = .939
1-2 times	19, 13.3%	27, 17.1%	46, 15.1%	
3-5 times	14, 9.8%	12, 7.6%	27, 8.9%	
6-10 times	2, 1.4%	2, 1.3%	4, 1.3%	

More than 10 times	4, 2.8%	3, 1.9%	7, 2.3%	
(10) How many times have you felt you had a problem with school? (n=302)				
Never	127, 89.4%	140, 89.7%	270, 89.4%	*p* = .908
1-2 times	7, 4.9%	9, 5.8%	16, 5.3%	
3-5 times	5, 3.5%	4, 2.6%	10, 3.3%	
6-10 times	0, 0%	1, .6%	1, .3%	
More than 10 times	3, 2.1%	2, 1.3%	5, 1.7%	
(11) How many times have you tried to cut down on drinking? (n=298)				
Never	113, 81.9%	131, 84%	248, 83.2%	*p* = .528
1-2 times	12, 8.7%	18, 11.5%	30, 10.1%	
3-5 times	8, 5.8%	4, 2.6%	12, 4%	
6-10 times	2, 1.4%	2, 1.3%	4, 1.3%	
More than 10 times	3, 2.2%	1, .6%	4, 1.3%	
(12) How many times have you suddenly found yourself in a place that you could not remember getting to? (n=304)				
Never	115, 81.0%	122, 77.2%	240, 78.9%	*p* = .442
1-2 times	15, 10.6%	21, 13.3%	37, 12.2%	
3-5 times	7, 4.9%	8, 5.1%	15, 4.9%	
6-10 times	3, 2.1%	6, 3.8%	9, 3%	
More than 10 times	2, 1.4%	1, .6%	3, 1%	
(13) How many times have you passed out or fainted suddenly? (n=305)				
Never	124, 86.7%	140, 88.6%	266, 87.2	*p* = .593
1-2 times	12, 8.4%	13, 8.2%	27, 8.9%	
3-5 times	5, 3.5%	3, 1.9%	8, 2.6%	
6-10 times	0, 0%	2, 1.3%	2, .7%	
More than 10 times	2, 1.4%	0, 0%	2, .7%	
(14) How many times you had a fight, argument, or bad feelings with a friend? (n=300)				
Never	104, 73.8%	102, 65.8%	208, 69.3%	*p* = .150
1-2 times	24, 17%	35, 22.6%	60, 20%	
3-5 times	10, 7.1%	14, 9%	25, 8.3%	
6-10 times	2, 1.4%	2, 1.3%	4, 1.3%	
More than 10 times	1, .7%	2, 1.3%	3, 1%	
(15) How many times have you kept drinking when you promised yourself not to? (n=304)				
Never	115, 81%	132, 83.5%	249, 81.9%	*p* = .591
1-2 times	15, 10.6%	13, 8.2%	30, 9.9%	

3-5 times	6, 4.2%	7, 4.4%	13, 4.3%	
6-10 times	3, 2.1%	2, 1.3%	5, 1.6%	
More than 10 times	3, 2.1%	4, 2.5%	7, 2.3%	
(16) How many times you felt you were going crazy? (n=303)				
Never	124, 87.9%	137, 86.7%	264, 87.1%	*p* = .727
1-2 times	9, 6.4%	12, 7.6%	22, 7.3%	
3-5 times	7, 5%	3, 1.9%	10, 3.3%	
6-10 times	1, .7%	4, 2.5%	5, 1.7%	
More than 10 times	0, 0%	2, 1.3%	2, .7%	
(17) How many times have you felt physically dependent on alcohol? (n= 305)				
Never	137, 95.8%	149, 94.3%	289, 94.8%	*p* = .577
1-2 times	2, 1.4%	7, 4.4%	10, 3.3%	
3-5 times	2, 1.4%	1, .6%	3, 1%	
6-10 times	2, 1.4%	0, 0%	2, .7%	
More than 10 times	0, 0%	1, .6%	1, .3%	
(18) How many times have you been told by a friend or neighbour to stop or cut down drinking? (n=303)				
Never	126, 88.1%	140, 88.6%	269, 88.2%	*p* = .823
1-2 times	7, 4.9%	12, 7.6%	20, 6.6%	
3-5 times	5, 3.5%	4, 2.5%	9, 3%	
6-10 times	2, 1.4%	2, 1.3%	4, 1.3%	
More than 10 times	2, 1.4%	0, 0%	2, .7%	

Significant at p <.05

The results from Table 23 show overall, less than 10% of young people reported they went to school or work high or drunk on 1-2 occasions or more, but a significantly higher proportion of males than females reported this behaviour. A significantly higher proportion of males than females also reported relatives avoided them while they were drinking or as a direct results of alcohol use from an overall 5% of the reported sample, on 1-2 occasions or more. Finally, gender differences were also noted in 8% of young people reporting on 1-2 occasions or more, they had withdrawal symptoms because they

stopped or cut down on drinking alcohol. A significantly higher proportion of males than females reported this behaviour. Interestingly, nearly 31% of young people reported they had a fight, argument or bad feelings with a friend on 1-2 occasions or more, due to their drinking or as a result of alcohol use, however no significant gender differences were noted. Table 24 below presents a summary of the total Rapi scores by gender.

Table 24: Summary of total RAPI scores, by Gender

	Total		**Mann Whitney U test**
	Male (n=143)	**Female (n=159)**	**Total Scores**
Mean	5.098	4.358	*P* = .823
Median	1.00	2.00	Male mean rank= 152.64
Mode	0.00	0.00	Female mean rank=150.47
Std. Deviation	8.677	6.608	*U* = 11205
Minimum	0.00	0.00	*z* = -.224
Maximum	57.00	34.00	
No significant differences between males and females at p<0.05			

In order to establish the ease in which alcohol may be obtained by young people three questions were taken from the National Highway Traffic Safety Administration (USA) Underage Drinking Questionnaire, 2001. Normality by gender was assessed using histograms, detrended normal Q-Q plots and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000 across all variables, which violates the assumptions of normality. It was proposed that a Chi-square test would be conducted, however it violated the assumption, as 33.3% of expected cell sizes are less than 5. So, an alternative Fishers exact test was run (question 1 & 2) along with a Mann-Whitney U test (question 3) were conducted to compare genders differences. The findings are shown in Table 25 below.

Table 25: Frequencies on ease of access to alcohol, by gender

Ease of Access	Male n, %	Female n, %	Total n, %	Statistical Test
(1) Have you ever purchased alcohol without an ID? (n= 302)				**Fisher's Exact test**
No	109, 77.3%	113, 72%	226, 74.8%	*p* = .426
Yes	32, 22.7%	44, 28%	76, 25.2%	
(2) Have you successfully used a fake ID to obtain alcohol? (n=301)				**Fisher's Exact test**
No	128, 90.8%	132, 84.6%	264, 87.7%	*p* = .227
Yes	13, 9.2%	24, 15.4%	37, 12.3%	
(3) How many times in the last two months has someone offered to give you, buy for you, or sell you alcohol? (n= 302)				**Mann Whitney U**
None	55, 39%	53, 33.8%	109, 36.1%	*p* = .608
Once	30, 21.3%	40, 25.5%	71, 23.5%	
2-3 times	35, 24.8%	42, 26.8%	79, 26.2%	
4 or more times	21, 14.9%	22, 14%	43, 14.2%	
No significant differences between males and females at p<0.05				

The results suggest that 64% of young people, aged between 15-17 years, within the last two months have been offered access to alcohol.

KIDSCREEN – 27

The Kidscreen-27 was administered to evaluate the overall perceived health related quality of life (HRQoL) of young people. The instrument measures 5 HRQoL dimensions incorporating physical well-being (5 questions); psychological well-being (7 questions); autonomy and parent relations (7 questions); social support and peers (4 questions) and school environment (4 questions). The 27 questions assess the subjective health and well-being of healthy adolescents aged 8-18 years. Young people from low socio-economic categories are expected to report lower HRQoL than those from higher socio-economic categories. Young people were asked to think about the last week and answer 27 questions. A likert scale offered 5 options to each question, which were then

scored appropriately. E.g., "Have you felt fit and well?" The following options were offered (1) Not at all, (2) Slightly, (3) Moderately, (4) Very, (5) Extremely. Normality by gender was assessed for each question using histograms, detrended normal Q-Q plots and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000 across all variables, which violates the assumptions of normality. Therefore, a Mann-Whitney U test was used to compare gender differences. The findings can be found in Table 26 below.

Table 26: Frequencies of Kidscreen-27, by gender

Kidscreen-27	**Male** **n, %**	**Female** **n, %**	**Total** **n, %**	**Mann-Whitney U**
(Phy. 1) In general, how would you say your health is? (n=307)				
Poor	6, 4.2%	1, .6%	7, 2.3%	***p* = .001***
Fair	12, 8.3%	15, 9.4%	27, 8.8%	Male mean rank= 168.76
Good	33, 22.9%	73, 45.9%	109, 35.5%	Female mean rank=136.82
Very Good	59, 41%	55, 34.6%	115, 37.5%	U = 9034
Excellent	34, 23.6%	15, 9.4%	49, 16%	z = -3.343
(Phy. 2) Have you felt fit and well? (n=307)				
Not at all	3, 2.1%	12, 7.5%	15, 4.9%	***p* = .000***
Slightly	13, 9%	27, 17%	40, 13%	Male mean rank= 176.13
Moderately	48, 33.3%	71, 44.7%	122, 39.7%	Female mean rank=130.15
Very	54, 37.5%	39, 24.5%	94, 30.6%	U = 7973.50
Extremely	26, 18.1%	10, 6.3%	36, 11.7%	z = -4.792
(Phy. 3) Have you been physically active? (n=305)				
Not at all	7, 4.9%	22, 14%	29, 9.5%	***p* = .000***
Slightly	25, 17.4%	43, 27.4%	69, 22.6%	Male mean rank=177.24
Moderately	27, 18.8%	46, 29.3%	74, 24.3%	Female mean rank=126.94
Very	47, 32.6%	29, 18.5%	77, 25.2%	*U* = 7526.00
Extremely	38, 26.4%	17, 10.8%	56, 18.4%	z = -5.136
(Phy. 4) Have you been able to run well? (n=303)				
Not at all	7, 4.9%	16, 10.3%	23, 7.6%	***P* = .000***
Slightly	14, 9.8%	33, 21.2%	47, 15.5%	Male mean rank=177.55

Moderately	37, 25.9%	62, 39.7%	102, 33.7%	Female mean rank=124.75
Very	52, 36.4%	34, 21.8%	87, 28.7%	U = 7214.50
Extremely	33, 23.1%	11, 7.1%	44, 14.5%	z = -5.463
(Phy. 5) Have you felt full of energy? (n=305)				
Never	4, 2.8%	5, 3.1%	9, 3%	$\mathbf{p}$ **= .000***
Seldom	21, 14.8%	46, 28.9%	69, 22.6%	Male mean rank=171.07
Quite often	48, 33.8%	63, 39.6%	113, 37%	Female mean rank=133.08
Very often	48, 33.8%	36, 22.6%	84, 27.5%	U = 8439.50
Always	21, 14.8%	9, 5.7%	30, 9.8%	z =-3.950
(Psy. 6) Has your life been enjoyable? (n=306)				
Not at all	2, 1.4%	5, 3.1%	9, 2.9%	p = .446
Slightly	21, 14.7%	26, 16.4%	47, 15.4%	
Moderately	43, 30.1%	44, 27.7%	88, 28.8%	
Very	49, 34.3%	60, 37.7%	110, 35.9%	
Extremely	28, 19.6%	24, 15.1%	52, 17%	
(Psy. 7) Have you been in good mood? (n=305)				
Never	1, .7%	3, 1.9%	5, 1.6%	p = .493
Seldom	23, 16.2%	27, 17%	51, 16.7%	
Quite often	48, 33.8%	57, 35.8%	106, 34.8%	
Very often	53, 37.3%	54, 34%	108, 35.4%	
Always	17, 12%	18, 11.3%	35, 11.5%	
(Psy. 8) Have you had fun? (n=303)				
Never	2, 1.4%	3, 1.9%	5, 1.7%	p = .657
Seldom	16, 11.3%	17, 10.8%	33, 10.9%	
Quite often	47, 33.3%	57, 36.1%	106, 35%	
Very often	53, 37.6%	58, 36.7%	113, 37.3%	
Always	23, 16.3%	23, 14.6%	46, 15.2%	
(Psy. 9) Have you felt sad? (n=307)				
Always	1, .7%	4, 2.5%	5, 1.6%	$\mathbf{p}$ **= .000***
Very often	9, 6.3%	29, 18.2%	39, 12.7%	Male mean rank=171.88
Quite often	27, 18.8%	38, 23.9%	66, 21.5%	Female mean rank=134.00
Seldom	85, 59%	78, 49.1%	165, 53.7%	U = 8585.50
Never	22, 15.3%	10, 6.3%	32, 10.4%	z = -4.122
(Psy. 10) Have you felt so bad you didn't want to do anything? (n=307)				
Always	2, 1.4%	6, 3.8%	9, 2.9%	p = .000*

Very often	12, 8.3%	24, 15.1%	37, 12.1%	Male mean rank= 170.69
Quite often	14, 9.7%	35, 22%	49, 16%	Female mean rank=135.08
Seldom	50, 34.7%	45, 28.3%	96, 31.3%	*U* = 8757
Never	66, 45.8%	49, 30.8%	116, 37.8%	*z* = -3.707
(Psy. 11) Have you felt lonely? (n=307)				
Always	4, 2.8%	9, 5.7%	14, 4.6%	***p* = .005***
Very often	10, 6.9%	18, 11.3%	28, 9.1%	Male mean rank=166.10
Quite often	13, 9%	37, 23.3%	51, 16.6%	Female mean rank=139.23
Seldom	58, 40.3%	41, 25.8%	100, 32.6%	*U* = 9417.50
Never	59, 41%	54, 34%	114, 37.1%	*z* = -2.798
(Psy. 12) Have you been happy with the way you are? (307)				
Never	5, 3.5%	12, 7.5%	19, 6.2%	***p* = .000***
Seldom	16, 11.1%	42, 26.4%	58, 18.9%	Male mean rank=171.43
Quite often	43, 29.9%	42, 26.4%	86, 28%	Female mean rank=134.41
Very often	45, 31.3%	42, 26.4%	88, 28.7%	*U* = 8650.50
Always	35, 24.3%	21, 13.2%	56, 18.2%	*z* = -3.787
(A. & P.R. 13) Have you had enough time for yourself? (n=307)				
Never	4, 2.8%	4, 2.5%	9, 2.9%	***p* = .001***
Seldom	12, 8.3%	32, 20.1%	45, 14.7%	Male mean rank=169.38
Quite often	42, 29.2%	55, 34.6%	99, 32.2%	Female mean rank=136.26
Very Often	46, 31.9%	43, 27%	89, 29%	*U* = 8946
Always	40, 27.8%	25, 15.7%	65, 21.2%	*z* = -3.409
(A. & P.R. 14) Have you been able to do the things that you want to do in your free time? (n=305)				
Never	3, 2.1%	8, 5%	12, 3.9%	***p* = .001***
Seldom	18, 12.7%	33, 20.8%	52, 17%	Male mean rank=168.70
Quite often	35, 24.6%	55, 34.6%	92, 30.2%	Female mean rank=135.19
Very Often	55, 38.7%	40, 25.2%	95, 31.1%	*U* = 8775
Always	31, 21.8%	23, 14.5%	54, 17.7%	*z* = -3.456
(A & P.R. 15) Have your parent(s) had enough time for you? (n=307)				
Never	2, 1.4%	6, 3.8%	8, 2.6%	*p* = .714
Seldom	16, 11.1%	14, 8.8%	30, 9.8%	

Quite often	38, 26.4%	45, 28.3%	87, 28.3%	
Very Often	51, 35.4%	43, 27%	94, 30.6%	
Always	37, 25.7%	51, 32.1%	88, 28.7%	
(A & P.R. 16) Have your parent(s) treated you fairly? (n=307)				
Never	2, 1.4%	2, 1.3%	4, 1.3%	p = .951
Seldom	10, 6.9%	14, 8.8%	24, 7.8%	
Quite often	31, 21.5%	33, 20.8%	66, 21.5%	
Very Often	33, 22.9%	32, 20.1%	66, 21.5%	
Always	68, 47.2%	78, 49.1%	147, 47.9%	
(A & P.R. 17) Have you been able to talk to your parent(s) when you wanted to? (n=307)				
Never	4, 2.8%	9, 5.7%	13, 4.2%	p = .309
Seldom	20, 13.9%	23, 14.5%	43, 14%	
Quite often	22, 15.3%	29, 18.2%	54, 17.6%	
Very Often	31, 21.5%	30, 18.9%	61, 19.9%	
Always	67, 46.5%	68, 42.8%	136, 44.3%	
(A & P.R 18) Have you had enough money to do the same things as your friends? (n=306)				
Never	5, 3.5%	5, 3.1%	10, 3.3%	p = .136
Seldom	17, 11.9%	30, 18.9%	47, 15.4%	
Quite often	30, 21%	37, 23.3%	69, 22.5%	
Very Often	42, 29.4%	40, 25.2%	84, 27.5%	
Always	49, 34.3%	47, 29.6%	96, 31.4%	
(A & P.R. 19) Have you had enough money for your expenses? (n= 306)				
Never	3, 2.1%	3, 1.9%	6, 2%	**p = .036***
Seldom	17, 11.9%	31, 19.5%	48, 15.7%	Male mean rank=162.21
Quite often	28, 19.6%	46, 28.9%	75, 24.5%	Female mean rank=141.87
Very Often	49, 34.3%	33, 20.8%	84, 27.5%	U = 9837.50
Always	46, 32.2%	46, 28.9%	93, 30.4%	z = -2.092
(S.S & Peers 20) Have you spent time with your friends? (n=306)				
Never	6, 4.2%	5, 3.1%	11, 3.6%	p = .437
Seldom	21, 14.7%	21, 13.2%	42, 13.7%	
Quite often	31, 21.7%	39, 24.5%	72, 23.5%	
Very Often	57, 39.9%	52, 32.7%	110, 35.9%	
Always	28, 19.6%	42, 26.4%	71, 23.2%	

(S.S & Peers 21) Have you had fun with your friends? (n= 305)				
Never	4, 2.8%	3, 1.9%	7, 2.3%	*p* = .732
Seldom	10, 7%	13, 8.2%	23, 7.5%	
Quite often	20, 14.1%	34, 21.4%	55, 18%	
Very Often	54, 38%	45, 28.3%	101, 33.1%	
Always	54, 38%	64, 40.3%	119, 39%	
(S.S & Peers 22) Have your friends helped each other? (n= 305)				
Never	5, 3.5%	3, 1.9%	8, 2.6%	*p* = .246
Seldom	11, 7.7%	8, 5%	19, 6.2%	
Quite often	25, 17.6%	31, 19.5%	59, 19.3%	
Very Often	48, 33.8%	47, 29.6%	95, 31.1%	
Always	53, 37.3%	70, 44%	124, 40.7%	
(S.S & Peers 23) Have you been able to rely on your friends? (n=306)				
Never	6, 4.2%	3, 1.9%	9, 2.9%	*p* = .487
Seldom	13, 9.1%	20, 12.6%	34, 11.1%	
Quite often	34, 23.8%	28, 17.6%	64, 20.9%	
Very Often	32, 22.4%	38, 23.9%	70, 22.9%	
Always	58, 40.6%	70, 44%	129, 42.2%	
(Sch. 24) Have you been happy at school? (n= 306)				
Not at all	17, 11.9%	23, 14.5%	41, 13.4%	***p* = .035***
Slightly	23, 16.1%	36, 22.6%	60, 19.6%	Male mean rank=162.25
Moderately	52, 36.4%	60, 37.7%	113, 36.9%	Female mean rank=141.83
Very	37, 25.9%	31, 19.5%	69, 22.5%	*U* = 9831
Extremely	14, 9.8%	9, 5.7%	23, 7.5%	*z* = -2.107
(Sch. 25) Have you got on well at school? (n=306)				
Not at all	12, 8.4%	6, 3.8%	19, 6.2%	*p* = .502
Slightly	17, 11.9%	27, 17%	44, 14.4%	
Moderately	50, 35%	48, 30.2%	99, 32.4%	
Very	48, 33.6%	58, 36.5%	108, 35.3%	
Extremely	16, 11.2%	20, 12.6%	36, 11.8%	
(Sch. 26) Have you been able to pay attention? (n=306)				
Never	2, 1.4%	8, 5%	11, 3.6%	*p* = .184
Seldom	29, 20.3%	34, 21.4%	64, 20.9%	
Quite often	58, 40.6%	66, 41.5%	124, 40.5%	
Very Often	40, 28%	39, 24.5%	81, 26.5%	

Always	14, 9.8%	12, 7.5%	26, 8.5%	
(Sch. 27) Have you got along with your teachers? (n= 306)				
Never	7, 4.9%	3, 1.9%	10, 3.3%	***p* = .046***
Seldom	17, 11.9%	13, 8.2%	31, 10.1%	Male mean rank=141.44
Quite often	32, 22.4%	28, 17.6%	62, 20.3%	Female mean rank=160.54
Very Often	52, 36.4%	68, 42.8%	121, 39.5%	*U* = 9930.50
Always	35, 24.5%	47, 29.6%	82, 26.8%	*z* = -1.991

Significant at p <.05

In addition, normality was assessed by each dimensions subtotal scores for Kidscreen-27, which again reflected significant values, indicating they violate the assumption of normality. Each of the five dimension group scores will be compared with the average score of the adequate reference population for that scale (See Table 27). In addition, Table 28 presents the frequencies within each Kidscreen-27 domain and Table 29 presents the gender differences by Kidscreen-27 domain.

Table 27: Mean t scores for Kidscreen-27 dimensions, by gender

Kidscreen-27 Dimensions (n)	**Male Mean, SD**	**Female Mean, SD**	**Average Male & Female**
Physical well-being (n=302)	47.23, 10.91	40.48, 8.11	43.75 - 53.39
Psychological well-being (n= 302)	45.39 9.22	41.90 9.57	43.94 - 53.72
Autonomy and parent relations (n=304)	48.25 9.45	46.16 9.87	44.51 - 54.31
Social support and peer relations (n= 304)	47.24 11.29	48.46 11.16	44.64 – 54.60
School environment (n=306)	44.61 8.95	44.33 8.27	43.74 – 53.14

Table 28: Frequencies of young people within each Kidscreen-27 category

Dimensions (n)	**Below Average n, %**	**Average n, %**	**Above Average n, %**
Physical well-being (n=302)	171, 56.6%	89, 29.5%	42, 13.9%
Psychological well-being (n= 302)	169, 56%	104, 34.4%	29, 9.6%
Autonomy and parent relations (n=304)	144, 47.4%	103, 33.9%	57, 18.7%
Social support and peer relations (n= 304)	130, 42.8%	99, 32.5%	75, 24.7%
School environment (n=306)	154, 50.3%	111, 36.3%	41, 13.4%

Table 29: Gender differences on 5 HRQoL dimensions

Dimensions	**U**	**Z**	**P**	**Mean Rank**	
				Male	**Female**
Physical well-being	6809	-5.760	**.000***	179.55	122.15
Psychological well-being	8668	-3.228	**.001***	166.59	134.36
Autonomy and parent relations	9484.50	-2.304	**.021***	162.73	139.65
Social support and peer relations	10695	-.690	.490	146.85	153.74
School environment	11125	-.323	.747	153.20	149.97

In addition, Appendix 19 presents tables of mean t-scores for HRQoL dimensions, and tables presenting the average low family affluence range of scores, and frequencies of young people within each Kidscreen-27 category by low family affluence.

The ESPAD 2015 subsection C03 is designed to ascertain how often (if at all) young people engage in certain leisure activities. The study asked young people how often they play computer games, actively participate in sports, athletics or exercising, read books for enjoyment, go around with friends to shopping centres, streets, parks, for fun. They were offered 5 frequency options from “never” to almost every day” and were asked to pick one frequency option for each leisure activity. Normality by gender was assessed for each question using histograms, detrended normal Q-Q plots and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000 across all variables, which violates the assumptions of normality. Therefore, a Mann-Whitney U test was used to compare gender differences. The findings can be found in Table 30 below.

Table 30: Frequencies of ESPAD CO3 Leisure activities, by gender

ESPAD CO3	**Male**	**Female**	**Total**	**Mann-Whitney U**
	n, %	**n, %**	**n, %**	
(a) How often do you play computer games? (n=306)				
Never	11, 7.6%	71, 44.9%	82, 26.8%	***p* = .000***
A few times a year	8, 5.6%	33, 20.9%	42, 13.7	Male mean rank=198.20

Once or twice a month	14, 9.7%	12, 7.6%	26, 8.5%	Female mean rank=108.93
At least once a week	35, 24.3%	18, 11.4%	55, 18%	*U* = 4650.50
Almost every day	76, 52.8%	24, 15.2%	101, 33%	*z* = -9.176
(b) How often do you actively participate in sports, athletics or exercising? (n=305)				
Never	4, 2.8%	20, 12.7%	24, 7.9%	***p* = .000***
A few times a year	13, 9.1%	24, 15.2%	37, 12.1%	Male mean rank=175.99
Once or twice a month	18, 12.6%	31, 19.6%	50, 16.4%	Female mean rank=128.38
At least once a week	48, 33.6%	51, 32.3%	100, 32.8%	*U* = 7723
Almost every day	60, 42%	32, 20.3%	94, 30.8%	*z* = -4.917
(c) How often do you read books for enjoyment (do not count schoolbooks)? (n=305)				
Never	72, 50%	67, 42.7%	142, 46.6%	*p* = .131
A few times a year	31, 21.5%	39, 24.8%	70, 23%	
Once or twice a month	24, 16.7%	20, 12.7%	45, 14.8%	
At least once a week	11, 7.6%	14, 8.9%	25, 8.2%	
Almost every day	6, 4.2%	17, 10.8%	23, 7.5%	
(d) How often do you go out in the evening (to a disco, café, party)? (n=300)				
Never	16, 11.3%	13, 8.4%	29, 9.7%	*p* = .693
A few times a year	3, 23.4%	33, 21.3%	67, 22.3%	
Once or twice a month	40, 28.4%	54, 34.8%	97, 32.3%	
At least once a week	39, 27.7%	42, 27.1%	81, 27%	
Almost every day	13, 9.2%	13, 8.4%	26, 8.7%	
(e) How often do you do other hobbies (play an instrument, sing, draw, write)? (n=302)				
Never	38, 27%	37, 23.6%	77, 25.5%	*p* = .243
A few times a year	21, 14.9%	18, 11.5%	39, 12.9%	
Once or twice a month	16, 11.3%	19, 12.1%	35, 11.6%	
At least once a week	35, 24.8%	41, 26.1%	78, 25.8%	
Almost every day	31, 22%	42, 26.8%	73, 24.2%	
(f) How often do you go around with friends to shopping centres, streets, parks, for fun? (n=306)				
Never	6, 4.2%	4, 2.5%	10, 3.3%	*p* = .804
A few times a year	11, 7.7%	6, 3.8%	17, 5.6%	

Once or twice a month	25, 17.5%	31, 19.5%	56, 18.3%	
At least once a week	58, 40.6%	75, 47.2%	135, 44.1%	
Almost every day	43, 30.1%	43, 27%	88, 28.8%	
(g) How often do you use the internet for leisure activities (chats, music, games, social network, videos) ? (n= 304)				
Never	2, 1.4%	1, .6%	3, 1%	***p* = .039***
A few times a year	0, 0%	0, 0%	0, 0%	Male mean rank=145.12
Once or twice a month	2, 1.4%	1, .6%	3, 1%	Female mean rank=155.40
At least once a week	14, 9.8%	7, 4.5%	21, 6.9%	U = 10456
Almost every day	125, 87.4%	148, 94.3%	277, 91.1%	z = -2.067
(h) How often do you play slot machines (the kind in which you win money)? (n=306)				
Never	99, 68.8%	121, 76.6%	222, 72.5%	*p* = .174
A few times a year	38, 26.4%	27, 17.1%	65, 21.2%	
Once or twice a month	6, 4.2%	10, 6.3%	18, 5.9%	
At least once a week	0, 0%	0, 0%	0, 0%	
Almost every day	1, .7%	0, 0%	1, .3%	

Significant at p <.05

The results from Table 30 suggest the most popular leisure activity reported by young people was internet use for chats, music, games, social network, videos with 91.1% of young people engaging almost every day. A significantly higher proportion of females (mean rank 155.40) than males (mean rank 145.12) engaged in this activity more often. However, a significantly higher proportion of males (mean rank 175.99) than females (mean rank 128.38) participated in sports, athletics or exercising more often.

In addition, to the Kidscreen-27 domain on autonomy and parental relations, young people were asked further questions relating to parental monitoring and social support. The ESPAD 2015 subsection C51 offers 10 statements and asks how often each statement applies to the young person. One statement on parental monitoring asks “my

parent(s) knows where I am in the evenings". There are 5 frequency options to choose from (1) almost always, (2) often, (3) sometimes, (4) Seldom, (5) almost never, to indicate how often each statement applies to the young person.

Normality by gender was assessed for each question using histograms, detrended normal Q-Q plots and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000 across all variables, which violates the assumptions of normality. Therefore, a Mann-Whitney U test was used to compare gender differences. The findings can be found in Table 31.

Table 31: Frequencies of ESPAD C51 Parental monitoring and support, by gender

ESPAD C51	**Male n, %**	**Female n, %**	**Total n, %**	**Mann-Whitney U**
(a) How often do my parent(s) set definite rules about what I can do at home. (n=306)				
Almost always	22, 15.3%	31, 19.6%	53, 17.3%	p = .220
Often	32, 22.2%	36, 22.8%	69, 22.5%	
Sometimes	48, 33.3%	51, 32.3%	101, 33%	
Seldom	27, 18.8%	32, 20.3%	60, 19.6%	
Almost never	15, 10.4%	8, 5.1%	23, 7.5%	
(b) How often do my parent(s) set definite rules about what I can do outside the home? (n=306)				
Almost always	26, 18.2%	46, 28.9%	73, 23.9%	**p = .000***
Often	24, 16.8%	38, 23.9%	63,20.6%	Male mean rank=171.55
Sometimes	37, 25.9%	48, 30.2%	87, 28.4%	Female mean rank=133.47
Seldom	36, 25.2%	15, 9.4%	51, 16.7%	U = 8501
Almost never	20, 14%	12, 7.5%	32, 10.5%	z = -3.884
(c) How often do my parent(s) know who I am with in the evenings? (n=306)				
Almost always	62, 43.4%	101, 63.5%	164, 53.6%	**p = .000***
Often	40, 28%	38, 23.9%	81, 26.5%	Male mean rank=170.77
Sometimes	22, 15.4%	15, 9.4%	37, 12.1%	Female mean rank=134.17
Seldom	13, 9.1%	3, 1.9%	16, 5.2%	U = 8613.50

Almost never	6, 4.2%	2, 1.3%	8, 2.6%	*z* = -4.007
(d) How often do my parent(s) know where I am in the evenings? (n=301)				
Almost always	53, 37.6%	99, 63.5%	152, 50.5%	***p* = .000***
Often	41, 29.1%	42, 26.9%	85, 28.2%	Male mean rank=174.23
Sometimes	24, 17%	9, 5.8%	34, 11.3%	Female mean rank=126.20
Seldom	15, 10.6%	4, 2.6%	19, 6.3%	*U* = 7440.50
Almost never	8, 5.7%	2, 1.3%	11, 3.7%	*z* = -5.244
(e) How often can I easily get warmth and caring from my mother and/or father? (n=304)				
Almost always	76, 53.5%	98, 61.6%	175, 57.6%	*p* = .253
Often	31, 21.8%	23, 14.5%	54, 17.8%	
Sometimes	17, 12%	21, 13.2%	40, 13.2%	
Seldom	11, 7.7%	10, 6.3%	21, 6.9%	
Almost never	7, 4.9%	7, 4.4%	14, 4.6%	
(f) How often can I easily get emotional support from my mother and/or father? (n=305)				
Almost always	75, 52.4%	89, 56%	165, 54.1%	*p* = .674
Often	27, 18.9%	25, 15.7%	52, 17%	
Sometimes	20, 14%	21, 13.2%	43, 14.1%	
Seldom	11, 7.7%	13, 8.2%	24, 7.9%	
Almost never	10, 7%	11, 6.9%	21, 6.9%	
(g) How often can I easily borrow money from my mother and/or father? (n=306)				
Almost always	46, 32.2%	67, 42.1%	115, 37.6%	*p* = .315
Often	51, 35.7%	43, 27%	95, 31%	
Sometimes	28, 19.6%	24, 15.1%	53, 17.3%	
Seldom	14, 9.8%	18, 11.3%	32, 10.5%	
Almost never	4, 2.8%	7, 4.4%	11, 3.6%	
(h) How often can I easily get money from my mother and/or father? (n=305)				
Almost always	44, 31%	51, 32.1%	96, 31.5%	*p* = .781
Often	43, 30.3%	50, 31.4%	95, 31.1%	
Sometimes	40, 28.2%	41, 25.8%	82, 26.9%	
Seldom	10, 7%	9, 5.7%	19, 6.2%	
Almost never	5, 3.5%	8, 5%	13, 4.3%	

(i) How often can I easily get warmth and caring from my best friend? (n=304)				
Almost always	45, 31.7%	84, 52.8%	129, 42.4%	***p* = .000***
Often	48, 33.8%	39, 24.5%	88, 28.9%	Male mean rank=169.72
Sometimes	28, 19.7%	27, 17%	57, 18.8%	Female mean rank=134.28
Seldom	9, 6.3%	6, 3.8%	15, 4.9%	*U* = 8631
Almost never	12, 8.5%	3, 1.9%	15, 4.9%	*z* = -3.736
(j) How often can I easily get emotional support from my best friend? (n=305)				
Almost always	51, 35.7%	86, 54.1%	137, 44.9%	***p* = .001***
Often	42, 29.4%	37, 23.3%	81, 26.6%	Male mean rank= 168.34
Sometimes	27, 18.9%	26, 16.4%	54, 17.7%	Female mean rank=136.35
Seldom	13, 9.1%	4, 2.5%	17, 5.6%	*U* = 8960
Almost never	10, 7%	6, 3.8%	16, 5.2%	*z* = -3.383

Significant at p <.05

In this instance, a lower mean rank indicates the young person more often received parental monitoring or social support. A higher mean rank indicates the young person often received less parental monitoring or social support (almost always = 1, almost never = 5). Therefore, a significantly higher proportion of males reported receiving less parental monitoring and higher social support from best friends, than females.

ESPAD 2015 Subsection C52 further explores parental monitoring and asks young people “Do your parent(s) know where you spend Saturday nights”? Four options were offered in response to this question (1) know always, (2) know quite often, (3) know sometimes, (4) usually don’t know. Normality by gender was assessed for each question using histograms, detrended normal Q-Q plots and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000, which violates the assumptions of normality. Therefore, a Mann-Whitney U test was used to compare gender differences. The findings can be found in Table 32 below.

Again, a lower mean rank indicates the young person's parents knew more often where they spent Saturday night. A higher mean rank indicates the young person's parents knew less often where they spent Saturday night. (know always = 1, usually don't know = 5). Therefore, a significantly higher proportion of males (mean rank = 169.60) reported their parents knew less often where they spent Saturday night than females (mean rank = 135.22).

Table 32: Frequencies of ESPAD C52 parental monitoring on a Saturday night, by gender

ESPAD C52	Male n, %	Female n, %	Total n, %	Mann Whitney U
Do your parents know where you spend Saturday nights? (n=306)				
Know always	61, 42.7%	104, 65.4%	166, 54.2%	***p* = .000***
Know quite often	50, 35%	34, 21.4%	86, 28.1%	Male mean rank=169.60
Know sometimes	23, 16.1%	14, 8.8%	38, 12.4%	Female mean rank=135.22
Usually don't know	9, 6.3%	7, 4.4%	16, 5.2%	*U* = 8780.50, *z* = -3.787
Significant at p <.05				

Children's Depression Inventory short version (CDI-S)

The CDI-S instrument measures depressive symptoms in young people aged 13-17 years. The 10 questions of the short version consider the extent and level of depressive symptoms among young people. Young people were asked to think about the last two weeks and choose one sentence from an option of 3 sentences, for each question, which describes them best. Overall, a higher score or higher category group (e.g., very much above average) relates to higher levels of depressive symptoms. Table 33 reports the frequencies by gender for each of the 10 questions.

Table 33: Frequencies for CDI-S, by gender.

CDI-S	Male n, %	Female n, %	Total n, %	Mann-Whitney U
(1) (n=304)				***p* = .001***

I am sad once in a while.	115, 81.6%	99, 62.3%	217, 1.4%	Male mean rank=136.10
I am sad many times.	19, 13.5%	54, 34%	74, 24.3%	Female mean rank=163.27
I am sad all the time.	7, 5%	6, 3.8%	13, 4.3%	*U*=9178.50, *z*=-3.433
(2) (n=306)				*p*= .662
Things will work out for me OK.	84, 58.3%	91, 57.6%	177, 57.8%	
I am not sure if things will work out for me.	58, 40.3%	58, 36.7%	117, 38.2%	
Nothing will ever work out for me.	2, 1.4%	9, 5.7%	12, 3.9%	
(3) (n=305)				*p* = .131
I do most things OK.	117, 81.8%	117, 74.5%	236, 77.6%	
I do many things wrong.	22, 15.4%	34, 21.7%	58, 19.1%	
I do everything wrong.	4, 2.8%	6, 3.8%	10, 3.3%	
(4) (n= 304)				***p* = .001***
I like myself.	111, 77.6%	95, 60.1%	208, 68.4%	Male mean rank=136.49
I do not like myself.	27, 18.9%	47, 29.7%	74, 24.3%	Female mean rank=164.13
I hate myself.	5, 3.5%	16, 10.1%	22, 7.2%	*U* =9222, *z* = -3.376
(5) (n=303)				***p* = .000***
I feel like crying once in a while.	125, 90.6%	100, 62.9%	227, 75.7%	Male mean rank=127.26
I feel like crying many days.	8, 5.8%	42, 26.4%	51, 17%	Female mean rank=167.87
I feel like crying every day.	5, 3.6%	17, 10.7%	22, 7.3%	*U* = 7970.50, *z*=-5.432
(6) (n=305)				***p* = .002***
Things bother me once in a while	66, 46.5%	56, 35.2%	123, 40.3%	Male mean rank=136.00
Things bother me many times.	58, 40.8%	56, 35.2%	116, 38%	Female mean rank=164.40
Things bother me all the time.	18, 12.7%	47, 29.6%	66, 21.6%	U=9159, z = -3.031

(7) (N=306)				***p* = .001***
I look OK.	76, 53.1%	55, 34.6%	132, 43.3%	Male mean rank=134.92
There are some bad things about my looks.	54, 37.8%	76, 47.8%	132, 43.3%	Female mean rank=166.42
I look ugly.	13, 9.1%	28, 17.6%	41, 13.4%	*U* = 8997 *z* = -3.423
(8) (n=303)				**p = .005***
I do not feel alone.	100, 70.9%	84, 52.8%	186, 61.4%	Male mean rank= 137.56
I feel alone many times.	29, 20.6%	63, 39.6%	93, 30.7%	Female mean rank=161.97
I feel alone all the time.	12, 8.5%	12, 7.5%	24, 7.9%	*U* = 9385.50 *z* =-2.828
(9) (n=305)				*p* = .198
I have plenty of friends.	108, 75.5%	108, 68.8%	219, 72%	
I have some friends, but I wish I had more.	30, 21%	42, 26.8%	73, 24%	
Do not have friends.	5, 3.5%	7, 4.5%	12, 3.9%	
(10) (n= 306)				*p* = .182
I am sure that somebody loves me	118, 81.9%	120, 75.9%	241, 78.8%.	
I am not sure if anybody loves me.	24, 16.7%	32, 20.3%	57, 18.6%	
Nobody really loves me.	1, .7%	6, 3.8%	7, 2.3%	
Significant at p <.05				

Table 34 below illustrates the interpretive guidelines for CDI-S t-scores for young people from a normative sample of similar age and gender. Converting raw scores to t-scores differs slightly between males and females scores. Therefore, in the case of those that identified as “other” (n=3) the lowest score was applied to be included in the overall total reported frequencies. Table 35 presents frequencies of depressive symptom categories, by gender.

Table 34: Interpretive guideline categories for CDI-S t-scores

CDI-S T-Score	Categories/Symptoms
35 to 39	Below average
40 to 44	Slightly below average
45 to 55	Average
56 to 60	Slightly above average
61 to 65	Above average
66 to 70	Much above average
Above 70	Very much above average

International reference data for CDI self-report for males and females aged 13 to 17 years. Source: Kovacs (2003).

Table 35: Frequencies of depressive symptom categories, by gender

CDI-S (n= 306) Categories	Male n %	Female n %	Total n %	Mean, Median SD
Below average	0, 0%*	20, 12.6%	20, 6.5%	
Slightly below average	61, 36.1%	22, 13.8%	84, 24.7%	Mean =52.93
Average	58, 43.6%	39, 24.5%	98, 33.5%	Median =49
Slightly above average	12, 9.8%	23, 14.5%	35, 12%	SD = 13.03
Above average	7, 5.6%	9, 5.7%	16, 5.5%	
Much above average	1, 1.4%	18, 11.3%	19, 6.5%	
Very much above average	5, 3.5%	28, 17.6%	34, 11.1%	

**Note: As per Kovacs (2003) The corresponding t-score for males and females which both scored 0 (raw score) is 39 for girls aged 13-17 years which falls into the below average category. For males aged 13-17 years the same t-score is 41 which falls into a different category - slightly below average.*

Normal distribution was assess using histograms, detrended normal Q-Q plots and the Kolmogorov-Smirnov test for normality which indicated a Sig. value of .000 which violates the assumptions of normality. Therefore, a Mann-Whitney U test was conducted to compare gender differences on depression scores. A statistically significant difference was reported between males (mean rank = 135.73) and females (mean rank = 166.73) on depressions scores. (U = 9105.50, z = -3.082, p = .002). The results show that females reported higher depressive symptoms compared to males.

4.4 Summary of Descriptive Findings

This section will provide a summary of the descriptive and basic inferential statistic findings from the survey conducted with young people living in urban disadvantage. The main focus of the summary will be reporting on the demographics, alcohol behaviours, health related quality of life and depression levels of young people.

Demographics

A total of 307 young people aged between 15-17 years participated in this study. The study participants comprised 47% male, 52% female and 1% identified as other. The majority were of white race/ethnicity (84.6%), and nearly all were born in Ireland (93%). A quarter of young people were born to immigrant parents. A large proportion lived with their mother (94%) with slightly less living with both parents and siblings (68%). Nearly a quarter of young people reported having a medical condition, with asthma being the most common reported condition (50%) followed by eczema (10%). Among young people, Ireland has the third highest incidence of asthma worldwide (Duggan et al., 2012). Therefore, the reported figures in this study are in line with national averages for asthma. Interestingly, although living in a highly disadvantaged region, the majority (88%) reported their perceived wealth was about the same or better off, compared to other families, in this country.

Alcohol Behaviours

Across the total cohort, 27% reported never drinking alcohol. This compares to a European average of 20% (Kraus & Nociar, 2016) and a national average of 34% (Költő et al., 2020), which report never consumed alcohol. The remaining 73% reported their prevalence and frequency of drinking alcohol using the AUDIT and Revised AUDIT tools.

Further measures explored young people's choices of alcohol products, their ability to access or purchase alcohol, the context of their drinking, their motivations for drinking and negative consequences of their drinking.

Frequency and Prevalence of alcohol consumption

The reported average frequency (number of occasions) of drinking alcohol across both males and females is monthly or less. This reflects a considerably lower frequency than the European average of 5.4 occasions in the last 30 days, or the national average of 4 occasions in the last 30 days (Kraus & Nociar, 2016). The average reported prevalence (alcohol intake) is 5 or 6 standard drinks (approximate volume of ethanol is 7.5 centilitres) per drinking occasion. Significant gender differences were noted, with males reporting they consumed more drinks than females on a typical day when drinking (A2). However, no gender differences were reported when young people reported the amount of standard drinks consumed on a day when drinking (R2). European comparative data indicate the average volume of ethanol was 4.7 centilitres and a national average of 6 centilitres on the last drinking day (Kraus & Nociar, 2016), which is considerably lower than reported by young people in this study. The overall average reported prevalence increased from 5 - 6 standard drinks per drinking occasion in schools to approximately 8.5 standard drinks per drinking occasion among those in Youthreach centres. The frequency remained the same, monthly or less.

Binge Drinking

In this study, one in five young people reported binge drinking (6 or more drinks, on one occasion, (minimum 7.5 centilitres of ethanol) on a monthly or more frequent basis. One in six young people reported drinking seven or more standard drinks (minimum

8.75 centilitres of ethanol) for males and six standard drinks for females, over a two-hour period, on a monthly or more frequent basis. The comparative European data for heavy episodic drinking (5 or more drinks on one occasion in the last 30 days, with a cut off of 9 centilitres of ethanol) is one in every three young people.

It is worth comparing the responses to Audit A2, which asked, "how many drinks containing alcohol do you have on a typical day when you are drinking" and the Revised Audit A2R which asked, "how many standard drinks you tend to have on a day when you drink alcohol." Audit A2R was supplemented with a visual picture chart showing pictures of typical drinks and the appropriate standard drink measure. The young person inserted the number of drinks consumed beside the appropriate drink on the picture chart, this was then later totalled to accurately account for the number of standard drinks consumed (standard drink =10g of alcohol).

For young people who reported drinking 7 or more drinks on a typical drinking day across both questions, the findings indicate an increase from 24% to 53% for males and from 15% to 38% for females across Audit A2 and Revised Audit A2R. This suggests considerable ambiguity among young people in reporting of the number of drinks consumed and their comprehension of a standard drink measure. This led to under reporting the amount they had consumed in question A2. Gender differences were reported, with males consuming statistically significant more alcohol than females on a typical drinking day (A2). However no significant gender differences were reported when reporting standard drinks consumed (A2R).

Interestingly, two questions relating to binge drinking with different criteria/definitions were used. Audit A3 used the standard WHO definition of binge

drinking (6 drinks consumed on any one occasion). Whereas the Revised Audit A3R used a new definition (seven or more standard drinks for males and six standard drinks for females, over a 2-hour period). Young people reported how often they engaged in binge drinking. Drinking 6 or more drinks on one occasion, on a monthly or more frequent basis was reported by 20% of young people. Drinking seven or more standard drinks for males and six standard drinks for females, over a 2-hour period, on a monthly or more frequent basis was reported by 16.3% of young people. However, no significant gender differences were observed, with females engaging in binge drinking as often as males. When standard drinks were calculated (question A2R) 44.7% reported consuming 7-9 standard drinks or more on a day when they drank alcohol. Consequently, reported binge drinking may be underestimated due to the lack of understanding by young people in reporting the number of standard drinks consumed. However, this is hypothesised, as the time period in which the alcohol was consumed or how often per month they engaged in this behaviour is unknown.

Alcohol purchases and access to alcohol

The study cohort are all under the legal age for purchasing or drinking alcohol in Ireland, however young people report purchasing alcohol both off-premises and on-premises for their own consumption, across a variety of alcoholic products. The most popular product purchased off-premises was spirits (23% reported purchasing, on one or more occasion, in the past 30 days). The most popular product purchased on-premises in bars, pubs, and nightclubs is alcopops (21% reported purchasing, on one or more occasion, in the past 30 days). Significant gender differences were noted by product purchased, but no gender differences were noted to on-premises or off-premises

purchases. These findings differ from national data which report 6% of young people purchased alcohol off-premises and 17% on-premises, on their last drinking occasion (Költő et al., 2020). Young people reported purchasing alcohol without the need to produce legal identification of age (25%) or by using fake identification (12%).

Findings indicate that young people have easy access to alcohol regardless of their age profile or gender, with 64% reporting that someone offered to give them, buy for them or sell them alcohol, within the past two months. This concurs with European data from 35 countries, with nearly 4 out of 5 young people reporting it is easy to obtain alcohol (Kraus & Nociar, 2016). This reflects a social environment which normalises underage drinking within its culture.

Context of drinking alcohol

When reporting the context in which their drinking took place, on their last day of drinking, the most popular answer was at “someone else’s home” (19%). This was followed by at their “own home” (16.4%) and “out on the street, in a park or other open space” (12.2%). Multiple locations were reported by 9.2% of young people on the last drinking day, indicating both structured and unstructured environments for consuming alcohol. These reported locations for young people to consume alcohol correspond closely with national data (Költő et al., 2020).

Motivations and negative consequences

While assessing the possible motivations for young people to drinking alcohol, both intrinsic and extrinsic motivations were reported. A high percentage of both males and females reported “because it was fun” (64.1%) and improved or made parties or social gatherings more fun. A significantly higher proportion of males (28.6%) than females

(18.5%) reported their motivation for drinking related to social inclusion, to fit in with friends. Paradoxically, the highest reported negative consequence (30%) of drinking alcohol was “had a fight, argument or bad feelings with a friend” on 1-2 occasions or more, due to their drinking or as a result of alcohol use. Overall, nearly 27% reported they had drunk alcohol because it helps when feeling depressed or nervous.

Kidscreen-27

This section summarises the results of the Health-Related Quality of Life (HRQoL) measure across 5 dimensions; physical well-being, psychological well-being, autonomy and parent relations, social support and peer relations and school environment. Overall, young people were below the average European threshold based on mean t-scores for both physical and psychological well-being. They were within the average European threshold based on mean t-scores for autonomy and parent relations, social support and peer relations and school environment. More specifically, there were statistically significant gender differences. Male mean t-scores were higher than female mean t-scores across physical well-being, psychological well-being and autonomy and parent relations and were within the European average threshold. However, female mean t-scores were statistically significantly lower and were below the average European threshold, across the same three dimensions. Both males and females were within the average European threshold, based on mean t-scores, across social support and peer relations and school environment. According to the KIDSCREEN Group Europe (2006) young people from low socio-economic categories are expected to report lower HRQoL. Therefore, the reported low subjective physical health and psychological well-being of this young cohort is unfortunately, in part, due to living in urban disadvantage.

Leisure Time Activities

This section reports the findings on how often young people engaged in certain leisure time activities. Almost every day, 91% of young people reported using the internet for chats, music, games, social networks, videos, and was by far the most popular activity. This is slightly higher than the European mean of 5.8 days per week (Kraus & Nociar, 2016). However, it aligns with national data at 6.3 days per week (Költő et al., 2020). Gender differences were observed with a statistically significant higher proportion of males playing computer games and actively participating in sports, athletics or exercising than females.

Children's Depression Inventory (CDI-S)

The total CDI-S mean t-scores provide a self-reported evaluation of depressive symptoms in young people, which is compared to international reference data. A higher score relates to higher reported levels of depressive symptoms. The mean t-score was 52.93 with a standard deviation of 13.03. This is within the average score range (45 to 55) when compared to international data (Kovacs, 2003). Overall, a statistically significant difference was reported with higher proportion of females reporting higher depressive symptoms compared to males. Based on international interpretive guideline categories, over 49% of females reported above or very much above average scores. This indicates nearly one in every two young females reporting high depressive symptoms. In comparison, nearly one in five young males reported above or very much above average scores, or high depressive symptoms.

These summary findings quantitatively describe the reported alcohol behaviours, HRQoL and depressions levels of young people living in urban disadvantage. It highlights

significant gender disparities in physical well-being, psychological well-being, autonomy and parent relations and depressive symptoms. In relation to alcohol consumption, this study reports higher prevalence, but lower frequency compared to European data. These findings inform the regression models conducted in the next chapter, in predicting the risk and protective factors of alcohol use among young people living in urban disadvantage.

Chapter 5: Inferential Statistics

School Survey Data – Correlations and Binary logistic Regression

5.1 Introduction

This chapter will report the findings of the correlations and binary logistic regression models. The objective was to examine potential risk and protective factors, which may be indicative of increases or decreases in the risk of alcohol use, binge drinking, alcohol-related harms and depression. Initially, the data were assessed for normality. However, the findings concluded that the normal distribution had been violated, across all the key variables. Leading to non-parametric Spearman rho correlations being presented, instead of Pearson's correlations. The results of the Spearman rho correlations further informed the choice of predictor variables used in eight binary logistic regression models. As stated, due to the violation of normality it was not possible to conduct linear or multiple regression tests. The assumptions and findings of the eight binary logistic regression models are presented:

- The first two binary logistic regression models assessed the effects of HRQoL, depression and leisure time activities on the dichotomous outcome variable no alcohol use/ alcohol use.
- Binary logistic regression models three, four and five presented the findings of the effects of HRQoL, depression, leisure time activities and motivations for consuming alcohol on the dichotomous outcome variable no binge drinking/ binge drinking.
- The findings presented in binary logistic regression model six, assessed the effects of motivations, HRQoL, depression and AUDIT scores on the dichotomous outcome

variable experiencing no harmful consequences from alcohol use/ harmful consequences from alcohol use.

- Binary logistic regression models seven and eight presented the findings of the effects of HRQoL, perceived wealth and leisure time activities on the dichotomous outcome variable no depression/depression.

5.2 Preliminary Analysis

5.2.1 Missing Data

The descriptive statistics have shown that only a very small percent of data had missing values. Therefore the "exclude cases pairwise" option was chosen, ensuring that all the necessary information was analysed for each variable.

5.2.2 Assessing for Normality

Preliminary analysis was conducted to assess the distribution of scores on the variables. Normal distribution is evident from a bell-shaped curve with the largest distributions of scores in the middle with less frequencies to the extremes. Skewness or Kurtosis values indicate the distribution of scores which are not normally distributed, with possible extreme values. For the purpose of this study normality was explored using IBM SPSS 26 across the following outputs; Skewness and Kurtosis, Shapiro- Wilks test for normality (Sig values greater than .05), Histograms, normal Q-Q plots, Detrended Normal Q-Q plots and boxplots, representing graphical, numerical and formal normality tests.

IBM SPSS identifies values that extend more than 1.5 box lengths from the rectangle box plot (which represents 50% of the cases) as outliers. Values extending three box lengths from the rectangle box plot are considered extreme points (Ghasemi & Zahediasl, 2012). All outliers were properly addressed during the data audit process (Kwak & Kim, 2017) and therefore cases reflect the natural distribution of psychological research,

with more extreme values than a normal distribution. These cases are legitimately part of the sample population. Tests for normality were analysed for total AUDIT scores, total RAPI scores, total CDI scores and the 5 dimensions of HRQoL scores. The results violated the assumption of normality based on histograms, skewness, kurtosis and the Shapiro-Wilk tests (as presented in Appendix 20, Figure 1 to Figure 8). The Shapiro-Wilk test is rated the most powerful formal test across various types of distributions and sample sizes (Razali & Wah, 2011).

5.2.3 Outliers

Tests for normality were evaluated with the extreme outliers de-selected and omitted from the data set. The output data after the extreme outliers were de-selected still did not produced normal distributed curves for the main key variables, as reported in Appendix 21, Figure 1 to Figure 8.

5.2.4 Transforming Data

In order to ascertain if parametric statistics, as a more robust alternative to non-parametric statistical analysis, could be used, the key variables were transformed by mathematically adapting the scores using Log 10 transformations (see Appendix 22, Figure 1 to Figure 8) and Square root formulas (Appendix 23, Figure 1 to Figure 8).

None of the Log 10 or Sqrt transformations offered normal distribution of scores based on histograms, skewness and kurtosis and the Shapiro-Wilk test. Significant values were $\leq .01$, violating the assumptions. Therefore, alternative non-parametric tests were used to analyse the data further.

5.3 Correlations

5.3.1 Spearman's rho Correlations

Spearman's rho correlations were conducted as the data did not meet the assumptions for Pearson correlation. Spearman correlation analysis defined the numerical strength and direction of the linear relationship between multiple variables. According to Cohen (1988), a small correlation effect (r) is detected between .1 to .29, a medium correlation effect between .3 to .49 and a large correlation effect between .5 to 1. The direction of the relationship is determined by + or – sign in front of the r value, indicating a positive or negative relationship. A negative correlation refers to an increase in scores on one variable are associated with a decrease in scores on the other variable (Pallant, 2013). Spearman's correlations were run for alcohol consumption, alcohol dependence, alcohol problems, total AUDIT score, standard drinks consumed, binge drinking, harmful consequences, five dimensions of the Kidscreen-27, depression and leisure time activities.

5.3.2 Results of Spearman's rho Correlations

The Spearman's rho results indicated multiple statistically significant correlations. See Appendix 24, Tables 1 to Table 6 indicating both r values and the coefficient of determination (percentage of shared variance between the variables).

5.3.3 Alcohol-related correlations

As expected, mainly large positive correlations were observed between the three sub-sections of the AUDIT measure (alcohol consumption, alcohol dependence and alcohol problems) and the total AUDIT score (r ranging from .419 and .947). Likewise, a large positive correlation was observed between the number of standard drinks consumed and also with reported binge drinking and the sub-sections and totals of the AUDIT measure (r ranging from .504 and .816). The only exception was a medium positive correlation relating to AUDIT sub-section; alcohol dependence (r ranging from .301 and

.490). A predominantly large positive correlation was observed between harmful consequences of alcohol use and all other measures of alcohol use (r ranges from .490 and .793). A weak negative correlation between AUDIT total and physical well-being was noted (-.139, *p<.01).* A small negative correlation was noted between harmful consequences of alcohol use and physical well-being (r = -.185) and school environment (r = -.217). This indicated that increases in harmful consequences of alcohol use were weakly associated with a decrease in physical well-being and a decrease in school environment (r= -.185 and -.217 respectively). A small negative correlation was noted between alcohol problems and parental relationship (-.114, *p*<.01).

5.3.4 Depression related correlations

Depression was negatively correlated with the five dimensions of HRQoL. A medium negative effect was observed between depression and physical well-being (-.392) and parental relationship (-.436) and peer support (-.389) and school environment (-.406). A large negative correlation was noted between depression and psychological well-being (-.746). This implies with higher depression levels, all aspects of HRQoL dimensions decrease, especially psychological well-being. No significant correlation was detected between depression and any variables relating to alcohol use. The five dimensions of HRQoL were all positively correlated with each other.

5.3.5 Leisure time related correlations

Correlations between leisure time activities and alcohol variables, HRQoL and depression were also analysed to consider any associations between how much time young people spent on specific leisure time activities and their alcohol behaviours, HRQoL and depression. Young people reported using the internet for social, music, chats for more time than any other leisure time activity. However, no significant correlation was detected

between internet use and any other variables. A positive correlation was noted between sports and exercising and all dimensions of HRQoL, with values ranging from .145 to .655. The strongest positive correlation detected was physical well-being and the weakest being peer support.

A small negative correlation was detected between reading books and nearly all alcohol variables ranging from -.113, $p \leq .01$ and -.230. This suggests that there is a weak association between increased reading of books and reduced alcohol use. Going out in the evening (to a café, disco, party) showed a small positive correlation with nearly all the alcohol variables ranging from .137, $P < .01$ to .263. Going out also showed a small positive correlation with physical well-being, psychological well-being and parental relationship (.129, $p < .01$, .184 and .182) A medium positive correlation was noted between going out and peer support (.304). Going around with friends to shopping centres, streets, parks, for fun indicated a slightly stronger positive correlation than going out in the evening. Values ranged from .398 for alcohol consumption, .378 for AUDIT total and .352 for binge drinking and .435 for peer support. Sports and exercising, going out in the evening and going around with friends to shopping centres, streets, parks for fun all indicated a small negative correlation between them and depression levels. This implies a weak negative association ranging from -.161 to -.236. between these increased leisure time activities and decreasing depression levels.

All motivations for drinking alcohol were positively correlated with all alcohol variables including harmful consequences ranging from .124 to .786. Small negative correlations are indicated between certain motivations to drink alcohol and physical well-being (-.115 to -.203), psychological well-being (-.124 to -.266), parental relationship

(-.127 to -.246), peer support (-.129 to -.206), school environment (-.120 to -.244). Certain motivations to drink alcohol indicated a small positive correlation with depression (.121 to .286). Parental monitoring indicated some small positive associations with alcohol variables, including harmful consequences ranging from .121 to .218. Small negative correlations were noted between some parental monitoring and HRQoL dimensions.

5.4 Binary Logistic Regression

Binary Logistic Regression - Model 1. Predicting alcohol use

As shown in the tests for normality above, the variables were not normally distributed and violated the assumptions to conduct linear regression or multiple regression analysis. To further explore the relationships between the independent variables and the dependent variable to predict alcohol use and alcohol behaviours, binomial logistic regression using a dichotomous dependant variable model was considered.

A binomial logistic regression was conducted to ascertain the possible effects of physical well-being, psychological well-being, parental relationships, peer support, school environment and depression levels on the likelihood of alcohol use by young people who live in urban disadvantage (see Table 36 below). As reported from the Spearman's Rho correlations, no significant correlation was detected between depression and any variables relating to alcohol use. However, depression will be further analysed as a predictor variable within this regression model, as 27% of young people reported drinking alcohol to help when feeling depressed or nervous. In addition, the literature (Caldwell et al., 2002; Graham et al., 2007; Marmorstein, 2009; O'Donnell et al., 2006) has also highlighted the possible importance of the relationship between the levels of depression and alcohol use. Firstly, the basic assumptions were addressed to ensure adherence.

Table 36: Dichotomous Dependent Variables and continuous Predictor Variables

Dependent variable	**Categories**	**Type of Data**
Alcohol	0 Not using alcohol	Nominal
	1 Using Alcohol	Nominal
Predictor Variables		**Type of Data**
CDI depression score	n/a	Scale
Physical wellbeing	n/a	Scale
Psychological wellbeing	n/a	Scale
Parental relations	n/a	Scale
Peer Relations	n/a	Scale
School Environment	n/a	Scale

- One dependent variable that is dichotomous, meaning only two outcomes. This assumption has been met, with the dependent variables being dichotomous in format. See Table 36 above.
- One or more independent variables which are continuous or nominal variables. Ordinal level data must be treated as a continuous or nominal variable. The predictor variables are in continuous or nominal data format. See Table 36 above.
- Independence of observations, with categories of the dichotomous dependent variable and all nominal independent variables should be mutually exclusive and exhaustive. Young people will belong to one of two category outcomes at any given time, but never both e.g., do not use alcohol group or use alcohol group.
- As binomial logistic regression requires a minimum of 15 cases per independent variable, the assumption of sample size was met at 307 participants in this study (Laerd Statistics, 2020).

- Testing for Linearity: Using the Box-Tidwell procedure (Box & Tidwell, 1962) the linear relationship between the continuous independent variables and the transformed logit of the dependent variable ensures a constant increase in the full range of values in the continuous predictor variables. The assumption is met when the continuous independent variables (natural log transformations) are linearly related to the dependent variable. A Bonferroni correction was adapted using all 6 predictor terms in the model, with a new adjusted alpha value being statistically significant at $p \leq 0.00833$ (Tabachnick & Fidell, 2014). Based on the new accepted p-value, testing the interactions of all the independent variables found no interactions were significant and therefore were linearly related to the logit of the dependent variable. See Appendix 25 for Box-Tidwell (1962) test for linearity results for Model 1.
- Multicollinearity can occur when two or more of the independent predictor variables report a strong correlation ($r = .8$ or .9 or above). Collinearity makes it more difficult to interpret which predictor variable explains the variance in the dependent variable. Logistic regression is highly sensitive to the effects of multicollinearity. Both correlation coefficients, along with tolerance and variance inflation factor (VIF) were considered. As tolerance values were above 0.1 and VIF values are lower than 10, no issue of collinearity has been detected between the predictor variables (Menard, 1995; Myers, 1990). See Appendix 26 for Collinearity Statistics for Model 1.
- Outliers: Within binomial logistic regression, cases which do not fit the model well, like outliers need to be examined. According to Tabachnick and Fidell (2014) cases with standardised residual values greater than 3.29 or less than -3.29 are potential outliers. There were no standardised residuals with values above +3 standard deviations, in the model using the dependent variable alcohol use.

Binary Logistic Regression Findings

Binary Logistic Regression assumptions were met. The method used was backward elimination. This variable selection method follows the law of parsimony and assesses the joint predictive ability of all variables, as all variables are included in the model from the start, unlike forward or stepwise selection (Chowdhury & Turin, 2020).

All predictor variables were entered into the model first. Predictor variables were then automatically compared, and the least significant variables removed one-by-one from the model (significance level is ≤.05) The model refits and recomputes after each non-significant variable is removed. This procedure eliminated the variables which did not contribute to the prediction equation.

Initially, there were six predictor variables in the model, however non statistically significant variables were removed at step 2, 3 and 4. Leaving 3 predictor variables remaining at step 4 of the modelling process, which were statistically significant. These were peer support, school environment and CDI depression. See Appendix 27 for the full backward elimination results.

Results for predictors of alcohol use – Model 1

The binomial logistic regression model was statistically significant, X^2 (3) = 27.83, $p < .001$. The model explained 13.1% (Nagelkerke R^2) of the variance in alcohol use and correctly classified 73% cases. Sensitivity is the measure of percentage of cases that had the observed alcohol use correctly predicted by the model, i.e. true positives (Laerd Statistics, 2020). Sensitivity in this model was 95.9%. Specificity is the measure of percentage of cases that observed not using alcohol, correctly predicted by the model, or true negatives (Laerd Statistics, 2020). In this model the specificity was 10.1%. The positive

predictive value was 74.55% of correctly predicted cases observed using alcohol, compared to the total number of cases. The negative predictive value was 47.05% of correctly predicted cases of not using alcohol, compared to the total number of cases. See Table 37 for results.

Table 37: Binomial Logistic regression predicting likelihood of alcohol use based on Peer Support, School Environment and Depression

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio**	
							Lower	**Upper**
Peer Support	.044	.014	9.863	1	**.002****	1.045	1.017	1.074
School Environment	-.059	.018	10.981	1	**.001****	.943	.910	.976
CDI Depression	.032	.014	5.172	1	**.023***	1.033	1.004	1.062

Significant value *p* ≤ .05* P ≤ .01**

As the odds ratio for peer support was above 1, it indicated an increase in peer support was associated with an increased likelihood of using alcohol. The model predicted that as young people perceived the quality of their social relations with friends and peer, as being accepted and supported within the group, the respondents were 1.05 times more likely to report using alcohol.

As the odds ratio for school environment was below 1, it indicated a decrease in satisfaction with school environment was associated with an increase in the likelihood of using alcohol. The model predicted that an increase in positive feelings about the ability to learn, to concentrate, to do well in school and forge relationships with teachers, the respondents were .943 times less likely to report using alcohol.

Finally, as the odds ratio for depression is above 1, it indicated an increase in depression was associated with an increased likelihood of using alcohol. The model

predicted that as the scores increased on the Children's Depression Inventory, signifying higher disruptions in functioning e.g., socially and academically, the respondents who had higher depression levels were 1.03 times more likely to report alcohol use. Although significant, the increased likelihood was low.

Binary Logistic Regression - Model 2. Predicting alcohol use

A second model using binomial logistic regression was conducted to ascertain the possible effects of leisure time activities (as measured by ESPAD 2015 Subsection CO3) on the likelihood of young people living in urban disadvantage, not using alcohol or using alcohol. All seven assumptions of a binomial logistic regression were met (Appendix 28).

Binary logistic Regression Findings

The second binary regression model also used a backward elimination process to analyse eight leisure time variables which may predict alcohol use, depending on how often young people engaged in the activity. The following predictor variables were entered into the model at step 1; play computer games, actively participate in sports, athletics or exercising, read books for enjoyment, go out in the evening to disco, café, hobbies like play an instrument, draw, write, go with friends to shopping centres, streets, parks. for fun, use the internet for leisure activities and play slot machines. All non-statistically significant variables were removed step by step. At step 7 only two statistically significant variables remained in the model (Appendix 29).

Results for predictors of alcohol use – Model 2

The binomial logistic regression model was statistically significant, X^2 (2) = 50.01, $p < .001$. The model explained 23.3% (Nagelkerke R^2) of the variance in alcohol use and correctly classified 80.4% cases. Sensitivity was 96.7%, specificity was 36.4%, positive

predictive value was 80.48% and negative predictive value was 80%. See table 38 for results.

Table 38: Binary logistic regression predicting likelihood of alcohol use based on how often young people read books for enjoyment and go with friends to shopping centres, streets, parks for fun.

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
Read books for enjoyment	-.292	.110	7.047	1	**.008**	.747	.602	.926
Go with friends to shopping centres, streets, parks for fun	.887	.156	32.446	1	**.000**	2.427	1.789	3.293

Significant value *p* ≤ .05* P ≤ .01**

As the odds ratio for reading books for enjoyment was below 1, it indicated a decrease in odds of the likelihood of using alcohol for every unit increase in reading books for enjoyment. The model predicted that an increase in disadvantaged young people reading books for enjoyment, meant the respondents were .747 times less likely to report using alcohol.

In addition, as the odds ratio for reporting the leisure time activity; going with friends to shopping centres, streets, park for fun is above 1, it indicated an increase in this behaviour was associated with an increased likelihood of using alcohol. The model predicted that the likelihood of using alcohol is 2.43 times greater for those that report often going with friends to shopping centres, streets, parks for fun, as a leisure time activity as opposed to those that did not report this behaviour.

Binary Logistic Regression - Model 3. Predicting binge drinking.

A third model used binomial logistic regression to ascertain the possible effects of physical well-being, psychological well-being, parental relationships, peer support, school

environment and depression levels on the likelihood of young people living in urban disadvantage, not binge drinking or binge drinking. Binge drinking was defined as seven or more standard drinks for males and six standard drinks for females, over a two-hour period. All seven assumptions of a binomial logistic regression were met (Appendix 30).

Binary logistic Regression Findings

The third binary regression model also used a backward elimination process to analyse the five domains of health-related quality of life and depression variables, which may predict binge drinking behaviours. The following predictor variables were entered into the model at step 1; physical well-being, psychological well-being, parental relations, peer support, school environment and depression. All non-statistically significant variables were removed step by step. At step 4 only three variables remained in the model. Two variables were statistically significant, peer support and school environment. The third variable psychological well-being was non-significant (Appendix 31).

Results for predictors of binge drinking – Model 3

The binomial logistic regression model was statistically significant, X^2 (2) = 33.77, $p < .001$. The model explained 14.5% (Nagelkerke R^2) of the variance in binge drinking and correctly classified 67.5% cases. Sensitivity was 45.6%, specificity was 83.5%, positive predictive value was 67.05% and negative predictive value was 67.62%. See table 39 for results.

Table 39: Logistic regression predicting likelihood of binge drinking based on Peer Support and School Environment.

	β	SE	Wald	df	Sig	Odds Ratio	95% CI odds ratio Lower	Upper
Peer Support	.035	.013	7.044	1	**.008**	1.035	1.009	1.062
School Environment	-.089	.019	21.823	1	**.000**	.915	.882	.950

Significant value $p \leq .05$* P ≤ .01**

As the odds ratio for peer support was above 1, it indicated an increase in peer support was associated with an increased likelihood of binge drinking. The model predicted an increase in young people's perceived quality of social relations with friends and peer, as being accepted and supported within the group, the respondents were 1.035 times more likely to report binge drinking.

As the odds ratio for school environment was below 1, it indicated an increased satisfaction with school environment was associated with a decrease in the likelihood of binge drinking. The model predicted that an increase in positive feelings about the ability to learn, to concentrate, to do well in school and forge relationships with teachers, the respondents were .915 times less likely to report binge drinking.

Binary Logistic Regression - Model 4. Predicting binge drinking.

A fourth model used binomial logistic regression to ascertain the possible effects of leisure time activities on the likelihood of young people living in urban disadvantage, not binge drinking or binge drinking. Binge drinking was defined as seven or more standard drinks for males and six standard drinks for females, over a two-hour period. All seven assumptions of a binomial logistic regression were met (Appendix 32).

Binary logistic Regression Findings

The fourth binary regression model also used a backward elimination process to analyse eight leisure time variables which may predict binge drinking, depending on how often young people engaged in the activity. The following predictor variables were entered into the model at step 1; play computer games, actively participate in sports, athletics or exercising, read books for enjoyment, go out in the evening to disco or café, hobbies like play an instrument, draw or write, go with friends to shopping centres, streets, parks for fun, use the internet for leisure activities and play slot machines. All non-statistically significant variables were removed step by step. At step 7 only two statistically significant variables remained in the model; read books for enjoyment and go with friends to shopping centres, streets, parks for fun (Appendix 33).

Results for predictors of binge drinking – Model 4

The binomial logistic regression model was statistically significant, X^2 (2) = 39.268, $p < .001$. The model explained 17.2% (Nagelkerke R^2) of the variance in binge drinking and correctly classified 66.8% cases. Sensitivity was 40.5%, specificity was 86.1%, positive predictive value was 68.05% and negative predictive value was 66.35%. (Table 40 below).

Table 40: Binary logistic regression predicting likelihood of binge drinking based on how often young people read books for enjoyment and go with friends to shopping centres, streets, parks for fun.

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
Read books for enjoyment	-.259	.106	5.918	1	**.015**	.772	.627	.951
Go with friends to shopping centres, streets, parks for fun	.777	.159	24.011	1	**.000**	2.175	1.594	2.968

Significant value $p \leq .05$* P ≤ .01**

As the odds ratio for reading books for enjoyment was below 1, it indicated a decrease in odds of the likelihood of binge drinking for every unit increase in reading books for enjoyment. The model predicted that an increase in disadvantaged young people reading books for enjoyment, meant the respondents were .772 times less likely to report binge drinking.

In addition, as the odds ratio for reporting the leisure time activity**;** going with friends to shopping centres, streets, park for fun is above 1, it indicated an increase in this behaviour was associated with an increased likelihood of binge drinking. The model predicted that the odds of binge drinking is 2.175 times greater for those that report often going with friends to shopping centres, streets, parks for fun, as a leisure time activity as opposed to those that did not report this behaviour.

Binary Logistic Regression - Model 5. Predicting binge drinking.

A fifth model used binomial logistic regression to ascertain the possible effect of the motivations to consume alcohol, on the likelihood of young people living in urban disadvantage, not binge drinking or binge drinking. Binge drinking was defined as seven or more standard drinks for males and six standard drinks for females, over a two-hour period. All seven assumptions of a binomial logistic regression were met (Appendix 34).

Binary logistic Regression Findings

The fifth binary regression model used a backward elimination process to analyse the motivations for drinking alcohol which may predict binge drinking. In analysing the motivations for drinking alcohol, as a predictor of binge drinking, 12 terms were entered at step 1. All non-statistically significant variables were removed step by step. At step 8 only five variables remained in the model, with four being statistically significant: because

it helps you to enjoy a party, because it helps you when you feel depressed or nervous, to cheer you up when you are in bad mood and because it's fun (Appendix 35).

Results for predictors of binge drinking – Model 5

The binomial logistic regression model was statistically significant, X^2 (4) = 150.877, p < .001. The model explained 55% (Nagelkerke R^2) of the variance in binge drinking and correctly classified 82.2% cases. See Table 41 for results.

Table 41 Binary logistic regression predicting likelihood of binge drinking based on how often young people reported they drank; because it helps you to enjoy a party, because it helps you when you feel depressed or nervous, to cheer you up when you are in a bad mood, because it's fun.

Motivations	**β**	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
Helps you enjoy a party	.891	.164	29.689	1	**.000****	2.438	1.769	3.359
Because it helps when you feel depressed or nervous	-.423	.216	3.827	1	**.050***	.655	.428	1.001
To cheer you up when you're in a bad mood	.459	.219	4.418	1	**.036***	1.583	1.032	2.429
Because it's fun	.724	.178	16.617	1	**.000****	2.063	1.456	2.922
Significant value p ≤ .05* P ≤ .01**								

Note: Sensitivity was 80.8%, specificity was 83.2%

As the odds ratio for the motivation to drink alcohol because it helps you enjoy a party was above 1, it indicated an increase in odds of the likelihood of binge drinking for every unit increase in this motivation. The model predicted an increase in disadvantaged young people being motivated to drink alcohol for this reason, meant the respondents were 2.438 times more likely to binge drinking.

As the odds ratio for the motivation to drink alcohol because it helps when you feel depressed or nervous was below 1, it indicated a decrease in the odds of the likelihood of binge drinking for every unit increase in this motivation. The model predicted that an increase in disadvantaged young people being motivated to drink alcohol for this reason, meant the respondents were .655 less likely to binge drinking.

As the odds ratio for the motivation to drink alcohol to cheer you up when you're in a bad mood was above 1, it indicated an increase in odds of the likelihood of binge drinking for every unit increase in this motivation. The model predicted an increase in disadvantaged young people being motivated to drink alcohol for this reason, meant the respondents were 1.583 times more likely to binge drinking.

As the odds ratio for the motivation to drink alcohol because it's fun was above 1, it indicated an increase in odds of the likelihood of binge drinking for every unit increase in this motivation. The model predicated an increase in disadvantaged young people being motivated to drink for this reason, inferred the respondents were 2.063 time more likely to binge drink.

Binary Logistic Regression - Model 6. Predicting harmful consequences of alcohol use.

A sixth model used binomial logistic regression to ascertain the possible effects of motivations to drink alcohol, physical well-being, psychological well-being, parental relations, peer support, school environment, depression and total AUDIT scores, on the likelihood of young people living in urban disadvantage, experiencing no harmful consequences from alcohol use or experiencing higher than average harmful consequences from alcohol use (outcome variable). The binary division of the outcome variable into two categories, indicating no harmful consequences and harmful

consequences, was set at a score of 6 or above on the RAPI measure, as indicating harmful consequences from drinking alcohol or alcohol use. This decision was based on research data from the Rutgers Alcohol Problem Index (RAPI) research division (White & Labouvie, 1989), on a non-clinical sample aged 15-18 years, which mean ranged from 4-8 depending on age and gender. All seven assumptions of a binomial logistic regression were met (Appendix 36).

Binary logistic Regression Findings

The sixth binary regression model used a backward elimination process to analyse the motivations for drinking alcohol, the five dimensions of the HRQoL, depression and total AUDIT scores. These predictor variables may predict the level of harmful consequences due to drinking alcohol, experienced by disadvantaged young people. All predictor variables used to analyse the harmful consequences of drinking alcohol were entered at step 1. All non-statistically significant variables were removed step by step. At step 12 only eight variables remained in the model, with six variables being statistically significant (Appendix 37).

Results for predictors of harmful consequences – Model 6

The binomial logistic regression model was statistically significant, X^2 (6) = 159.04, p < .001. The model explained 66.5% (Nagelkerke R^2) of the variance in experiencing harmful consequences from alcohol drinking and correctly classified 89% cases. See Table 42 for results.

Table 42: Binary logistic regression predicting likelihood of experiencing harmful consequences from drinking alcohol based on motivations, physical well-being, peer relations, school environment and total AUDIT scores.

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
To get high	.972	.235	17.057	1	**.000****	2.643	1.666	4.192
Fit in with the group you like	-.668	.284	5.543	1	**.019***	.513	.294	.894
Forget about your problems	.437	.211	4.306	1	**.038***	1.548	1.025	2.340
Because it's fun	.427	.221	3.735	1	.053	1.532	.994	2.362
Physical wellbeing	-.044	.025	2.997	1	.083	.957	.910	1.006
Peer relations	.048	.023	4.362	1	**.037***	1.049	1.003	1.098
School Environment	.076	.034	5.000	1	**.025***	1.079	1.009	1.153
Total AUDIT scores	.275	.056	23.695	1	**.000****	1.316	1.178	1.470

Significant value $p \le .05$* P ≤ .01**

Note: Sensitivity was 67.2%, specificity was 95%.

As the odds ratio for the motivation to drink alcohol**,** to get high was above 1, it indicated an increase in odds of the likelihood of experiencing harmful consequences for every unit increase in this motivation. The model predicted an increase in disadvantaged young people being motivated to drink alcohol for this reason, meant the respondents were 2.643 times more likely to experience harmful consequences from drinking alcohol.

As the odds ratio for the motivation to drink alcohol**,** to fit in with the group you like was below 1, it indicated a decrease in the odds of the likelihood of experiencing harmful consequences from drinking alcohol for every unit increase in this motivation. The model predicted that an increase in disadvantaged young people being motivated to drink alcohol for this reason, meant the respondents were .513 times less likely to experience harmful consequences from drinking alcohol.

As the odds ratio for the motivation to drink alcohol, to forget about your problems was above 1, it indicated an increase in odds of the likelihood of experiencing harmful consequences for every unit increase in this motivation. The model predicted an increase in disadvantaged young people being motivated to drink alcohol for this reason, meant the respondents were 1.548 times more likely to experience harmful consequences from drinking alcohol.

As the odds ratio for peer support was above 1, it indicated an increase in odds of the likelihood of experiencing harmful consequences from drinking alcohol for every unit increase in peer support. The respondents were 1.049 times more likely to experience harmful consequences from drinking alcohol when disadvantaged young people perceived the quality of their social relations with friends and peers, as being accepted and supported within the group.

As the odds ratio for school environment was above 1, it indicated an increased satisfaction with school environment was associated with an increase in the likelihood of experiencing harmful consequences from drinking alcohol. The model predicted that an increase in positive feelings about the ability to learn, to concentrate, to do well in school and forge relationships with teachers, there was a 1.079 times increased risk of experiencing harmful consequences from drinking alcohol.

Finally, as the odds ratio for total AUDIT scores was above 1, it indicated an increase in scores (AUDIT) was associated with an increased likelihood of experiencing harmful consequences from drinking alcohol. The model predicted that as the AUDIT scores increased signifying more risky/hazardous drinking behaviours, the respondents were 1.316 times more likely experience harmful consequences from drinking alcohol.

Summary of Binary Logistic Regression Models 1 - 6 (Alcohol use and Binge Drinking)

Using the backward elimination process six binary logistic regression models were analysed, to ascertain alcohol behaviour outcomes; model 1 and 2 analysed the outcome variable alcohol use. Model 3, 4 and 5 analysed the outcome variable binge drinking and Model 6 analysed the outcome variable harmful consequences. Model 1 identified three predictors (HRQoL), indicating that peer support, school environment and depression were significant predictors of alcohol use. Model 2 identified two predictors (leisure time activities), indicating that reading books for enjoyment and going with friends to shopping centres, streets, parks for fun were significant predictors of alcohol use. Model 3 identified two predictors (HRQoL), indicating that peer support and school environment were significant predictors of binge drinking. Model 4 identified two predictors (leisure time activities), indicating that reading books for enjoyment and going with friends to shopping centres, streets, parks for fun were significant predictors of binge drinking. Model 5 identified four predictors, indicating that certain motivations for alcohol use, significantly predicted binge drinking; it helps you enjoy a party, it helps when you feel depressed or nervous, to cheer you up when you are in a bad mood and because it's fun. Model 6 identified six predictors of experiencing harmful consequences when drinking alcohol or as a result of alcohol use, indicating certain motivations, peer support, school environment and total levels of alcohol consumption/dependence/alcohol-related problems (AUDIT) were significant predictors of experiencing harmful consequences. This summarises the significant relationships between the predictor variables and the outcome variables, alcohol use, binge drinking and harmful consequences.

Two further binary logistic regression models were analysed. In analysing the context in which alcohol use took place, as a predictor of binge drinking, it produced non-

significant results from step 1 to step 8. The many reported locations in which alcohol was consumed, in both structured and unstructured environments, were not predictors of binge drinking. Therefore, no graphical representation was produced. In addition, binomial logistic regression was conducted to ascertain the possible effects of parental monitoring on the likelihood of young people living in urban disadvantage, not using alcohol/ using alcohol. Using a backward elimination process to analyse five parental monitoring variables which may predict alcohol use, depending on how often parents apply monitoring. The following predictor variables were entered into the model at step 1; parents know who I am with, parents know where I am, parents know where I am on a Saturday night, parents set rules at home and parents set rules outside the home. All non-statistically significant variables were removed step by step. At step 5 only 1 statistically significant variable remained in the model. However, the model explained only 2.1% (Nagelkerke R^2) of the variance in alcohol use. Therefore, no graphical representation was produced.

In summary if would appear that higher reported peer support is significantly implicated in the potential increase in alcohol use, binge drinking and harmful consequences, indicating higher peer support as being a potential risk factor around alcohol behaviours and negative consequences. Unstructured leisure time activities, like hanging out with peers in parks , increased the risk further of potential alcohol use and binge drinking, which may be driven by socially orientated expectations that motivate young people to drink alcohol.

To further investigate depression among young people living in urban disadvantage, two further models were analysed to examine the relationships between

the predictor variables, HRQoL, perceived wealth and time spent participating in leisure time activities on the outcome of suffering depressive symptoms.

Binary Logistic Regression - Model 7. Predicting depression.

A seventh model used binomial logistic regression to ascertain the possible effects of physical well-being, psychological well-being, parental relationships, peer support, school environment and perceived wealth on the likelihood of young people living in urban disadvantage, having no depression or levels of depression. The binary division of the outcome variable into two categories, indicating no depression or levels of depression, was set at above average scores as indicating levels of depressive symptoms. This was based on International reference data for self-report CDI females and males, aged 7-17 years (Ravens-Sieberer, 2006). All seven assumptions of a binomial logistic regression were met (Appendix 38).

Binary logistic Regression Findings

The seventh binary regression model also used a backward elimination process to analyse six variables which may predict depression levels. The following predictor variables were entered into the model at step 1; physical well-being, psychological well-being, parental relations, peer relations, school environment and perceived wealth. All variables were non-statistically significant except for one variable, psychological well-being, through step 1 to step 6. At step 6, psychological well-being was still the only constant statistically significant variable remaining throughout the model (Appendix 39).

Results for predictors of Depression – Model 7

The binomial logistic regression model was statistically significant, X^2 (1) = 63.370, $p < .001$. The model explained 33.8% (Nagelkerke R^2) of the variance in depression levels

and correctly classified 85.6% cases. Sensitivity was 96.0%, specificity was 28.9%, positive predictive value was 88.10%, negative predictive value was 56.52%. See Table 43 for results.

Table 43: Binary logistic regression predicting likelihood of depression

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
Psychological wellbeing	-.156	.024	42.874	1	**.000****	.856	.817	.897
Significant value *p* ≤ .05* P ≤ .01**								

As the odds ratio for depression was below 1, it indicated a decrease in odds of the likelihood of depression levels for every unit increase in psychological well-being. The model predicted that an increase in psychological well-being in disadvantaged young people meant the respondents were .856 times less likely to report depression levels. Psychological well-being is termed as emotionally balanced, satisfaction with life, with a positive outlook (Ravens-Sieberer, 2006).

Binary Logistic Regression - Model 8. Predicting Depression given leisure time activities

The eighth model used binomial logistic regression to ascertain the possible effects of leisure time activities on the likelihood of young people living in urban disadvantage, reporting levels of depression. All seven assumptions of a binomial logistic regression were met (Appendix 40).

Binary logistic Regression Findings

The eighth binary regression model also used a backward elimination process to analyse eight leisure time variables which may predict depression, depending on how often young people engaged in the activity. The following predictor variables were entered into the model at step 1; play computer games, actively participate in sports,

athletics or exercising, read books for enjoyment, go out in the evening to disco, café, hobbies like play an instrument, draw, write, go with friends to shopping centres, streets, parks for fun, use the internet for leisure activities and play slot machines. All non-statistically significant variables were removed step by step. At step 6 three variables remained in the model; actively participate in sports, athletics or exercising, reading books for enjoyment and go out in the evening (to a disco, café, party). Only two variables were statistically significant; actively participate in sports, athletics or exercising and go out in the evening (to a disco, café, party) (Appendix 41).

Results for predictors of depression – Model 8

The binomial logistic regression model was statistically significant, X^2 (3) = 21.017, $p < .001$. The model explained 12.1% (Nagelkerke R^2) of the variance in depression and correctly classified 84.4% cases. Sensitivity was 100%, specificity was 0.0%, positive predictive value was 84.37%, negative predictive value was 0.0%. See Table 44 for results.

Table 44: Binary logistic regression predicting likelihood of depression based on how often young people actively participated in sport, go out in the evening and reading books for enjoyment.

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
Actively participate in sport	-.539	.173	.9681	1	**.002****	.583	.415	.819
Read books for enjoyment	.243	.151	2.593	1	.107	1.275	.949	1.715
Go out in the evening	-.368	.163	5.069	1	**.024***	.692	.502	.953

Significant value *p* ≤ .05* P ≤ .01**

As the odds ratio for actively participating in sport or exercise was below 1, it indicated a decrease in odds of the likelihood of depression for every unit increase in actively participating in sports or exercise. The model predicted that an increase in

disadvantaged young people actively participating in sport and exercise meant the respondents were .583 times less likely to report depression.

Lastly, as the odds ratio for going out in the evening to a disco, café, party was below 1, it indicated a decrease in the odds of the likelihood of depression for every unit increase in going out in evening. The model predicted that an increase in disadvantaged young people going out in the evening meant the respondents were .692 times less likely to report depression.

Summary of Binary Logistic Regression Models 7 & 8 (Depression)

Using the backward elimination process two binary logistic regression models were analysed to predict the outcome variable depression. Model 7 identified one predictor, indicating that psychological well-being was a significant predictor of decreased odds of depression. Model 8 identified two predictors (leisure time activities), indicating that actively participating in sport, athletics and exercising, along with going out in the evening (to a disco, café, party) were significant predictors of decreased odds of depression. Increases in these three predictors by disadvantaged young people means they are less likely to report levels of depression.

5.5 Chapter Summary

This chapter has presented two main statistical approaches to analysing the school survey data: Spearman's rho correlation coefficients and binary logistic regression models. Initially, correlation analysis was conducted to measure the direction and strength of the relationship between the variables, identifying those relationships which were statistically significant. Based on these significant findings, key variables were included in the eight binary logistic regression models.

The binary logistic models identified the co-occurrence of specific predictive variables implicated in both the outcomes of alcohol use and binge drinking. These are the two dimensions of HRQoL, peer support and school environment, along with two leisure time activities, reading books and going with friends to shops, streets, and parks for fun. The strongest finding was noted in relation to how much time disadvantaged young people spent going with friends to shopping centres, streets, and parks for fun, in predicting alcohol use and predicting binge drinking behaviour. In addition, how often disadvantaged young people reported drinking alcohol because of specific motivations; because it helps you enjoy a party and because it’s fun, strongly predicted binge drinking behaviour. In relation to the outcome of harmful consequences from drinking alcohol, disadvantaged young people reported the motivation/expectation, to get high, as the strongest predictor. Interestingly, the motivations that predicted binge drinking differed to the motivations that predicted harmful consequences of drinking alcohol. Finally, all three significant predictors of depression; psychological well-being, actively participating in sport and exercise, and going out in the evening, indicated they may be protective factors against increasing levels of depression in disadvantaged young people. In concluding the binary logistic regression section, all statistically significant results have been collated and presented in a concise manner. See Table 45 below for an overview of all significant binary logistic regression model results.

Table 45: Collated results of all significant binary logistic regression model results.

Measures	Predictor Variable	Outcome Variable	Odds Ratio	Sig	95% CI odds ratio	
	One unit increase	**Outcome likelihood**			**Lower**	**Upper**
HRQoL	Peer support	Alcohol Use	1.045	0.002	1.017	1.074
HRQoL	School environment	Alcohol Use	0.943	0.001	0.910	0.976
Leisure time	Reading books	Alcohol Use	0.747	0.008	0.602	0.926
Leisure time	Going with friends to shops etc.	Alcohol Use	2.430	0.000	1.789	3.292
CDI	Depression	Alcohol Use	1.033	0.023	1.004	1.062
HRQoL	Peer support	Binge drinking	1.035	0.008	1.009	1.062
HRQoL	School environment	Binge drinking	0.915	0.000	0.882	0.950
Leisure time	Reading books	Binge drinking	0.772	0.015	0.627	0.951
Leisure time	Going with friends to shops etc.	Binge drinking	2.175	0.000	1.594	2.968
Motivations	Because it helps you enjoy a party	Binge drinking	2.438	0.000	1.769	3.359
Motivations	When feeling depressed or nervous	Binge drinking	0.655	0.050	0.428	1.001
Motivations	To cheer you up when in a bad mood	Binge drinking	1.583	0.036	1.032	2.429
Motivations	Because it's fun	Binge drinking	2.063	0.000	1.456	2.922
Motivations	To get high	Harmful consequences	2.643	0.000	1.666	4.192
Motivations	To fit in with the group	Harmful consequences	0.513	0.019	0.294	0.894
Motivations	To forget about your problems	Harmful consequences	1.548	0.038	1.025	2.340
HRQoL	Peer support	Harmful consequences	1.049	0.037	1.003	1.098
HRQoL	School environment	Harmful consequences	1.079	0.025	1.009	1.153
AUDIT	Total Audit Scores	Harmful consequences	1.316	0.000	1.178	1.470
HRQoL	Psychological Wellbeing	Depression	0.856	0.000	0.817	0.897
Leisure time	Actively participating in sport etc.	Depression	0.583	0.002	0.415	0.819
Leisure time	Going out in the evening etc.	Depression	0.692	0.024	0.502	0.953

The significant predictor variables that relate to alcohol use, binge drinking, and harmful consequences span across the following measures: the AUDIT, two domains of health-related quality of life, two domains of leisure time activity and depression. The significant predictor variables for depression span across one domain of health-related quality of life and two domains of leisure time activity. These significant predictor variables can be further categorised as either risk or protective in nature. As their effect operates either on the likelihood of an increase in risk or the likelihood of a decrease in risk, on the outcome variables under investigation. Table 46 to Table 52 below outlines the four outcome variables (alcohol use, binge drinking, harmful consequences and depression) and the nature of their relationship to the predictor variables as being either risk or protective in essence.

Table 46: Alcohol use - Risk Factors. Predictor variables categorised as risk, based on one unit increase in the predictor variable effecting the outcome variable alcohol use.

One unit increase in Predictor Variable	Measure	Outcome Likelihood
Peer Support	HRQoL	Increase use of Alcohol
Going with Friends to shops, parks, streets etc.	Leisure time activity	Increase use of Alcohol
Depression	CDI	Increase use of Alcohol

Table 47: Alcohol use - Protective Factors. Predictor variables categorised as protective, based on one unit increase in the predictor variable effecting the outcome variable alcohol use.

One unit increase in Predictor Variable	Measure	Outcome Likelihood
School environment	HRQoL	Decrease use of alcohol
Reading books for enjoyment	Leisure time activity	Decrease use of alcohol

Table 48: Binge Drinking - Risk Factors. Predictor variables categorised as risk, based on one unit increase in the predictor variable effecting the outcome variable binge drinking

One unit increase in Predictor Variable	Measure	Outcome Likelihood
Peer support	HRQoL	Increase in binge drinking
Going with Friends to shops, parks, streets etc.	Leisure time activity	Increase in binge drinking
Helps you enjoy a party	Motivation	Increase in binge drinking
Cheers you up when in a bad mood	Motivation	Increase in binge drinking
Because it’s fun	Motivation	Increase in binge drinking

Table 49: Binge Drinking - Protective Factors. Predictor variables categorised as protective, based on one unit increase in the predictor variable effecting the outcome variable binge drinking

One unit increase in Predictor Variable	Measure	Outcome Likelihood
School environment	HRQoL	Decrease in binge drinking
Reading books for enjoyment	Leisure time activity	Decrease in binge drinking
Feeling depressed or nervous	Motivation	Decrease in binge drinking

Table 50: Harmful Consequences of Alcohol Use - Risk Factors. Predictor variables categorised as risk, based on one unit increase in the predictor variable effecting the outcome variable harmful consequences.

One unit increase in Predictor Variable	Measure	Outcome Likelihood
Peer Support	HRQoL	Increase in harm
School Environment	HRQoL	Increase in harm
Total AUDIT scores	AUDIT	Increase in harm
To get high	Motivation	Increase in harm
To forget about your problems	Motivation	Increase in harm

Table 51: Harmful Consequences of Alcohol Use - Protective Factors. Predictor variables categorised as protective, based on one unit increase in the predictor variable effecting the outcome variable harmful consequences.

One unit increase in Predictor Variable	Measure	Outcome Likelihood
To fit in with the group	Motivation	Decrease in harm

Table 52: Depression - Protective Factors. Predictor variables categorised as protective, based on one unit increase in the predictor variable effecting the outcome variable depression

One unit increase in Predictor Variable	**Measure**	**Outcome Likelihood**
Psychological well-being	HRQoL	Decrease in depression
Actively participating in sport	Leisure time activity	Decrease in depression
Going out in the evening to café, party etc.	Leisure time activity	Decrease in depression

Based on the significant binary logistic regression results outlined above, further analysis of specific predictive variables were explored in the next chapter. These were examined through moderation and mediations analysis.

Chapter 6: Inferential Statistics

School Survey Data - Moderation or Mediation

6.1 Introduction

So far, the presence of predictive relationships between significant predictor variables and the four main outcome variables (alcohol use, binge drinking, harmful consequences and depression) have been established. These significant predictive variables have been designated as either risk or protective in nature. Risk factors are indicative of an increased risk to young people, while protective factors are indicative of a decreased risk to young people. Therefore, this satisfies one of the main objectives of the study, predicting the risk and protective factors of alcohol use, binge drinking, harmful consequences of drinking alcohol and depression among young people, living in urban disadvantaged. It is now necessary to consider the studies other main aim, to explore alcohol use and alcohol-related harms among young people living in urban disadvantage.

By previously using the total scores of the AUDIT (Babor et al., 2001) measure, as self-reported by young people, this accounted for the variable alcohol use. By using the total score of the RAPI measure (White & Labouvie, 1989) as self-reported alcohol-related harms by young people, this accounted for the variable harmful consequences of alcohol use. This chapter will further examine the recognised relationship between the predictor variable alcohol use and the outcome variable harmful consequences. The focus is to attempt to understand the mechanisms by which this predictive relationship functions (Hayes, 2012). Exploring how alcohol use as the independent variable exerts its influence on the dependent variable harmful consequences, through an assumed third variable. Both mediation and moderation analysis were considered for their suitability to address

the research aim. In Chapter 5, multiple variables were identified as risk and protective factors. However, the limitations of mediation and moderation statistical tests means only those variables with a true scale level of measurement can be further analysed as a possible third (mediator or moderator) variable. School environment, depression and peer support are scale level of measurement and will be analysed. However, domains of leisure time activities and motivations were treated as scale for the purpose of the binary logistic regression test but are not true scale level of measurement and therefore are not included in this analysis. This section will first introduce mediation and moderation analysis and the criteria for choosing the most appropriate test, followed by the results. Both mediation and moderation models were analysed.

6.2 Mediation

Mediation analysis indicates the extent to which the independent variable (X) influences the outcome on the dependent variable (Y) through a mediating variable (M). The conceptual mediation model is shown in Figure 5 below. Mediation is hypothesized to occur in a sequential causal relationship, with the mediator variable representing all or partial influence in a well-established relationship between X and Y (Tabachnick & Fidell, 2014). The following criteria must apply; the predictor variable X must significantly predict the outcome variable Y, indicting the direct effect. The predictor variable X must significantly predict the mediator variable M, shown as pathway a. The mediator variable M must significantly predict the outcome variable Y, shown as pathway b. Therefore, mediation is quantified when there is a reduction in the coefficient value between X and Y when the mediator is in the equation (indirect effect), compared to the total effect of X predicting Y (direct effect) (Baron & Kenny, 1986). In the current study, a hypothetical

causal chain would be assumed testing the effects of alcohol use on harmful consequences which operates through a third mediator variable, offering clarity around how these relationships operate.

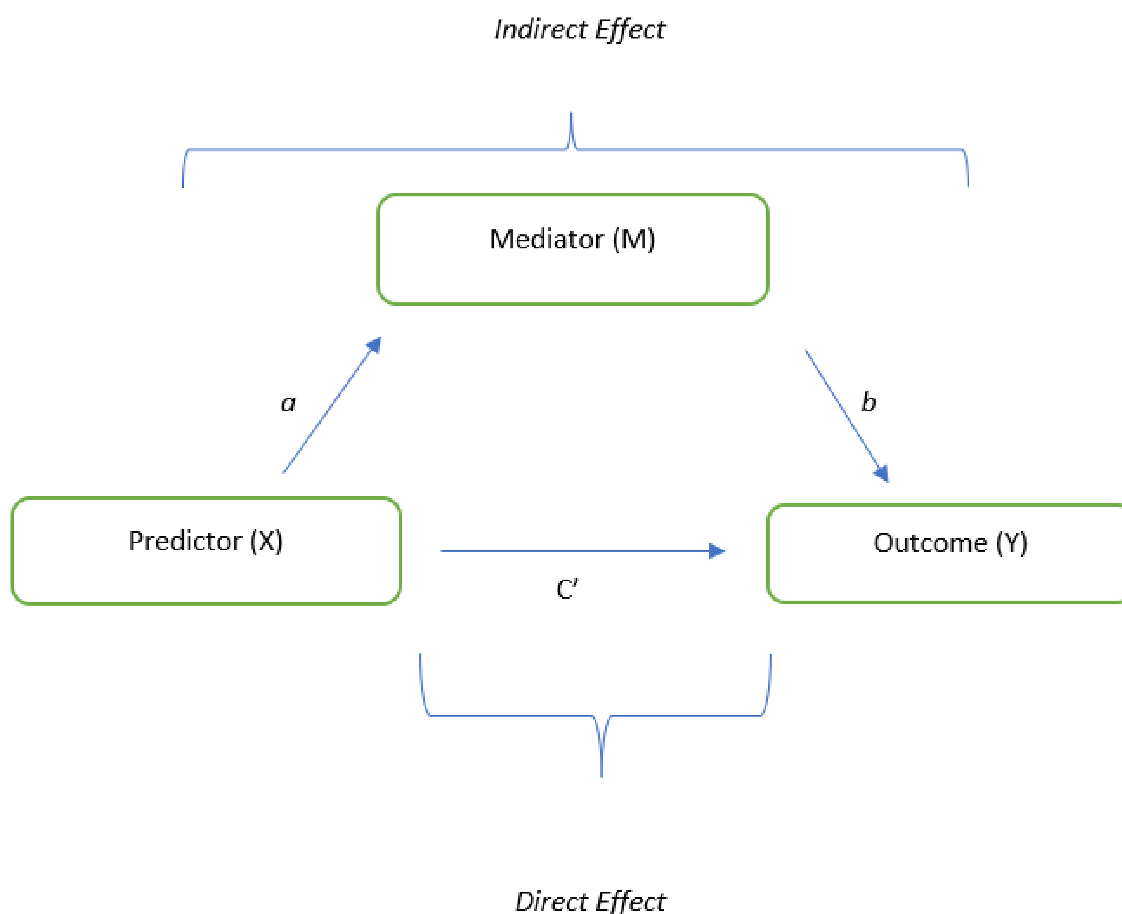


Figure 5: Simple mediation model (Field, 2018)

6.3 Moderation

Moderation analysis specifies the relationship between a predictor variable and an outcome variable through the influence of a third continuous moderator variable (W). The influence of the moderator can change the relationship between the predictor and outcome variables by changing direction, strengthening or weakening the relationship. So, the effect of X on Y changes or is moderated by the presence of a moderator variable

W, in the equation (Field, 2018). Moderation analysis is tested through an interaction effect. The predictor variable X and the moderator W interact to influence the outcome variable Y (Hayes, 2012). The interaction effect determines whether moderation has been established. This is tested by the predictor variable predicting the outcome variable, the moderator W predicting the outcome variable and the interaction of both the predictor and moderator variables in predicting the outcome (Laerd statistics, 2020). Figure 6 shows the conceptual moderation model. Figure 7 shows the simple statistical model for moderation analysis. In the current study, moderation analysis determined whether the moderator (W) changes the strength and direction of the relationship between alcohol use (X) and harmful consequences (Y). A significant relationship between alcohol use (AUDIT) and harmful consequences (RAPI) has been established. Therefore, hypothesising that the effect of alcohol use on harmful consequences will differ (in direction, weaken or strengthen the nature of the relationship) as a function of the moderator being present (Hayes, 2018).

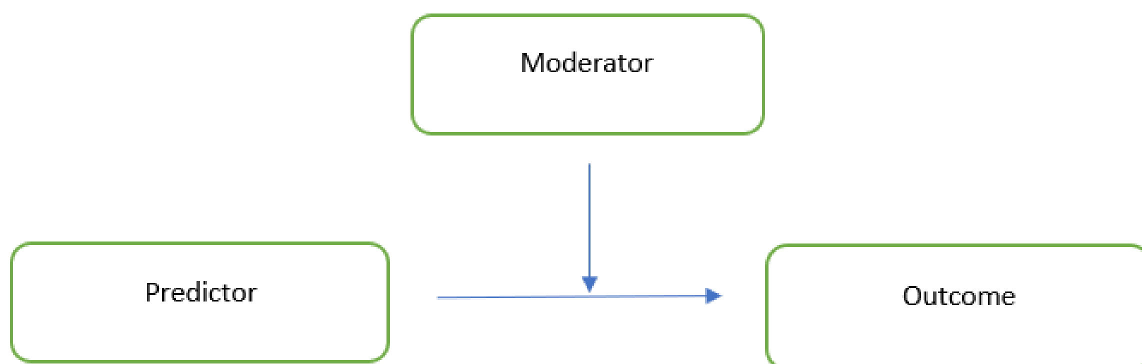


Figure 6: Simple conceptual model for moderation analysis (Field, 2018)

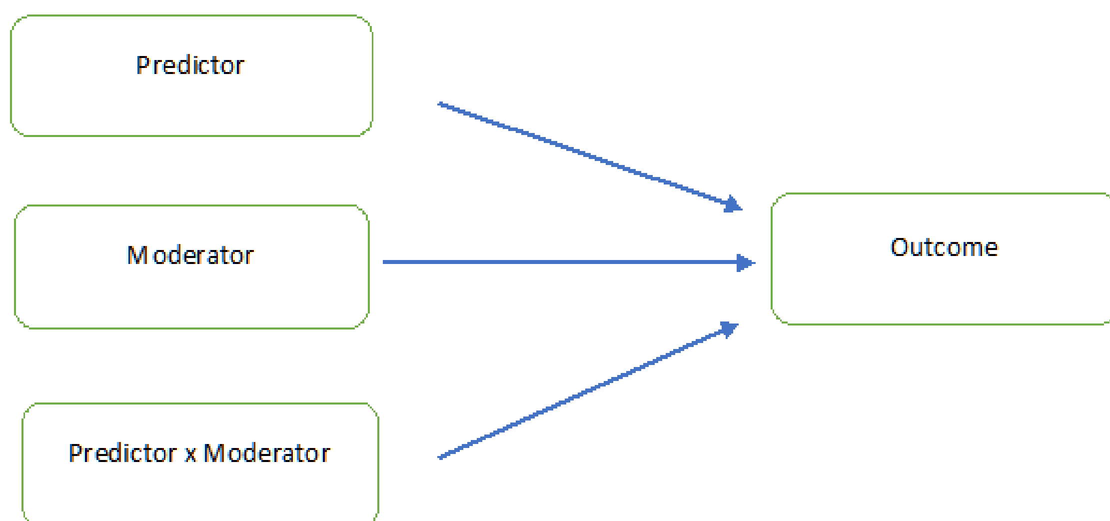


Figure 7: Simple statistical model for moderator analysis (Field, 2018).

In conclusion, both mediation and moderation are conceptually and statistically different. Mediation explains the existence of a mediating effect between the predictor variable and the outcome variable. Moderation exists when a third variable influences the strength or direction of the effect of the predictor variable on the outcome variable. Third variable analysis offers potential to answer the how, why, when and for whom or under

what conditions relations between alcohol use and harmful consequences relate to other psychosocial variables (MacKinnon & Luecken, 2008).

6.4 Testing assumptions:

Assumption 1: One dependent variable (outcome) measured at scale level.

Assumption 2: One independent variable (predictor) measured at scale level.

Assumption 3: One moderator variable measured at scale level.

Assumption 4: Independence of observations, with the moderator variable, independent variable and dependent variable should be mutually exclusive and exhaustive. Young people were analysed by low school environment, mean school environment or high school environment.

Assumption 5: Linearity was established using the Box-Tidwell procedure (Box & Tidwell, 1962) in Chapter 6, Model 6 (see Appendix 36) between all the predictor variables under analysis and the outcome variable harmful consequences.

Assumption 6: Homoscedasticity was assessed by visual inspection of the studentized residuals plotted against the predicted values for disadvantaged young people scoring low on school environment and high on school environment (See Figure 8 below). The graphical representation shows the studentized residuals did not appear to be randomly scattered showing possible heteroscedasticity. This assumption was met by selecting heteroscedasticity-consistent methods in the PROCESS 3.5 tool by Hayes (2018), which automatically addresses the same variance of the residuals at each level of the predictor (Hayes, 2018).

Assumption 7: As previously analysed the data violate the assumption of normality, therefore bootstrapping was applied to the moderation model to address this assumption.

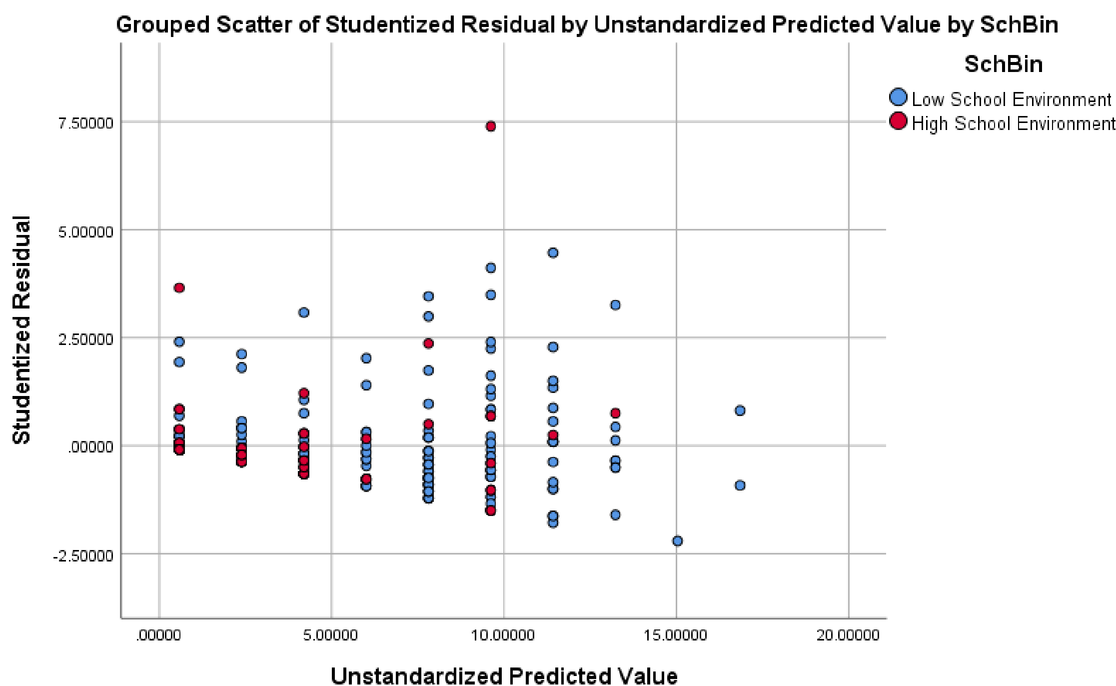


Figure 8: Scatterplot of total Rapi by total AUDIT by school environment

6.4.1 Model 1 – Using School Environment as a possible moderator.

Model 1 explored whether the relationship between alcohol use and harmful consequences was different for disadvantaged young people as a function of their overall satisfaction with school environment. The results in Chapter 6 showed that higher school environment indicated a decreased risk of alcohol use. However, in contrast, higher school environment indicated an increased risk of harmful consequences. Showing school environment to be a protective factor in alcohol use, but a risk factor relating to harmful consequences. As there was no evidence of a sequential causal relationship between all the variables, moderation analysis was the most appropriate test.

Results of Model 1

Firstly, the results indicated that the relationship between alcohol use (X) and harmful consequences (Y) changed or was moderated by school environment (W). Establishing that a moderator effect existed, by a significant interaction effect (b = .059, 95% CI [.0010, .107], t = 2.39, p = .017). Secondly, the results established, how the relationship between alcohol use and harmful consequences differed for different values of the moderator (Hayes, 2018). The moderator values were analysed at three levels, one standard deviation below the mean, the mean and one standard deviation above the mean. (As the continuous variables were mean centred before analysis, the mean value = 0.) See Figure 9 for simple slope equations.

The simple slope equations were interpreted as follows:

At one standard deviation below the mean of school environment, there was a significant positive relationship between alcohol use and harmful consequences: b = 1.43, 95% CI [1.01, 1.85], t = 6.76, p = <.001 (blue slope). At the mean of school environment, there was a significant slightly stronger positive relationship between alcohol use and harmful consequences: b = 1.94, 95% CI [1.50, 2.38], t = 8.66, p = <.001 (red slope). At one standard deviation above the mean of school environment, there was a significant stronger positive relationship between alcohol use and harmful consequences: b = 2.45, 95% CI [1.70, 3.20], t = 6.40, p = <.001 (green slope).

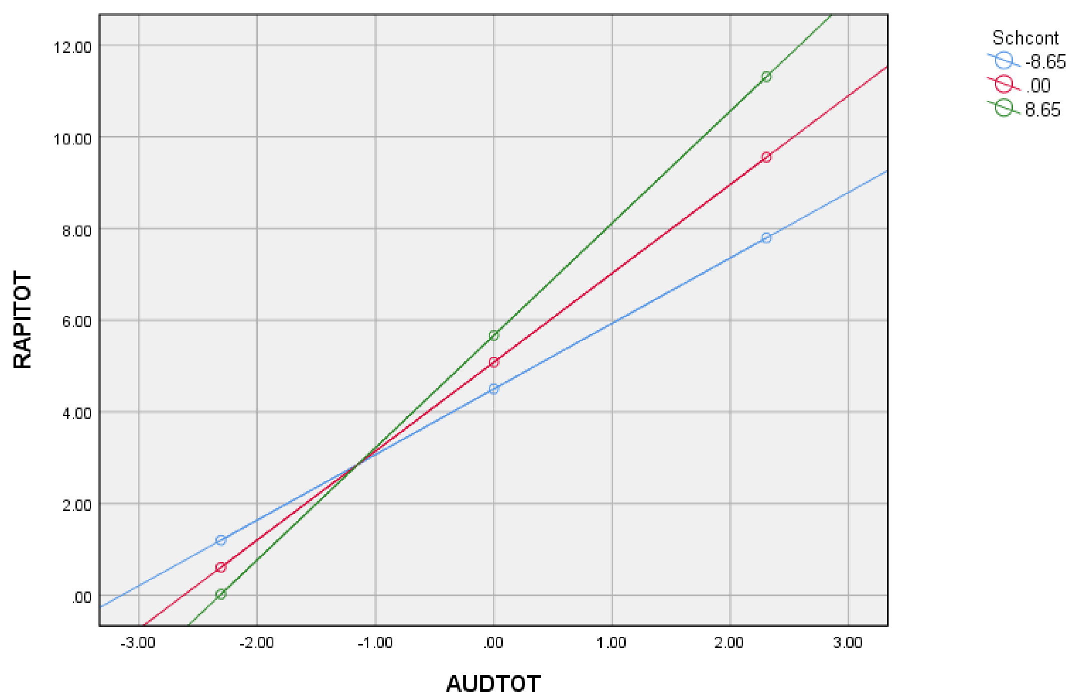


Figure 9: Simple slope representation of the moderation effect of Alcohol use (X) on harmful consequences (Y) at the low value of the moderator- school environment (blue slope), at the mean value (red slope) and high value of the moderator- school environment (green slope)

This showed the relationship between alcohol use and harmful consequences became stronger, among disadvantaged young people, with higher school environment levels. To further define the moderator values significance range, using the centred values of school environment, the Johnson-Neyman test defined the conditional effect of alcohol use at values of the moderator, school environment. From the range of school environment values, -19.39 to 26.64, the relationship between alcohol use and harmful consequences was statistically significant. As school environment increased (shown by corresponding *b* values .798 to 3.51) so did the strength of the relationship between alcohol use and harmful consequences. See Table 53 for predictors of harmful consequences (RAPI). In conclusion, moderation was found through a significant interaction effect. Further simple slope analysis examined the relationship between

alcohol use and harmful consequences at low, mean and high levels of school environment (Field, 2018).

Table 53: Moderation regression of predictors of harmful consequences

	b	se	t	*p*	CI
Constant	5.08	.430	11.83	*p* = <0.001	[4.24, 5.93]
AUDIT	1.94	.224	8.66	*p* = <0.001	[1.50, 2.38]
School environment	.067	.052	1.29	*p* = .197	[-035, .170]
AUDIT x School environment	.059	.025	2.39	***p* = .017**	[.010, .107]

Note R-Sq = 0.32

6.4.2 Model 2 – Using Depression as a possible moderator.

Model 2 explored whether the relationship between alcohol use and harmful consequences was different for disadvantaged young people as a function of depression (CDI). All assumptions were satisfied prior to, or during analysis. The results in Chapter 6 showed that higher depression indicated an increased risk of alcohol use, or a risk factor. As there was no evidence of a sequential causal relationship between all the variables, moderation analysis was the most appropriate test.

Results of Model 2

The results indicated that the relationship between alcohol use (X) and harmful consequences (Y) was not moderated by depression (W). Establishing that a moderating effect did not exist (b = .004, 95% % CI [-.027, .035], t = .239, p = .811). The moderator values are represented on a simple slope analysis, at three levels of the moderator. One standard deviation below the mean, the mean, and one standard deviation above the mean. (As the continuous variables were mean centred before analysis, the mean value =

0.) See Figure 10 which clearly indicates no differing moderating effects across the relationship of alcohol use and harmful consequences.

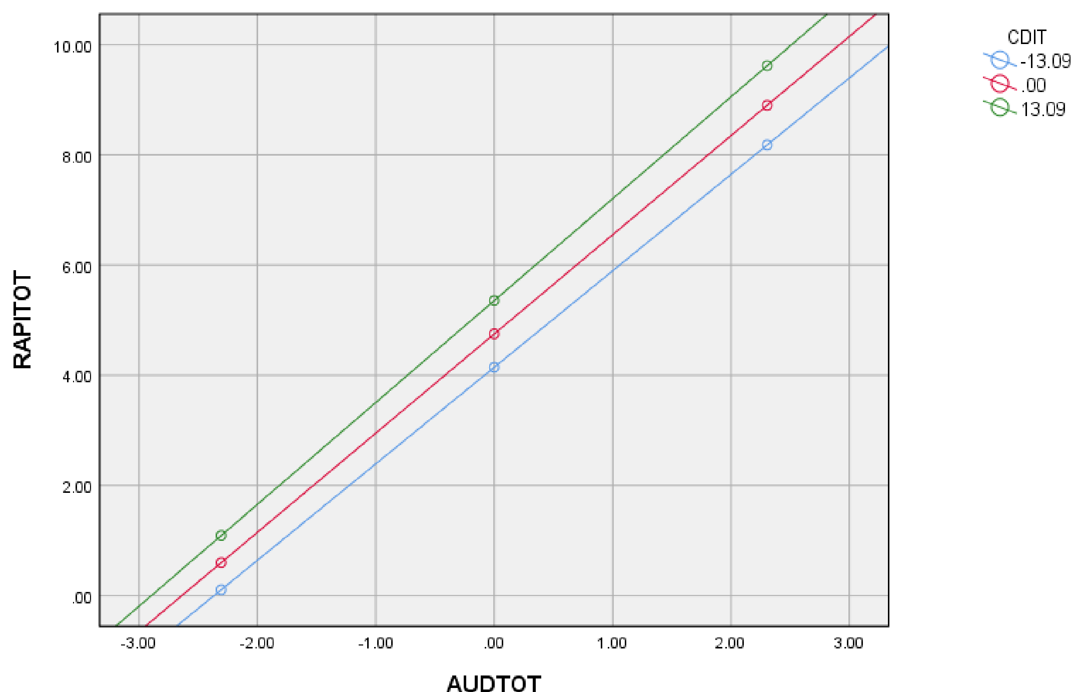


Figure 10: Simple slope representation showing no moderator effects of Alcohol use (X) on harmful consequences (Y) at the low value of the moderator- depression (blue slope), at the mean value (red slope) and high value of the moderator- depression (green slope)

6.4.3 Model 3 – Using Peer Support as a possible moderator.

Model 3 explored whether the relationship between alcohol use and harmful consequences was different for disadvantaged young people as a function of peer support. All assumptions were satisfied prior to, or during analysis. The results in Chapter 6 confirm that higher peer support indicated an increased risk of alcohol use and harmful consequences, making it a risk factor. As there was no evidence of a sequential causal relationship between all the variables, moderation analysis was the most appropriate test.

Results of Model 3

The results indicated that the relationship between alcohol use (X) and harmful consequences (Y) was not moderated by peer support (W). Establishing that a moderating effect did not exist, (b = -.006, 95CI [-.072, .059], t = -.196, p = .845). The moderator values are represented on a simple slope analysis, at three levels of the moderator. One standard deviation below the mean, the mean, and one standard deviation above the mean. (As the continuous variables were mean centred before analysis, the mean value = 0.) See Figure 11 which clearly indicates no significant moderating effects across the relationship of alcohol use and harmful consequences.

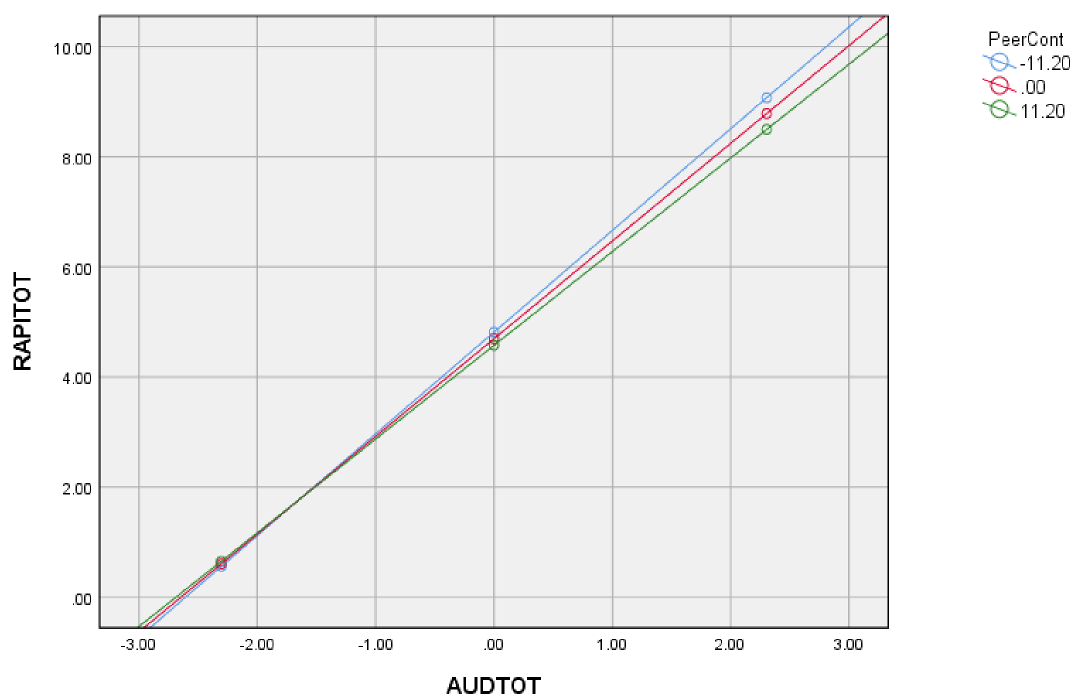


Figure 11: Simple slope representation showing no moderator effects of Alcohol use (X) on harmful consequences (Y) at the low value of the moderator- peer support (blue slope), at the mean value (red slope) and high value of the moderator- peer support (green slope)

Due to the possible presence of a causal link between alcohol use and harmful consequences being mediated by depression, a fourth model re-examined the predictor variable depression as a possible mediator. Mediation analysis indicates the extent to which the independent variable (X) influences the outcome on the dependent variable (Y) through a mediating variable (M). The results in Chapter 6 showed higher depression levels indicated an increased risk of alcohol use, making it a risk factor. Using the PROCESS tool by A.F. Hayes in SPSS (Hayes, 2012), non-parametric mediation analysis was conducted using a bootstrapping procedure. The results of mediation analysis using alcohol use as the predictor variable (X) harmful consequences as the dependent variable (Y) and depression as the mediator (M), indicated depression did not mediate the relationship between alcohol use and harmful consequences. The strength of the relationship between alcohol use and harmful consequences was not reduced by including the mediator (Field, 2018). See Appendix 42.

Finally, due to the results of Model 1 indicating that the relationship between alcohol use and harmful consequences became stronger, among disadvantaged young people, with higher school environment levels. The significance of school environment warranted further exploratory analysis, by means of the four domains which comprised school environment. Using the four domains; have you been happy at school, have you got on well at school, have you been able to pay attention at school, and have you got along with your teachers, as the predictor variables, on the outcome variables alcohol use, binge drinking, harmful consequences and depression, by using binomial logistic regression modelling.

6.5 Model 1. Predicting alcohol use.

A binomial logistic regression was conducted to ascertain the possible effects of the four domains of school environment on the likelihood of young people living in urban disadvantage, not using alcohol or using alcohol. All assumptions were previously met as outlined in Model 1, Chapter 5 (Appendix 25 and 26) predicting alcohol use. The method used was backward elimination. The four predictor variables that comprise school environment were entered into the model: have you been happy at school, have you got on well at school, have you been able to pay attention and have you got along with your teachers. The least significant variables were removed one-by-one from the model (significance level is ≤ .05). At step 4 of the modelling process only one variable remained, which was significant; have you been able to pay attention.

Results for predictors of alcohol use

The binomial logistic regression model was statistically significant, X^2 (1) = 28.32, $p < .000$. The model explained 13% (Nagelkerke R^2) of the variance in alcohol use and correctly classified 73.4% cases. Sensitivity is the measure of percentage of cases that had the observed alcohol use correctly predicted by the model, i.e., true positives (Laerd Statistics, 2020). Sensitivity in this model was 94.6%. Specificity is the measure of percentage of cases that observed not using alcohol, correctly predicted by the model, or true negatives (Laerd Statistics, 2020). In this model the specificity was 16.9%. The positive predictive value was 75.27% of correctly predicted cases observed using alcohol, compared to the total number of cases. The negative predictive value was 53.85% of correctly predicted cases of not using alcohol, compared to the total number of cases. See Table 54 for results.

Table 54: Binomial Logistic regression predicting likelihood of alcohol use based on how often young people reported being able to pay attention in school

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
Able to pay attention	-.755	.151	24.938	1	**.000****	.470	.350	.632

Significant value *p* ≤ .05* P ≤ .01**

As the odds ratio for ability to pay attention in school was below 1, it indicated an increase in the ability to pay attention in school was associated with a decrease in the likelihood of alcohol use. The model predicted that an increase in the ability to concentrate in school, the respondents were .470 times less likely to use alcohol.

6.6 Model 2. Predicting binge drinking

A binomial logistic regression was conducted to ascertain the possible effects of the four domains of school environment on the likelihood of young people living in urban disadvantage, not binge drinking or binge drinking. All assumptions were previously met as outlined in Chapter 5, Model 3 (Appendix 30) predicting binge drinking. The method used was backward elimination. The four predictor variables that comprise school environment were entered into the model: have you been happy at school, have you got on well at school, have you been able to pay attention and have you got along with your teachers. The least significant variables were removed one-by-one from the model (significance level is ≤.05). At step 3 of the modelling process only two variables remained, which were both significant; have you been able to pay attention and have you got along with your teachers.

Results for predictors of binge drinking

The binomial logistic regression model was statistically significant, X^2 (2) = 18.30, $p < .000$. The model explained 8% (Nagelkerke R^2) of the variance in binge drinking and correctly classified 59.9% cases. Sensitivity was 25%, specificity was 85.2%, positive predictive value was 55.17%, negative predictive value was 60.97%. See Table 55 for results.

Table 55: Binomial Logistic regression predicting likelihood of binge drinking based on how often young people reported being able to pay attention and got along with their teachers in school

	β	**SE**	**Wald**	**df**	**Sig**	**Odds Ratio**	**95% CI odds ratio Lower**	**Upper**
Able to pay attention	-.320	.136	5.544	1	**.019***	.726	.556	.948
Got along with teachers	-.296	.122	5.878	1	**.015***	.744	.586	.945

Significant value $p \leq .05$* P ≤ .01**

As the odds ratio for ability to pay attention in school was below 1, it indicated an increase in the ability to pay attention in school was associated with a decrease in the likelihood of binge drinking. The model predicted that an increase in the ability to concentration in school, the respondents were .726 times less likely to binge drink.

As the odds ratio to get along with teachers in school was below 1, it indicated an increase in young people getting along with teachers in school was associated with a decrease in the likelihood of binge drinking. The model predicted that an increase in forging relationships with teachers, the respondents were .744 times less likely to binge drink.

6.6 Model 3 Predicting harmful consequences of alcohol use.

A binomial logistic regression was conducted to ascertain the possible effects of the four domains of school environment on the likelihood of young people living in urban disadvantage, experiencing no harmful consequences from alcohol use or experiencing higher than average harmful consequences from alcohol use. All assumptions were previously met as outlined in Chapter 5, Model 6 (Appendix 36) predicting harmful consequences from alcohol use. The method used was backward elimination. The four predictor variables that comprise school environment were entered into the model: have you been happy at school, have you got on well at school, have you been able to pay attention and have you got along with your teachers. The least significant variables were removed one-by-one from the model (significance level is ≤.05). At all 4 steps of the modelling process the variables were non-significant.

6.7 Model 4. Predicting Depression levels.

A binomial logistic regression was conducted to ascertain the possible effects of the four domains of school environment on the likelihood of young people living in urban disadvantage, having no depression or levels of depression. All assumptions were previously met as outlined in Chapter 5, Model 7 (Appendix 38) predicting levels of depression. The method used was backward elimination. The four predictor variables that comprise school environment were entered into the model: have you been happy at school, have you got on well at school, have you been able to pay attention and have you got along with your teachers. The least significant variables were removed one-by-one from the model (significance level is ≤.05). At step 4 of the modelling process only one variable remained, which was significant; have you been happy at school.

Results for predictors of depression

The binomial logistic regression model was statistically significant, X^2 (1) = 32.11, $p < .000$. The model explained 17% (Nagelkerke R^2) of the variance in depression levels and correctly classified 83.7% cases. See Table 56 for results.

Table 56: Binomial Logistic regression predicting likelihood of depression levels based on how often young people reported being happy in school

	β	SE	Wald	df	Sig	Odds Ratio	95% CI odds ratio Lower	Upper
Being happy in school	-.878	.172	26.204	1	**.000****	.416	.297	.582

Significant value $p \leq .05$* P ≤ .01**

Note: Sensitivity was 100%, specificity was 0%.

As the odds ratio of being happy in school was below 1, it indicated an increase in being happy at school was associated with a decrease in the likelihood of depression levels. The model predicted that in increase in positive feelings about school, the respondents were .416 times less likely to have depression levels. See Table 57 below for an overview of all significant binary logistic regression model results.

Table 57: Collated results of all significant binary logistic regression models on the four predictor variables of school environment on the outcome variables alcohol use, binge drinking and depression

Measures	Predicted Variable One unit increase	Outcome Variable Likelihood	Odds Ratio	Sig	95% CI Lower	Upper
HRQoL	Able to pay attention	Alcohol use	0.470	0.000	0.350	0.632
HRQoL	Able to pay attention	Binge Drinking	0.726	0.019	0.556	0.948
HRQoL	Got along with teachers	Binge drinking	0.744	0.015	0.586	0.945
HRQoL	Being happy in school	Depression	0.416	0.000	0.297	0.582

Significant Value $p \leq .05$

6.8 Chapter Summary

Three moderation models were analysed, and the results are presented in this chapter. In addition, one mediation model was conducted. The first moderation model comprised alcohol use as the predictor variable, school environment as the moderator variable and harmful consequences as the outcome variable. The findings indicated a significant moderator effect existed. School environment strengthened the effect between alcohol use and harmful consequences. So, the relationship between alcohol use and harmful consequences strengthened for young people with higher school environment level. Higher school environment relates to young people with an increase in positive feelings about their ability to learn, to concentrate, to do well in school and forge relationships with teachers. The second moderation model comprised alcohol use as the predictor, depression as the moderator variable and harmful consequences as the outcome variable. A moderating effect was not evident and indicated that the relationship between alcohol use and harmful consequences was not moderated by depression. The third moderation model comprised alcohol use as the predictor variable, peer support as the moderator variable and harmful consequences as the outcome variable. A moderating effect was not evident and indicated that the relationship between alcohol use and harmful consequences was not moderated by peer support. To further explore depression as a possible mediator, mediation analysis comprised alcohol use as a predictor variable, depression as a mediating variable and harmful consequences as the outcome variable. The results indicated that there was a significant direct effect between alcohol use and harmful consequences, however the indirect effect with depression in the model was non-

significant. Resulting in depression not having a mediating effect on alcohol use and harmful consequences.

Finally, the four domains comprising school environment were further examined, through binary logistic regression modelling. To ascertain the relationship between each predictor variable which makes up school environment; have you been happy at school, have you got on well at school, have you been able to pay attention at school and have you got along with your teachers, on the outcome variables alcohol use, binge drinking, harmful consequences and depression. The ability to pay attention in school was a potential protective factor for alcohol use and binge drinking. Getting along with teachers was a potential protective factor for binge drinking. While being happy at school was a potential protective factor against increasing levels of depression in disadvantaged young people.

This concludes the findings of the school and Youthreach cross-sectional survey (Part 1). The next chapter will present the findings on emergency department presentations, by young people, due to alcohol-related harm/injury (Part 2).

Chapter 7: Descriptive and basic inferential findings on alcohol-related emergency department presentations from two urban hospitals

7.1 Introduction

This chapter will present specific details of alcohol-related Emergency Department (ED) presentations by children and young people, from two urban hospitals, over an eleven-year period (2009-2019). The findings relate back to the main objective, to examine the scale and scope of alcohol-related harms as evidenced by emergency department presentations. The anonymised secondary data relate to children and young people between the ages of 12-18 years who presented at either the Paediatric Emergency Department (PED) (age 12-15 years) or the Adult Emergency Department (AED) (16-18 years), with acute conditions wholly or partially attributable to their personal consumption of alcohol. Based on the hospital symphony data management systems, data were extracted across the following variables:

- per year (overall annual alcohol-related presentations)
- repeat presentations within a 30-day period,
- mode of transport to the hospital,
- gender,
- age,
- referral source,
- triage category,
- presenting complaint,
- final doctor's diagnosis,
- discharge outcome

- discharge destination

A summary of the descriptive and basic inferential findings is presented below in either graph or table format, based on the variables shown above. The full extended results are presented in Appendix 43. In addition, the nurse's triage comments inserted into the free text comment box were analysed using content analysis. These findings are reported separately in sections 7.6. to 7.11.

7.2 Description of the sample

A total of 1,325 young people aged between 12-18 years presented at the Emergency Departments of two urban hospitals, located on one site, between 2009-2019, having consumed alcohol. From the overall total of 1,325 young people, 530 (40%) presented at the paediatric emergency department (PED) and 795 (60%) presented at the adult emergency department (AED). The average age presenting in the PED was 14.32 years (SD= .85). The average age presenting in the AED was 17.16 years (SD= .87). The data indicated 737 (55.7%) were male, 588 (44.3%) were female (PED - male 250, female 280) (AED - male 487, female 308). Although it is important to recognise all gender identifications, the hospital data report only male and female. All other demographic information was removed while extracting the hospital data to ensure total anonymity.

7.3 Data management and analysis plan

The results reported below reflect the descriptive statistics by emergency department (PED or AED) and in total (Table 58 to Table 66 and Figure 12 and Figure 13) In addition, the results are then reported by gender and in total (Table 67 to Table 74 and Figure 14 and Figure 15). Where appropriate, further analysis explored the relationships among categorical variables. Chi-square tests were conducted, between two categorical

variables, with two or more categories. The Chi-squared test for homogeneity (R x 2) were conducted to determine if there were statistically significant differences in the probabilities between one independent variable, with two groups (gender and Emergency Department) in terms of multinominal dependent variables with three or more categories (Laerd Statistics, 2020). In the case where statistically significant differences in probabilities were identified, then further post hoc tests were conducted to establish exactly where the differences in proportions lay among the categories of the dependent variable, between the two groups of the independent variable. This was achieved by running multiple z-tests of two proportions. Where the data violated the assumptions of a Chi-square test then Fisher's exact tests were alternatively reported.

7.4 Results presented by Paediatric Emergency Department (PED), Adult Emergency Department (AED) and Totals

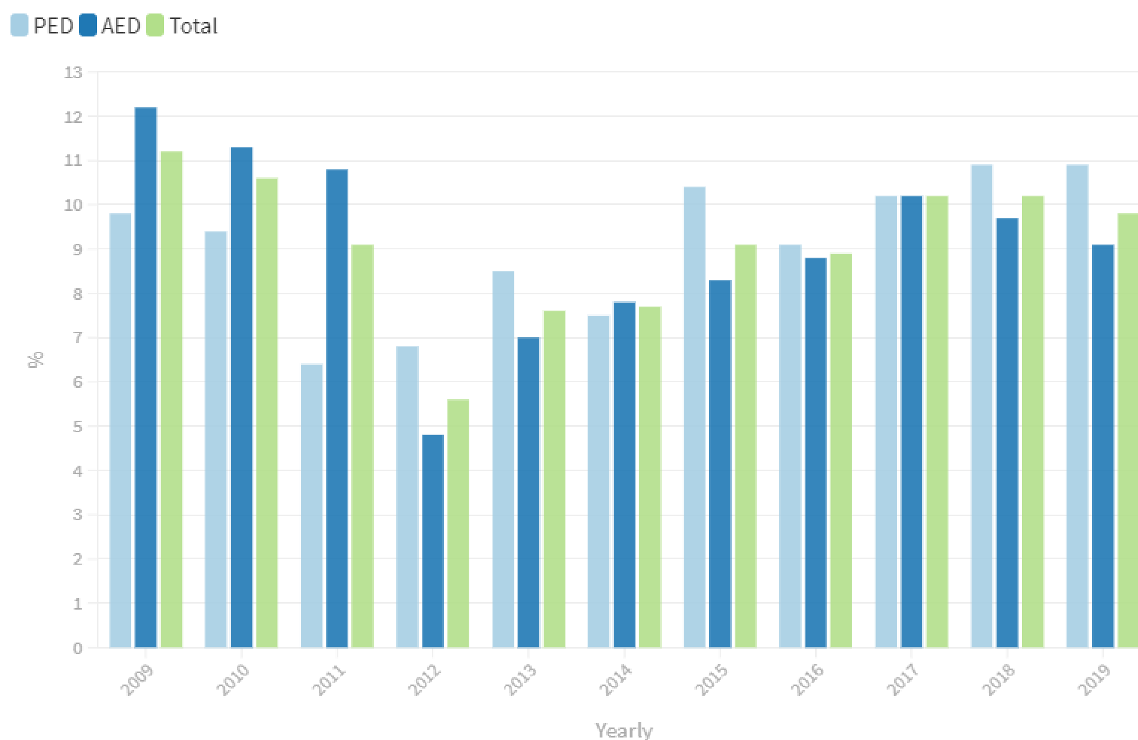


Figure 12: Frequencies of alcohol-related presentations by children and young people yearly, from 2009- 2019, by PED, AED and Totals

The highest number of presentations across both PED and AED was in 2009, with 149 presentations. The lowest number of presentations across both PED and AED was in 2012, with 74 presentations (see Figure 12 above).

Table 58:Frequencies of repeat alcohol-related presentations by children and young people within a 30-day period, by PED, AED and total

Repeat presentations	PED n, %	AED n, %	Total n, %	Chi-Square
Did not repeat presentation	526, 99.2%	765, 96.2%	1291, 97.4%	
Repeat presentation	4, .8%	30, 3.8%	34, 2.6%	
Total	530, 100%	795, 100%	1325, 100%	*p* ≤.001

A Chi-Square test for independence (with Yates Continuity Correction) indicated a significant association χ^2 (1, n=1325) = 10.42, *p*= .001, *phi* = .09. Therefore, the proportion of PED presentations that had repeat visits were significantly different from the proportion of AED presentations who had repeat visits. The findings indicate a higher proportion of young people had repeat visits within the AED, than in the PED (see Table 58 above).

Table 59: Frequencies of mode of transport to the hospital, by PED, AED and total

Mode of transport	**PED** **n, %**	**AED** **n, %**	**Total** **n, %**	**Fisher's exact**
Ambulance	342, 64.5%	493, 62%	835, 63%	
Car	176, 33.2%	260, 32.7%	436, 32.9%	
Taxi	2, .4%	12, 1.5%	14, 1.1%	
Gardai	6, 1.1%	5, .6%	11, .8%	
Public Transport	1, .2%	11, 1.4%	12, .9%	
Walk	0, 00%	14, 1.8%	14, 1.1%	
Other	2, .4%	0, 00%	2, .2%	
Total	529, 99.8%	795, 100%	1324, 99.9%	*p*=.001

The proportion of PED presentations that arrived by public transport and walked was significantly different to the proportion of AED presentations that arrived by public transport and walked. A higher proportion of young people walked or arrived on public transport to AED, than in the PED. There were no significant differences in the proportion of presentations that arrived by ambulance between the PED and AED (see Table 59 above).

Table 60: Frequencies of alcohol-related presentations by gender, by PED, AED and total

Gender	**PED** **n, %**	**AED** **n, %**	**Total** **n, %**	**Chi- square**
Female	279, 52.6%	308, 38.7%	588, 44.3%	
Male	251, 47.4%	487, 61.3%	737, 55.7%	
Total	530, 100%	795, 100%	1325, 100%	$p \leq .001$

The proportion of male/female presentations in the PED were significantly different from the proportion of male/female presentations in the AED. A greater number of females presented to PED and a greater number of males presented to AED. Overall, higher number of males presented with alcohol-related harm/injury (see Table 60 above).

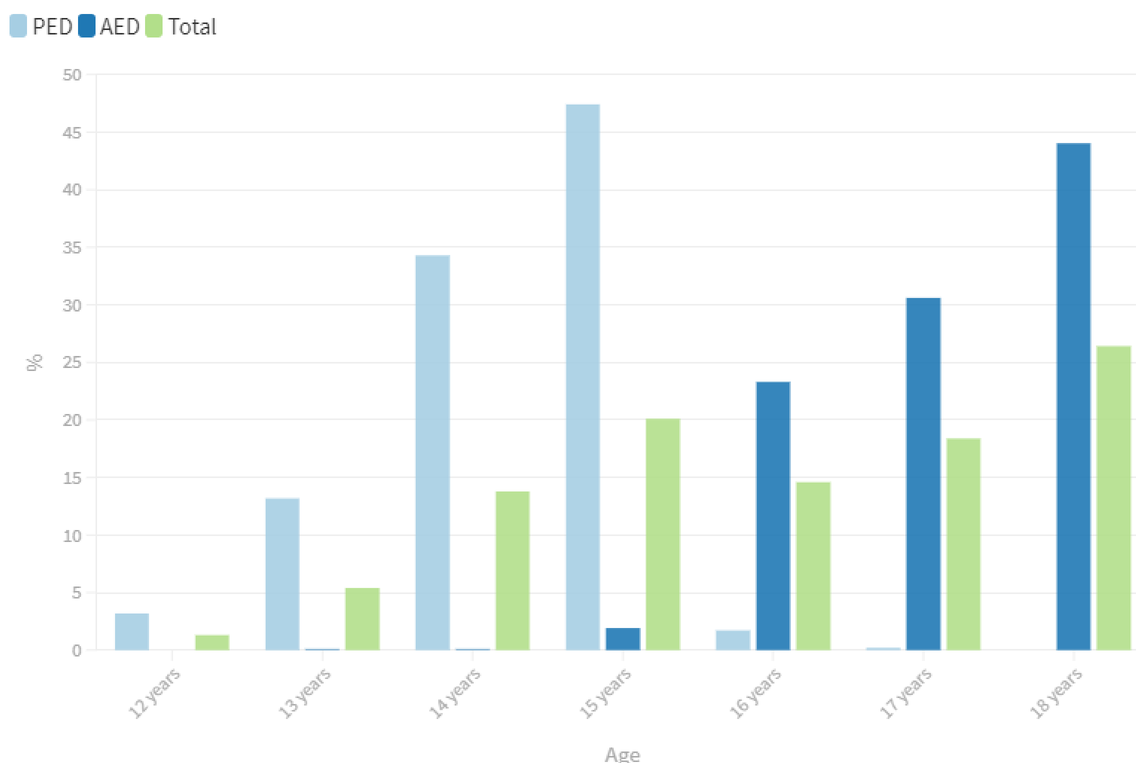


Figure 13: Frequencies of alcohol-related presentations by Age, by PED, AED and Total

In PED, 47% of the alcohol-related presentations were by 15-year-olds (130 female, 121 male). In AED, 44% of the alcohol-related presentations were by 18-year-olds (111 female, 239 male). This highlights the likelihood of two vulnerable at-risk groups to alcohol-related harms (see Figure 13 above).

Table 61: Frequencies of alcohol-related presentations by referral source, by PED, AED and total.

Referral Source	PED	AED	Total	Chi-square
	n, %	n, %	n, %	
Self	478, 90.2%	744, 93.6%	1222, 92.2%	
Gardai	16, 3%	2, .3%	18, 1.4%	
Hospital/Clinic	6, 1.1%	4, .5%	10, .8%	
GP	23, 4.3%	17, 2.1%	40, 3%	
Other	7, 1.3%	28, 3.5%	35, 2.6%	
Total	530, 100%	795, 100%	1325, 100%	$p \leq .001$

There was a statistically significant difference in the proportion of PED and AED presentations who were referred by An Garda Síochána (n =16, 3% versus n = 2, .3%), with a higher proportion in PED. Self-referrals were the dominant referral source across both PED and AED. Self-referral in the context of this study means the young person attended the ED, without prior consultation with any other medical professional (e.g., GP or Clinic) (see Table 61 above).

Table 62: Frequencies by Triage category, by PED, AED and total

Triage Category	PED	AED	Total	Chi-square
	n, %	n, %	n, %	
Category 1 (Immediate Attention)	33, 6.2%	11, 1.4%	44, 3.3%	
Category 2 (Very urgent attention)	258, 48.7%	213, 26.8%	471, 35.5%	
Category 3 (Urgent)	200, 37.7%	468, 58.9%	668, 50.4%	
Category 4 (Standard)	38, 7.2%	96, 12.1%	134, 10.1%	
Category 5 (Non-urgent)	1, .2%	7, .9%	8, .6%	
Total	530, 100%	795, 100%	1325, 100%	$p \leq .001$

The results indicated statistically significant differences in the proportion of PED and AED presentations who were assigned triage category 1 (n = 33, 6.2% versus n = 11, .1.4%) as well as the proportion of PED presentations who were assigned triage category 2 (n= 258, 51.3% versus n = 213, 73.2%), category 3 (n = 200, 62.3% versus n= 468, 41.1%) and category 4 (n= 38, 7.2% versus n = 96, 12.1%), than AED presentations. The majority

of PED presentations were considered very urgent, whereas the majority of AED presentations were considered urgent (see Table 62 above).

Table 63: Frequencies of alcohol-related presentations by Presenting complaint, by PED, AED and total

Presenting complaint	PED n, %	AED n, %	Total n, %	Chi-square
Collapse	8, 1.5%	144, 18.1%	152, 11.5%	
Laceration/Wound/Injury	93, 17.5%	264, 33.2%	357, 26.9%	
Ingestion	206, 38.9%	37, 4.7%	243, 18.3%	
Intoxication/Overdose	162, 30.6%	87, 10.9%	249, 18.8%	
Pain	14, 2.6%	158, 19.9%	172, 13%	
Convulsions/Seizures	8, 1.5%	6, .8%	14, 1.1%	
Respiratory/Heart	0, 00%	15, 1.9%	15, 1.1%	
Psychosocial	23, 4.3%	43, 5.4%	66, 5%	
Other	16, 3%	31, 3.9%	47, 3.5%	
Did not wait	0, 00%	10, 1.3%	10, .8%	
Total	530, 100%	795, 100%	1325, 100%	$p \leq .001$

The results indicate statistically significant differences in the proportion of PED presentations due to collapse; laceration/wound/injury; ingestion; pain; intoxication and respiratory/heart, than AED presentations. The highest reported presenting complaints in PED was ingestion and intoxication/overdose (70%), while the highest reported presenting complaint in AED was laceration/wound/injury (33%). This highlights specific presenting complaints, which are unique to both the PED and AED (see Table 63 above).

Table 64: Frequencies of Doctor's diagnosis, by PED, AED and total

Doctor's diagnosis	PED n, %	AED n, %	Total n, %	Fishers Exact
Alcohol excess/Intoxication	309, 58.3%	185, 23.3%	494, 37.3%	
Ingestion	93, 17.5%	45, 5.7%	138, 10.4%	
Laceration/Wound/Injury	70, 13.2%	170, 21.45%	240, 18.1%	
Collapse	0, 00%	8, 1%	8, .6%	
Respiratory/heart	0, 00%	2, .3%	2, .2%	
Convulsions/seizures	3, .6%	7, .9%	10, .8%	
Psychosocial	16, 3%	30, 3.8%	46, 3.5%	
Other	9, 1.7%	27, 3.4%	36, 2.7%	
Normal Clinical examination	5, .9%	60, 7.5%	65, 4.9%	
No diagnosis available	4, .8%	54, 6.8%	58, 4.4%	
Did not wait	13, 2.5%	197, 24.8%	210, 15.8%	
Total	522, 98.5%	785, 98.7%	1307, 98.6%	$p \leq .001$

There are significant differences in the proportion of presentations between the PED and AED for the following doctor's diagnosis: alcohol excess/intoxication; laceration/wound/injury; did not wait; no diagnosis available; collapse; normal clinical exam and ingestion. The highest reported Doctor's diagnosis in PED was alcohol excess/intoxication (58%), while the highest reported Doctor's diagnosis in AED was "Did not wait" (25%) followed by alcohol excess/intoxication (23%) followed by laceration/wound/injury (21%). This highlights specific alcohol-related harms diagnosed by a doctor, which are unique to both the PED and AED. A significantly high proportion of AED presentations after being triaged did not wait to be diagnosed by a doctor (see Table 64 above).

Table 65: Frequencies of Discharge outcome, by PED, AED and total

Discharge outcome	**PED**	**AED**	**Total**	**Chi-square**
	n, %	**n, %**	**n, %**	
Admitted to hospital	328, 61.9%	68, 8.6%	396, 29.9%	
Discharged	103, 19.4%	147, 18.5%	250, 18.9%	
Referred to other hospital/Clinic/Day care	18, 3.4%	74, 9.3%	92, 6.9%	
Referred to GP	32, 6%	297, 37.4%	329, 24.8%	
Referred to social worker	31, 5.8%	0, 00%	31, 2.3%	
Refused Treatment/No follow-up	7, 1.3%	17, 2.1%	24, 1.8%	
Did not wait	11, 2.1%	192, 24.2%	203, 15.3%	
Total	530, 100%	795, 100%	1325, 100%	$p \leq .001$

The results indicated statistically significant differences in the proportion of PED discharge outcomes: admitted to hospital; did not wait; referred to other hospital/clinic/day care; referred to GP; referred to social worker, than AED presentations. So, discharge outcomes differed significantly between the PED and AED. A much higher proportion of the PED discharge outcome were admitted to hospital (see Table 65 above).

Table 66: Frequencies of Discharge destination, by PED, AED and total

Discharge destination	PED n, %	AED n, %	Total n, %	Chi-square
Hospital/Clinic	202, 38.1%	73, 9.2%	275, 20.8%	
Home	318, 60%	629, 79.1%	947, 71.5%	
Other	6, 1.1%	74, 9.3%	80, 6%	
Total	526, 99.2%	776, 97.6%	1302, 98.3%	$p \leq .001$

The results indicated statistically significant differences in the proportion of PED discharge destinations to hospital/clinic (n = 202, 38.1% versus n= 73, 9.2%), discharged to home (n = 318, 60% versus n = 629, 79.1%) and discharged to other (n = 6, 1.1% versus n = 74, 9.3%), than AED presentations (see Table 66 above).

7.5 Results by gender and totals

Analysis by gender was conducted by male, female and totals, which is presented below. In addition, analysis was conducted by male, female within the PED, within the AED, and overall.

Overall, a higher proportion of males presented between 2009 and 2015 and a higher proportion females presented between 2016 and 2019. Within the AED, a higher proportion of males presented each year from 2009 to 2019 (see Figure 14 below).

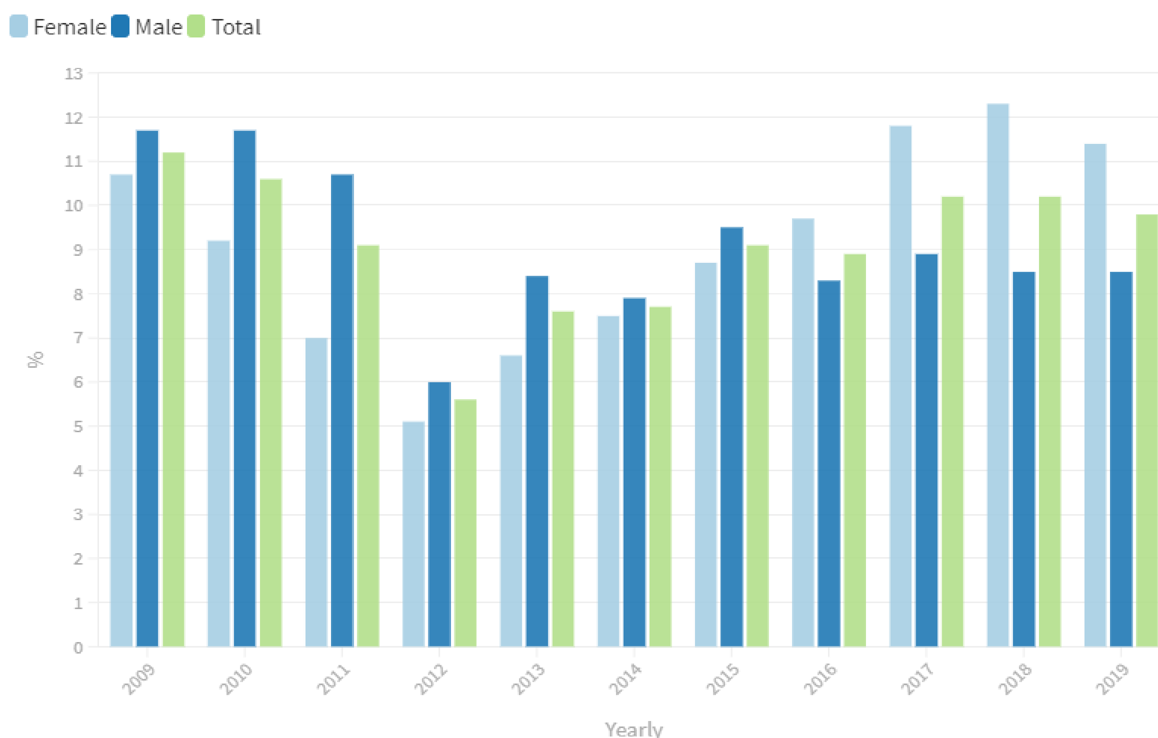


Figure 14: Frequencies of alcohol-related presentations by children and young people yearly, from 2009- 2019, by gender and totals

Table 67: Frequencies of repeat presentations within a 30-day period, by gender and total

Repeat presentations	**Female**	**Male**	**Total**	**Chi-Square**
	n, %	**n, %**	**n, %**	
Did not repeat presentation	577, 98.3%	714, 96.7%	1291, 97.4%	
Repeat presentation	10, 1.7%	24, 3.3%	34, 2.6%	
Total	587, 100%	738, 100%	1325, 100%	$p = .11$

The proportion of males that had repeat presentations was not significantly different from the proportion of females who had repeat presentations. Indicating that there was no association between repeat presentations and gender (see Table 67 above).

Table 68: Frequencies of mode of transport to the hospital, by gender and total

Mode of transport	Female n, %	Male n, %	Total n, %	Fisher's Exact
Ambulance	355, 60.5%	480,65%	835, 63%	
Car	213, 36.3%	223, 30.2%	436, 32.9%	*p* = .02
Taxi	7, 1.2%	7, .9%	14, 1.1%	
Gardai	4, .7%	7, .9%	11, .8%	
Public Transport	4, .7%	8, 1.1%	12, .9%	
Walk	2, .3%	12, 1.6%	14, 1.1%	
Other	0, 00%	1, .1%	1, .1%	
Total	586, 99.8%	738, 100%	1324, 99.9%	

Fisher exact tests found the two multinominal probability distributions were not equal in the population, $p = .02$, in relation to the mode of transport by car. Therefore, the proportion of females that arrived by car were significantly different to the proportion of males that arrived by car. Within the AED, a higher proportion of males arrived by ambulance than females (see Table 68 above).

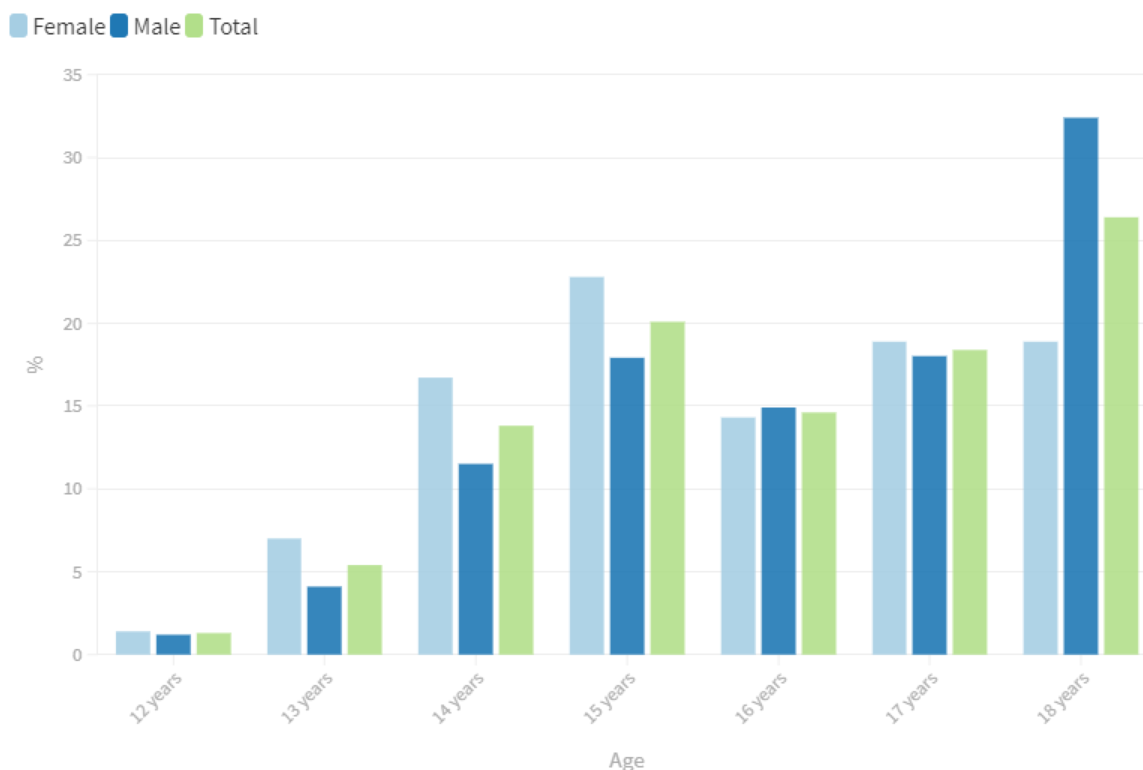


Figure 15: Frequencies of age, by gender and total

A significantly high proportion of 18-year-old males presented (32.4%) compared to any other age group presenting. Followed by a high proportion of young females aged 15-years-old (22.8%) (see Figure 15 above).

Table 69: Frequencies of referral source, by gender and total

Referral Source	Female n, %	Male n, %	Total n, %	Chi-Square
Self	544, 92.7%	678, 91.9%	1222, 92.2%	
Gardai	6, 1%	12, 1.6%	18, 1.4%	
Hospital/Clinic	3, .5%	7, .9%	10, .8%	
GP	21%, 3.6%	19, 2.6%	40, 3%	
Other	13, 2.2%	22, 3%	35, 2.6%	
Total	587, 100%	738, 100%	1325, 100%	*p* = .471

The proportion of females across the referral sources were not significantly different from the proportion of males across the referral sources. There were no

statistically significant difference in the multinomial probability distributions between the two groups (p>.05). There were no gender differences within the PED and within the AED (see Table 69 above).

Table 70: Frequencies of Triage category, by gender and total

Triage Category	Female n, %	Male n, %	Total n, %	Chi-Square
Category 1 (Immediate Attention)	23, 3.9%	21, 2.8%	44, 3.3%	
Category 2 (Very urgent attention)	219, 37.3%	252, 34.1%	471, 35.5%	
Category 3 (Urgent)	280, 47.7%	388, 52.6%	668, 50.4%	
Category 4 (Standard)	59, 10.1%	75, 10.2%	134, 10.1%	
Category 5 (non-urgent)	6, 1%	2, .3%	8, .6%	
Total	587, 100%	738, 100%	1325, 100%	p = .16

There were no statistically significant difference in the multinomial probability distributions between the two groups (p>.05). There were no gender differences within the PED and within the AED (see Table 70 above).

Table 71: Frequencies of Presenting complaint, by gender and total

Presenting complaint	Female n, %	Male n, %	Total n, %	Chi-Square
Collapse	64, 10.9%	88, 11.9%	152, 11.5%	
Laceration/Wound/Injury	99, 16.9%	258, 35%	357, 26.9%	
Ingestion	126, 21.5%	117, 15.9%	243, 18.3%	
Intoxication/Overdose	139, 23.7%	110, 14.9%	249, 18.8%	
Pain	78, 13.3%	94, 12.7%	172, 13%	
Convulsions/Seizures	5, .9%	9, 1.2%	14, 1.1%	
Respiratory/Heart	9, 1.5%	6, .8%	15, 1.1%	
Psychosocial	41, 7%	25, 3.4%	66, 5%	
Other	23, 3.9%	24, 3.3%	47, 3.5%	
Did not wait	3, .5%	7, .9%	10, .8%	
Total	587, 100%	738, 100%	1325, 100%	$p \leq .001$

The results indicated statistically significant differences in the proportion of females presenting due to laceration/wound/injury; intoxication/overdose and psychosocial issues than the proportion on male presentations. Females presented with more intoxication/overdose and ingestion (45%) than males, but males presented with

more laceration/wound/injury (35%). Within the AED, a higher proportion of males, than females presented with laceration/wound/injury. The results indicate a higher proportion of older males (16-18 years) presenting with laceration/wound/injury (see Table 71 above).

Table 72: Frequencies of Doctor's diagnosis, by gender and total

Doctor's diagnosis	**Female** **n, %**	**Male** **n, %**	**Total** **n, %**	**Fisher's Exact**
Alcohol excess/Intoxication	245, 41.7%	249, 33.7%	494, 37.3%	*p* =.005
Ingestion	95, 16.2%	43, 5.8%	138, 10.4%	*p* ≤.001
Laceration/Wound/Injury	63, 10.7%	177, 24%	240, 18.1%	*p* ≤.001
Collapse	2, .3%	6, .8%	8, .6%	
Respiratory/heart	1, .2%	1, .1%	2, .2%	
Convulsions/seizures	3, .5%	7, .9%	10, .8%	
Psychosocial	25, 4.3%	21, 2.8%	46, 3.5%	
Other	16, 2.7%	20, 2.7%	36, 2.7%	
Normal Clinical examination	27, 4.6%	38, 5.1%	65, 4.9%	
No diagnosis available	25, 4.3%	33, 4.5%	58, 4.4%	
Did not wait	81, 13.8%	129, 17.5%	210, 15.8%	
Total	583, 99.3%	724, 98.1%	1307, 98.6%	

Fisher exact tests found the two multinominal probability distributions were not equal in the population in relation to the doctor's diagnosis of alcohol excess/intoxication (p = .005); laceration/wound/injury (p ≤.001), and ingestion (p ≤.001). Therefore, the proportion of females diagnosed by a doctor as presenting with alcohol excess/intoxication, laceration/wound/injury or ingestion was significantly different to the proportion of males with the same diagnosis. A higher proportion of males across both PED and AED reported laceration/wound/injury as the doctor's diagnosis. A higher proportion of females reported alcohol excess/intoxication and ingestion as the doctor's diagnosis, with no gender differences noted within the PED and within the AED (see Table 72 above).

Table 73: Frequencies of Discharge outcome, by gender and total

Discharge outcome	**Female**	**Male**	**Total**	**Chi-Square**
	n, %	**n, %**	**n, %**	
Admitted to hospital	197, 33.6%	199, 27%	396, 29.9%	
Discharged	119, 20.3%	131, 17.8%	250, 18.9%	
Referred to another hospital/Clinic/Day care	36, 6.1%	56, 7.6%	92, 6.9%	
Referred to GP	132, 22.5%	197, 26.7%	329, 24.8%	
Referred to social worker	19, 3.2%	12, 1.6%	31, 2.3%	
Refused treatment/No follow-up	6, 1%	18, 2.4%	24, 1.8%	
Did not wait	78, 13.3%	125, 16.9%	203, 15.3%	
Total	587, 100%	738, 100%	1325, 100%	p = .004

There was a statistically significant difference in the multinomial probability distributions between the two gender groups ($p < .05$). Post hoc analysis indicated no statistically significant differences in the proportion of female discharge outcomes than the proportion of males discharge outcomes (see Table 73 above).

Table 74: Frequencies of Discharge destination, by gender and total

Discharge destination	**Female**	**Male**	**Total**	**Chi-Square**
	n, %	**n, %**	**n, %**	
Hospital/Clinic	128, 21.8%	147, 19%	275, 20.8%	
Home	412, 70.2%	535, 72.5%	947, 71.5%	
Other	35, 6%	45, 6.1%	80, 6%	
Total	575, 98%	727, 98.5%	1302, 98.3%	p = .670

There were no statistically significant differences in the multinomial probability distributions between the two groups (see Table 74 above).

7.6 Findings of content analysis

This section presents the findings from the qualitative content analysis conducted purely on the nurse’s triage comments placed within the free text comment box. The content analysis involved coding the free text comments into categories, which summarised the content of the data. Then analysing the frequency that each free text comment fell into each category (Wilkinson, 2000). This represents the nested qualitative

aspect of the research on one variable. The results reflect the complexities and at times the context of alcohol-related harms to children and young people, prior to presenting at an urban hospital setting. Although some medical data were recorded by the triage nurse in the free text comment box, the emphasis was placed on analysing the behaviours and contextual nature of the alcohol-related presentation. Analysis on variables like "presenting complaint" and "doctor's diagnosis" already provided adequate medical data around each presentation, as provided in the section above. Therefore, the medical data recorded within the free text comment box was not the focal point of this analysis.

Figure 16:Word cloud produced from the free text comments from 2009-2019 inclusive.

A word cloud shows the visual representation of the most frequently used words that appear in the free text comments, for the period 2009-2019 (see Figure 16 above). It includes the medical terms LOC (loss of consciousness), PEARL (pupils equal and reacting to light), BIBA (brought in by ambulance), pupil size (dilation of pupils) that are frequent

inclusions in the nurse's initial triage assessment and were repeatedly recorded in the free text comment box. See Appendix 44 for a full glossary of medical terms used within the free text comment box. In addition, there are words like; found, assault, cocaine, injury, garda, ingestion, kicked, friends that also frequently appeared and portrays the lived experience of alcohol-related harms to children and young people.

Following completion of the content analysis, the findings were organised into six main risk categories. Each risk category was given a name and a short description. Category names and descriptions are shown in Table 75 below. Many of the triage free text comments did not explicitly fall within one risk category, but traversed across categories, indicating the diverse and complex nature of the environment, context and behaviours of young people consuming alcohol.

Table 75: Main risk categories and description of risk categories

Category Name	**Description of Category**
Category 1 Alcohol-related harm involving alleged assault or suspected sexual assault/rape	Reporting an alleged assault by the child or young person, who has consumed alcohol, refers to the sudden and violent attack on them, which has been stated but not proven to be true. It was reported to, observed or suspected by the triage nurse that the child or young person who had consumed alcohol, may have been involved in a sexual act without their consent.
Category 2 Alcohol-related harm involving polysubstance use	It was reported to the triage nurse, that the child or young person had consumed alcohol in combination with another substance or substances.
Category 3 Alcohol-related harm involving psychosocial issues	It was reported to, observed or suspected by the triage nurse that the child or young person may have psychosocial issues on presentation. This relates to psychological difficulties, alongside alcohol use, affecting social functioning, self-harm or suicidal ideation.

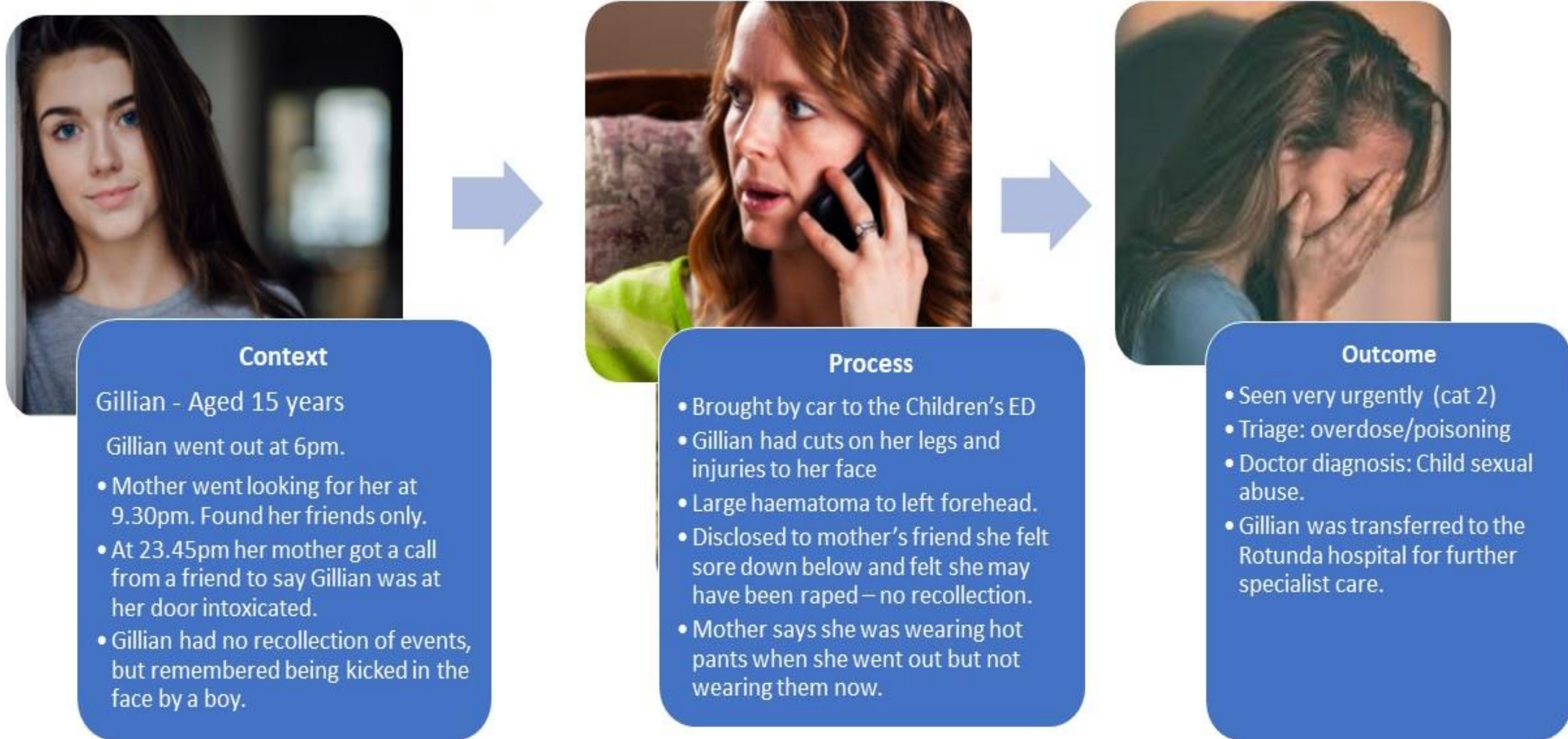
Category 4 Alcohol-related harm involving An Garda Síochána (law enforcement agency in Ireland)	An Garda Síochána is the national police force in Ireland (commonly known as the Gardaí). The Gardaí were involved in either finding, transporting and/or assisting in the care and security of the child or young person, who had consumed alcohol.
Category 5 Alcohol-related harm involving the alleged "spiking" of their drink	It was reported to the triage nurse, that alcohol or drugs may have been put into the child's or young person's drink without their knowledge or permission, causing adverse health effects.
Category 6 Alcohol-related harm while socialising with friends	The historical context of the child's or young person's drinking, reported to the triage nurse, involved socialising with friends in a structured or unstructured environment.

In order to illustrate the context, process and outcome of acute alcohol-related presentations by young people, individual case histories are shown below, by risk category. See Figure 17 to Table 24 below. The case histories accurately reflect all the data collected for that specific alcohol-related presentation. Only pseudo names have been assigned. Children aged 12 to 15 years were treated in the paediatric emergency department and young people aged 16 to 18 years were treated in the adult emergency department.

Alcohol-related harm involving alleged physical assault.

Free Text Comment: Presented by ambulance with parents, child was picked up from garda station in XXXXX. Last seen by parents at 1430hrs. Found in XXXX park, alert when father arrived. Alleged assault by a gang of teen boys. Denies sexual assault. Was ;forced to drink alcohol' and then was dragged around park. Allegedly punched to LT side of face. Abrasions to mid spine and to LT flank. Non-blanching spots to chest. Abrasions to ankle and c/o pain to ankle.(1105) Age 13 Female

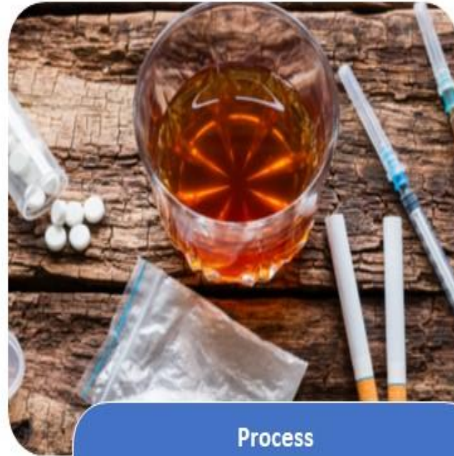
Figure 17: Case history 1: Emma - Alcohol-related harm involving alleged physical assault



Free Text Comment: went out approx. 6pm and mother went looking for her at 9.30pm as she found her friends but didnt find (name), mothers friend contacted (name) mother at 23.45 to say (name) was at her door and was intoxicated with cuts on her legs and injuries to her face, no recollection of events but does recall being kicked in face by a boy, large haematoma to left forehead. disclosed to mothers friend that she felt sore down below and felt she may have been raped but has no recollection, mother says she was wearing hot pants when she went out but not currently wearing same, teary in triage (1183) Age 15 Female

Figure 18: Case history 2: Gillian – Alcohol-related harm involving alleged sexual assault

Alcohol-related harm involving polydrug use.



Context

Oisin - Aged 15 years,

- Found unresponsive on a green.
- Post ingestion of alcohol, diazepam and cocaine.
- Gardai contacted the ambulance service.

Process

- Brought to the children's ED by ambulance.
- Eyelashes, eyebrows and hair singed.
- Alert on arrival to ED.

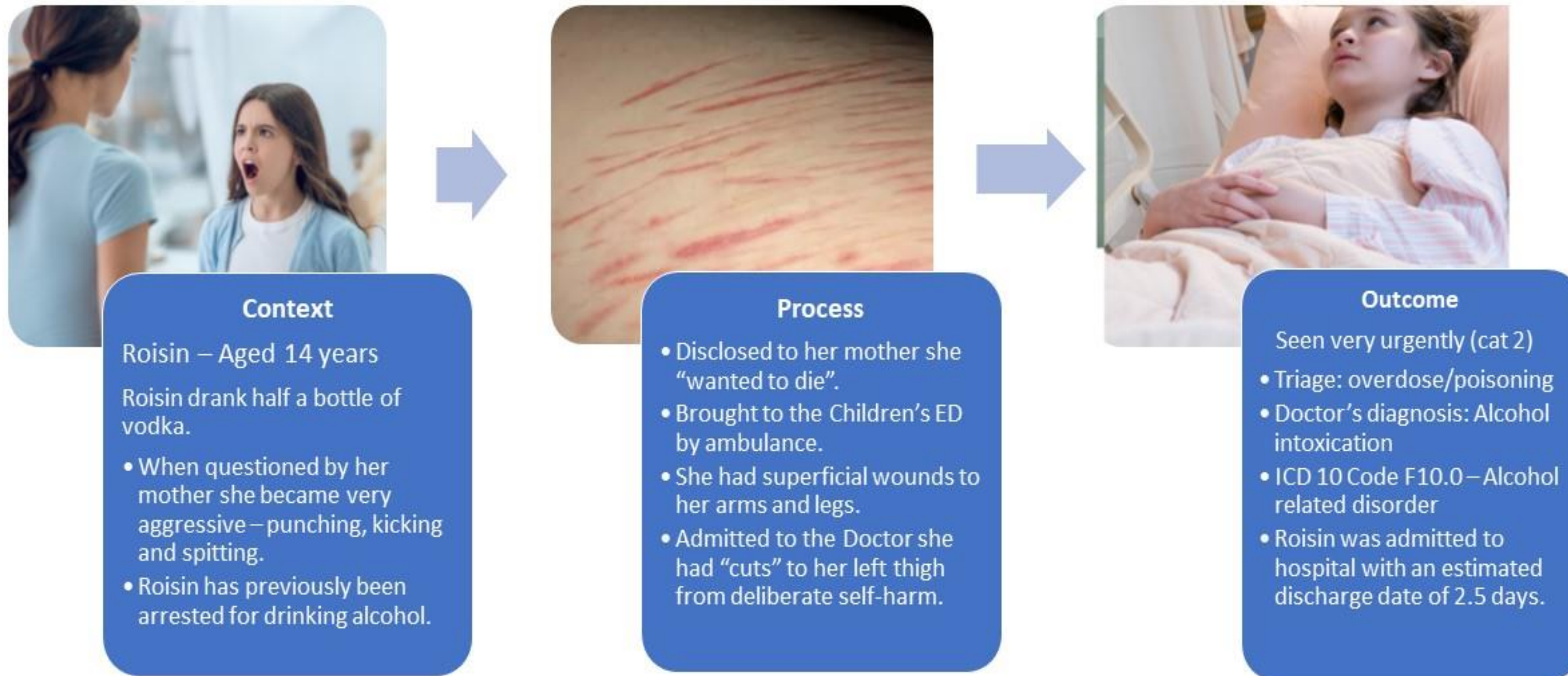
Outcome

- Seen very urgently (cat 2)
- Triage: overdose/poisoning
- Doctor diagnosed: Alcoholism
- Oisin was discharged home and referred to a social worker.

Free Text Comment: BIBA, as per amb crew + gardai, found unresponsive on a green, post ingestion of alcohol + ? diazepam + cocaine. On arrival, alert, GCS 14/15, temp 34.6c. Singed hair to lashes, eyebrows and hair. (1207) Age 15 Male

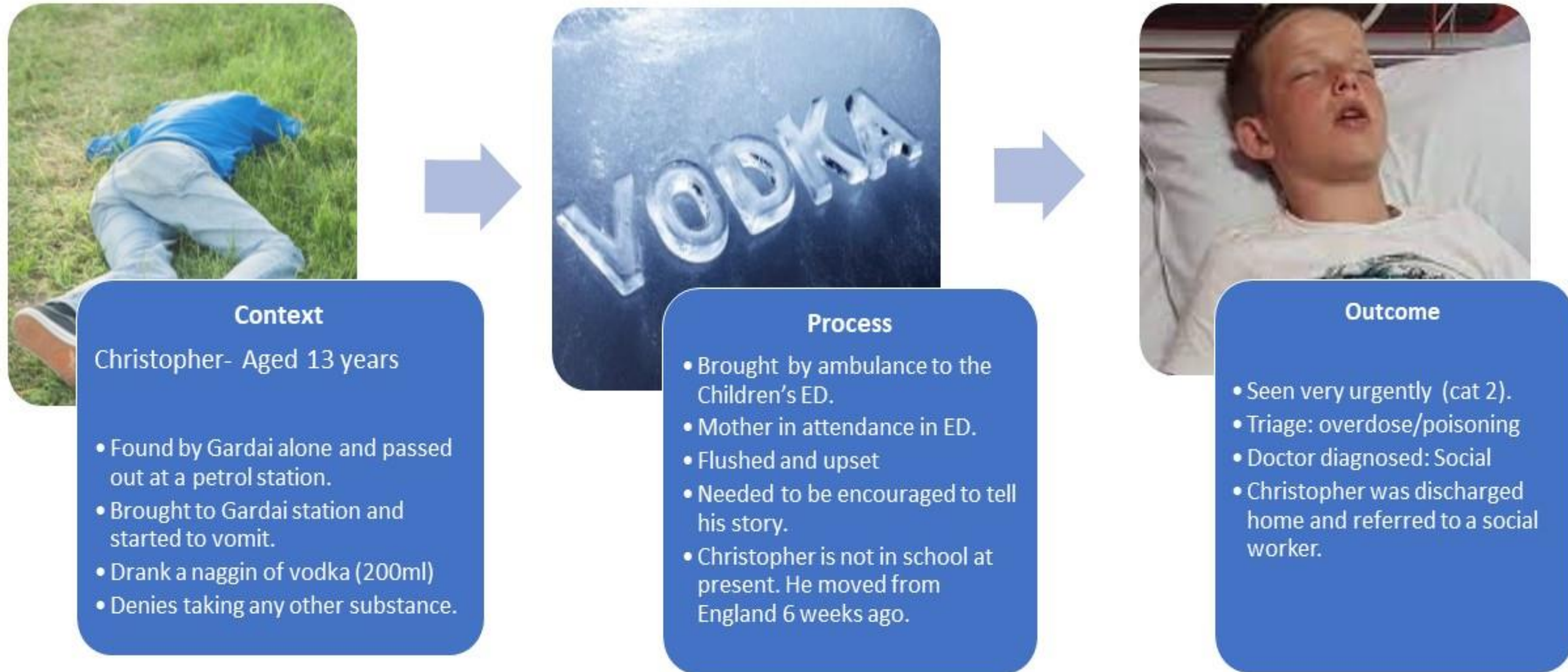
Figure 19: Case history 3: Oisin - Alcohol-related harm involving polysubstance use

Alcohol-related harm involving psychosocial issues (psychological)



Free Text Comment: Biba following ingestion of alcohol, child states she drank half \a bottle of vodka only ,mum states child has been arrested previously for drinking, tonight when mum questioned child she became very aggresive, according to mum child was "punching, spitting and kicking, superficial wounds noted to arms and legs and child disclosed to Doctor that she has "cuts" to left thigh from D.S.H...Tonight child disclosed to mum that she wanted to die , Mum feels child "grinding her teeth a lot tonight also child alert on arrival,gcs15 (1096) Age 14 Female

Figure 20: Case history 4: Roisin - Alcohol-related harm involving psychosocial issues (psychological)



Free text Comment: As per ambulance found by gardai alone and passed out at XXXX road petrol station passed out, brought to Gardai station and started to vomit, Mother in attendance in ED she last saw (name) at 20.30pm, as per (name) drank a naggin of vodka, denies any other substance use, on arrival flushed and upset PEARL, needs to be encouraged to tell story, not in school at present, moved from England 6 weeks ago, Gcs 15/15 (1249) Age 13 Male.

Figure 21: Case history 5: Christopher - Alcohol-related harm involving psychosocial issues (social)

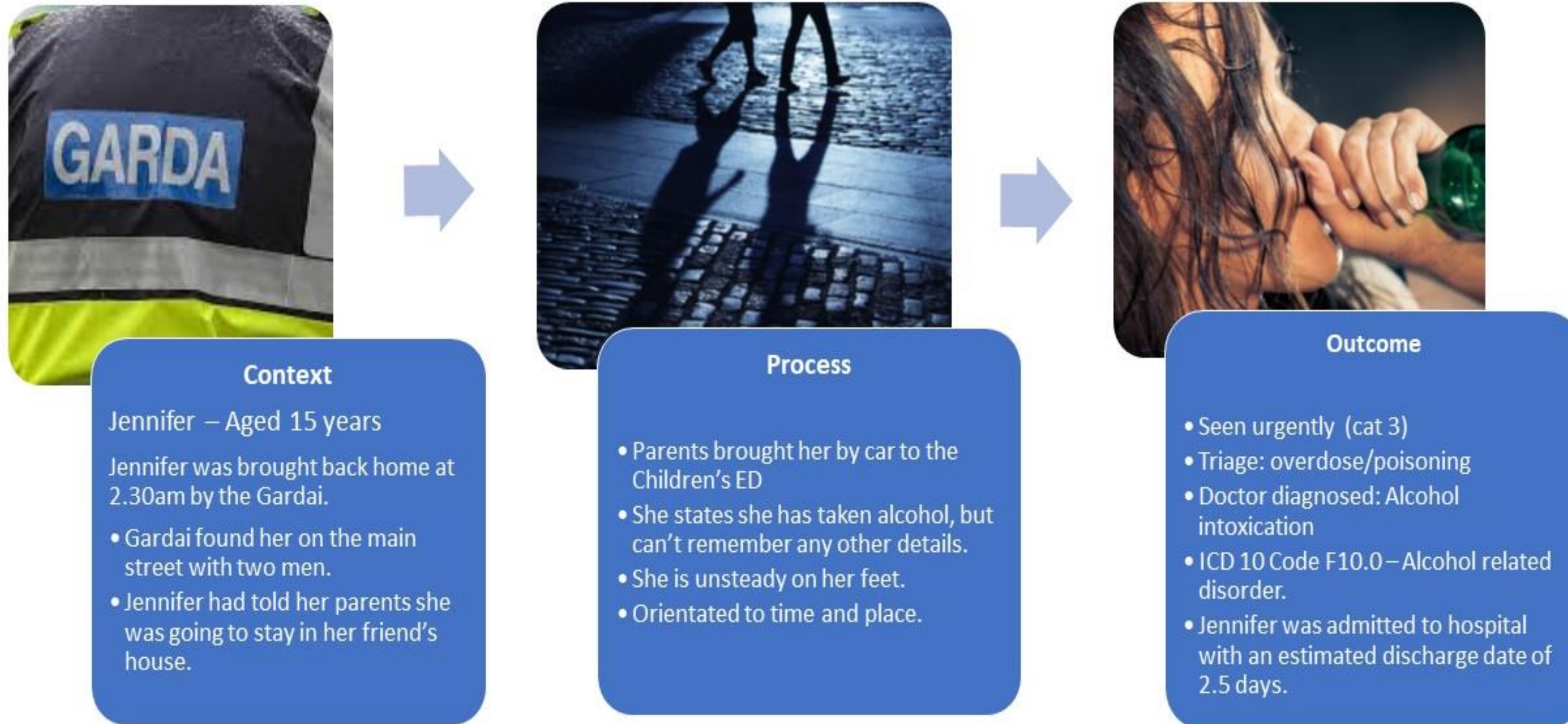
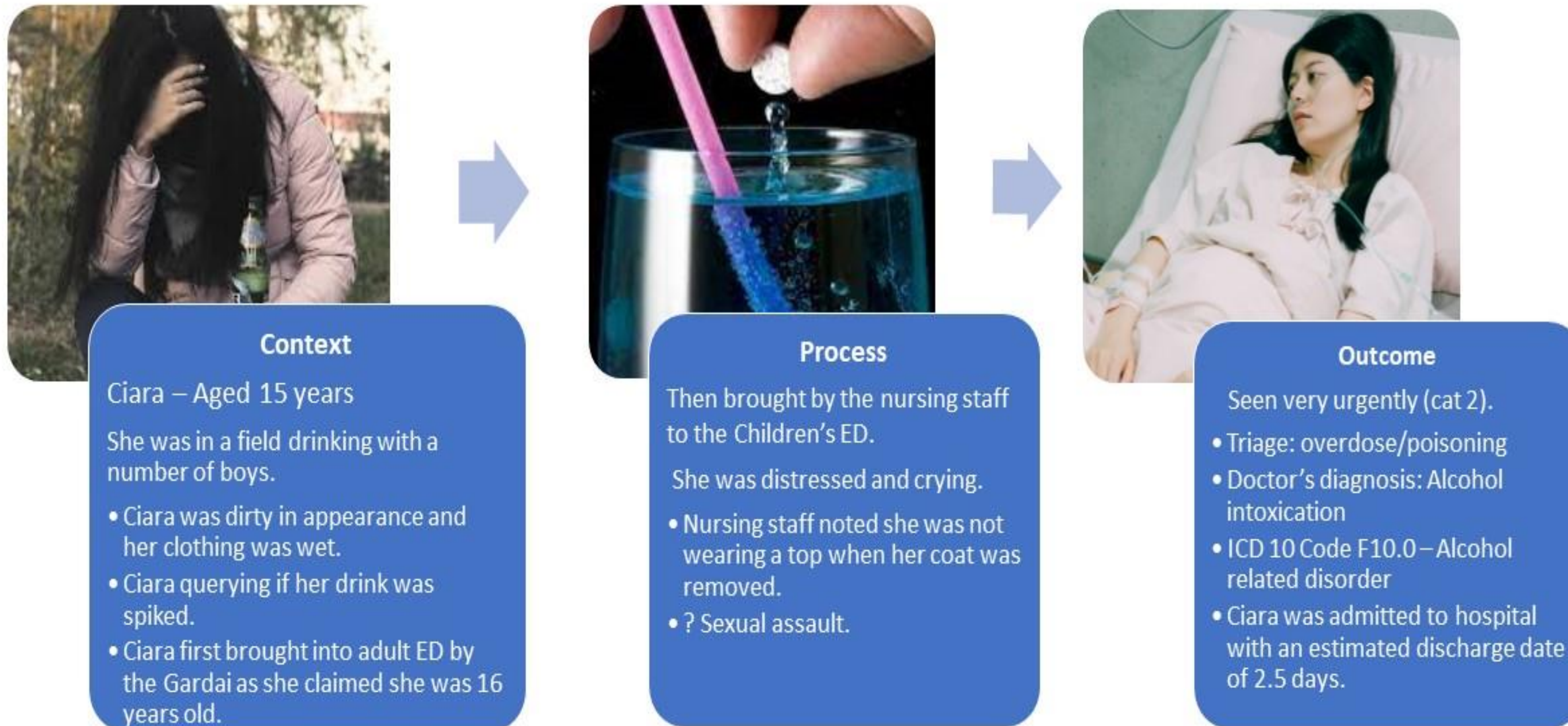


Figure 22: Case history 6: Jennifer - Alcohol-related harm involving An Garda Síochána



Free Text comment: Received handover from adult ED nursing staff as patient brought to adult ED by Gardai, claiming she was 16 years old. (name) was in a field having consumed alcohol with a number of boys. ? sexual assault, patient querying if her drink was 'spiked'. Adult ED nursing staff noted patient not wearing a top when her coat was removed. Alert, GCS 14/15 due to disorientation, PEARL size 3. Patient dirty in appearance, clothing wet, distressed and crying. (1347) Age 15 Female

Figure 23: Case history 7: Ciara - Alcohol-related harm involving alleged 'spiking' of their drink

Alcohol-related harm while socialising with friends

Free Text Comment: "BIBA allegedly drinking vodka / whiskey with friends in forest. Friends concerned re level of intoxication - called mother and ambulance. Small firm haematoma to right temporal region. As per paramedics friends reported (name) fell over from sitting position and hit head off ground. Reportedly was intoxicated and poorly responsive prior to head injury. On arrival voice / pain responsive but some occasional groans on transfer. Soiled with vomit and urine. Mother present. PEARL dilated pupils size 7, slightly sluggish reaction. (1310)

Figure 24: Case history 8: Simon - Alcohol-related harm while socialising with friends

7.7 Summary of Content Analysis

The case histories accurately reflect the overall alcohol-related presentations, as provided by the triage free text comments and the accompanying variables. They highlight the following:

- Excessive levels of intoxication and symptomology including vomiting, incontinence, lack of responsiveness and injury.
- Alleged aggression, violence and sexual abuse inflicted on children and young people, often without their full recollection of the event.
- Combining the consumption of alcohol with over-the-counter medicines, prescription drugs and/or the use of illegal substances.
- Marked associations between psychosocial issues like deliberate self-harm and suicidal ideation with the use of alcohol.
- An Garda Síochána resources actively involved at the front line, responding and liaising between the general public, ambulance service, emergency departments and the parents of children and young people, who have consumed alcohol. It is an additional necessary resource to ensure the safety of children and young people who engage in risky behaviours.
- Risks associated with unidentified substances being consumed, without the child or young person's knowledge or permission, with subsequent concerning behaviours and loss of memory.
- Highlights the social orientation of drinking alcohol with friends. The younger children report the context of their drinking in unstructured outdoor environments like parks

and forests, with friends. Young people report their social drinking at parties, friend's homes, and nightclubs.

7.8 Descriptive and basic inferential findings based on the risk categories.

The following tables report further statistical examination of the six risk categories which emerged from the content analysis, derived from the free text comments (See Table 75 above). Frequencies and Chi-square tests were conducted to explore the relationships between two categorical variables, with two categories. The results are reported by risk category by PED, AED and total and by male, female and total. Though not fully reported, analysis was also conducted by risk category by male, female within the PED, within the AED and overall.

7.9 Results by risk category by Paediatric Emergency Department (PED), Adult Emergency Department (AED) and Totals

Table 76: Frequencies of alcohol-related presentations reporting Alleged Assault by PED, AED and total

Alleged Assault N=1325	**PED** **n, %**	**AED** **n, %**	**Total** **n, %**	**Chi-square**
Alleged assault – Yes	50, 9.4%	148, 18.6%	198, 14.9%	
Alleged assault – No	480, 90.6%	647, 81.4%	1127, 85.1%	$p \leq .001$

A chi-square test for independence (with a Yates Continuity Correction) indicated a significantly higher proportion of presentations with alleged physical assault presented in the AED, than the PED. A further .8% reported alleged sexual assault with no significant difference between PED and AED (see Table 76 above).

Table 77: Frequencies of presentations reporting Polysubstance Use by PED, AED and total

Polysubstance use n=1324	**PED**	**AED**	**Total**	**Chi-square**
	n, %	**n, %**	**n, %**	
Polysubstance use – Yes	99, 18.7%	197, 24.8%	296, 22.4%	
Polysubstance use – No	430,81.3%	598, 75.2%	1028, 77.6%	*P*= .011

A chi-square test for independence (with a Yates Continuity Correction) indicated a significantly higher proportion of presentations with polysubstance use presented in the AED, than the PED (see Table 77 above).

Table 78: Frequencies of alcohol-related presentations reporting Psychosocial issues by PED, AED and total

Psychosocial issues N=1324	**PED**	**AED**	**Total**	**Chi-square**
	n, %	**n, %**	**n, %**	
Psychosocial issues – Yes	57, 10.8%	100, 12.6%	157, 11.9%	
Psychosocial issues – No	472, 89.2%	695, 87.4%	1167, 88.1%	*p*=.364

A chi-square test for independence (with a Yates Continuity Correction) indicated no significant difference in the proportion of presentations with psychosocial issues between the PED and the AED (see Table 78 above).

Table 79: Frequencies of alcohol-related presentations involving An Garda Síochána by PED, AED and total

Involving Gardai Siochana N=1324	**PED**	**AED**	**Total**	**Chi-square**
	n, %	**n, %**	**n, %**	
An Garda Síochána – Yes	67, 12.7%	33, 4.2%	100, 7.6%	
An Garda Síochána – No	462, 87.3%	762, 95.8%	1224, 92.4%	$p \leq .001$

A chi-square test for independence (with a Yates Continuity Correction) indicated a significantly higher proportion of presentations involved An Garda Síochána in the PED, than the AED (see Table 79 above).

Table 80: Frequencies of alcohol-related presentations reporting Alleged Spiking of their drink by PED, AED and total

Alleged spiking of their Drink N=1324	**PED**	**AED**	**Total**	**Chi-square**
	n, %	**n, %**	**n, %**	
Spiking– Yes	12, 2.3%	31, 3.9%	43, 3.2%	
Spiking – No	517 ,97.7%	764, 96.1%	1281, 96.8%	*p*=.138

A chi-square test for independence (with a Yates Continuity Correction) indicated no significant difference in the proportion of presentations reporting alleged spiking of their drink between the PED and the AED (see Table 80 above).

Table 81: Frequencies of alcohol-related presentations reporting drinking with Friends, by PED, AED and total

Drinking with Friends N=1324	**PED**	**AED**	**Total**	**Chi-square**
	n, %	**n, %**	**n, %**	
Friends – Yes	174, 32.9%	136, 17.1%	310, 23.4%	
Friends – No	355, 67.1%	659, 82.9%	1014, 76.6%	$p \leq .001$

A chi-square test for independence (with a Yates Continuity Correction) indicated a significantly higher proportion of presentations involved drinking with friends in the PED, than the AED (see Table 81 above).

7.10 Results by risk category by gender and totals

Table 82: Frequencies of alcohol-related presentations reporting Alleged Assault by gender and total

Alleged Assault N=1324	**Female**	**Male**	**Total**	**Chi-square**
	n, %	**n, %**	**n, %**	
Alleged assault – Yes	30, 5.1%	170, 23.1%	200, 15.1%	
Alleged assault – No	557, 94.9%	567, 76.9%	1124, 84.9%	$p \leq .001$

A chi-square test for independence (with a Yates Continuity Correction) indicated a significantly higher proportion of male presentations reporting alleged assault, than

female presentations. This was reported across both PED, and AED presentations. A further .8% reported alleged sexual assault with a significantly higher proportion of females reported alleged sexual assault compared to males (10/1) (see Table 82 above).

Table 83: Frequencies of alcohol-related presentations reporting Polysubstance use by gender and total

Polysubstance use N=1324	Female	Male	Total	Chi-square
	n, %	n, %	n, %	
Polysubstance use– Yes	124, 21.1%	172, 23.3%	296, 22.4%	
Polysubstance use– No	463, 78.9%	565, 76.7%	1028, 77.6%	*p* = .371

A chi-square test for independence (with a Yates Continuity Correction) indicated no significant difference in the proportion of presentations reporting polysubstance use between females and males (see Table 83 above).

Table 84: Frequencies of alcohol-related presentations reporting Psychosocial issues by gender and total

Psychosocial issues N=1324	Female	Male	Total	Chi-square
	n, %	n, %	n, %	
Psychosocial issues– Yes	101, 17.2%	56, 7.6%	157, 11.9%	
Psychosocial issues– No	486, 82.8%	681, 92.4%	1167, 88.1%	$p \leq .001$

A chi-square test for independence (with a Yates Continuity Correction) indicated a significantly higher proportion of female presentations reporting psychosocial issues, than male presentations across both, PED and the AED (see Table 84 above).

Table 85: Frequencies of alcohol-related presentations reporting An Garda Síochána involvement by gender and total

Gardai Involvement N=1324	Female	Male	Total	Chi-square
	n, %	n, %	n, %	
An Garda Síochána – Yes	41, 7%	59, 8%	100, 7.6%	
An Garda Síochána – No	546, 93%	678, 92%	1224, 92.4%	*p*=.553

A chi-square test for independence (with a Yates Continuity Correction) indicated no significant difference in the proportion of presentations involving An Garda Síochána between females and males (see Table 85 above).

Table 86: Frequencies of alcohol-related presentations reporting Alleged Spiking of their drink by gender and total

Alleged Spiking N=1324	**Female** n, %	**Male** n, %	**Total** n, %	**Chi-square**
Alleged Spiking – Yes	26, 4.4%	17, 2.3%	43, 3.2%	
Alleged Spiking – No	561, 95.6%	720, 97.7%	1281, 96.8%	p=.045

A chi-square test for independence (with a Yates Continuity Correction) indicated a significant difference in the proportion of female presentations alleging their drinks had been spiked compared to males (see Table 86 above).

Table 87: Frequencies of alcohol-related presentations reporting Drinking with friends by gender and total

Drinking with Friends N=1324	**Female** n, %	**Male** n, %	**Total** n, %	**Chi-square**
Drinking with friends – Yes	170, 29%	140, 19%	310, 23.4%	
Drinking with friends - No	417, 71%	597, 81%	1014, 76.6%	$p \leq .001$

A chi-square test for independence (with a Yates Continuity Correction) indicated a significant difference in the proportion of female presentation reporting drinking with friends, compared to males (see Table 87 above).

Due to the complex nature of each presentation, often the child or young person experienced more than one risk category e.g., a presentation which reported an alleged assault, while needing the assistance of An Garda Síochána**,** having consumed a combination of alcohol and drugs (polysubstance use). This example would fall into three of the main identified risk categories. Finally, frequencies and Chi-Square tests were

conducted analysing the number of risk categories applicable for each alcohol-related presentation (see Table 88 and Table 89 below).

Table 88: Frequencies by the total number of risk categories for each alcohol-related presentation, by PED and AED

N=1,324	PED n,%	AED n,%	Total n,%	Fishers Exact
One category	189, 35.7%	300, 37.7%	489, 36.9%	
Two categories	232, 43.9%	356, 44.8%	588, 44.4%	
Three categories	94, 17.8%	126, 15.8%	220, 16.6%	
Four categories	8, 1.5%	2, 1.5%	20, 1.5%	
Five categories	6, 1.1%	0, 0%	6, .5%	
Six categories	0 ,0%	1, .1%	1, .1%	*p*= .043

Fisher exact tests found the two multinominal probability distributions were not equal in the population, *p* = .043, in relation to the number of risk categories each presentation experienced. Therefore, there were differences in the number of risk categories experienced by children presenting in the PED and young people presenting in the AED. A higher proportion of young people in AED experienced more risk categories.

Table 89: Frequencies by the total number of risk categories for each alcohol-related presentation, by gender

N=1,324	Female n,%	Male n,%	Total n,%	Fishers Exact
One category	228, 38.8%	261, 35.4%	489, 36.9%	
Two categories	236, 40.2%	352, 47.8%	588, 44.4%	
Three categories	108, 18.4%	112, 15.2%	220, 16.6%	
Four categories	11, 1.9%	9, 1.2%	20, 1.5%	
Five categories	3, .5%	3, .4%	6, .5%	
Six categories	1, .2%	0, 0%	1, .1%	*p*=.066

Fisher exact tests found the two multinominal probability distributions were equal in the population, *p* = .066, in relation to the number of risk categories each presentation

experienced. Therefore, there were no gender differences in the number of risk categories experienced by males and females.

7.11 Summary of the Triage Free Text Comments

This section has presented the findings of the nurse's triage comments under six main categories. The categories are based on the findings of content analysis across all nurse's triage comments entered into the free text comment box, for every alcohol-related presentation from 2009-2019 inclusively. Each category is supported by a case history of the anonymised nurse's triage comments, which are represented verbatim. These case histories display the acute alcohol-related harms children and young people are exposed to due to risky alcohol behaviours. Significant gender differences were found with a higher proportion of females reporting alleged spiking of their drink, sexual assault and psychosocial issues. A significantly higher proportion of males reported alleged physical assault. The case histories and analysis of the risk categories showcases the trauma and distress experienced by children, young people and their families, as recorded by the triage nurse. Outlining the context, process and outcome of alcohol-related harms.

In summary, the data highlight in particular two potentially at-risk groups which are vulnerable to acute alcohol-related harms. Firstly, a high proportion of 15-year-old males and females presented to the PED. Their presenting complaint was primarily intoxication/overdose or ingestion (70%). The Doctor diagnosed alcohol excess/intoxication or ingestion (76%). These presentations warranted being triaged very urgently and were mainly brought in by ambulance. In over a third of cases it resulted in the child being admitted to the hospital. The second at-risk group as indicated by the results are 18-year-olds presenting at the AED. A significantly high proportion of males

presented with laceration/wound/injury (27%). These presentations were mainly triaged urgently and were mostly brought in by ambulance. A significantly higher proportion of males alleged they had been physically assaulted which presented in the AED. Polysubstance use was also significantly higher in AED with no gender differences. Although it is worth noting nearly 19% of children reported engaging in polysubstance use in the PED. A high percentage of AED presentations did not wait for the doctor's diagnosis or discharge outcome (25%). Over 17% of females reported a psychosocial issue to the triage nurse in relation to their presentation. In conclusion, the results have identified two specific at-risk groups and has identified very different alcohol-related harms associated with each vulnerable group.

The relational dimension of merging the hospital data relates to how the quantitative and qualitative aspects interface (Moseholm & Fetters, 2017). As a concurrent separative approach was employed during the data analysis phase, the quantitative and qualitative data analysis were independently assessed. The decision to use the dominant quantitative method, with a nested qualitative approach yielded broader perspectives of the same phenomena, rather than mapping or matching similar variables to corroborate the findings across the two methods (Uprichard & Dawney, 2019). In this case, the approach captures multiple aspects of alcohol-related presentations by young people, while recognising the most beneficial approach to each variable's analysis.

Chapter 8: Integration of Findings

8.1 Introduction

The main aim of the study was to investigate alcohol use, binge drinking and alcohol-related harms: exploring risk and protective factors as evidenced by survey data and secondary data from emergency department presentations, among young people living in urban disadvantage. Chapters 4, 5 and 6 presented the findings from the cross-sectional survey from six DEIS band 1 schools and two Youthreach centres located in a designated highly disadvantaged region. Chapter 7 presented the findings of emergency department presentations by children and young people due to alcohol-related harms/injury, from two urban hospitals, located in a same highly disadvantaged region. These chapters address the study's research questions:

1. What is the prevalence and frequency of alcohol use and binge drinking?
2. What is the measure of subjective health-related quality of life across five domains: (physical well-being, psychological well-being, autonomy and parent relation, social support and peers and school environment) and perceived depression levels?
3. What is the association between alcohol behaviours and harmful consequences?
4. What are the predicted risk and protective factors associated with alcohol use, binge drinking, harmful consequences and depression?
5. Does the relationship between alcohol use and harmful consequences of alcohol use differ as a function of a moderator/mediator variable?
6. What is the scale and scope of alcohol-related harms as evidenced by self-reported negative consequences and alcohol-related emergency department presentations?

This chapter will draw on the main findings of both complimentary approaches to answering the research questions, integrating and merging both aspects of this convergent concurrent multiple-methods research design, in an intentional process. A side-by-side joint display was chosen as the method to facilitate integration and for clarity in presentation through visual means (See section 8.2 below). According to Guetterman et al. (2015) side-by-side is one of the most prevalent types of joint displays for the comparison of mixed or multiple-method designs. Purposeful integration of findings between alcohol behaviours and alcohol-related harms provides a more holistic perspective, greater than each individual aspect (Fetters et al., 2013).

The survey data were comprised of 160 variables, the secondary hospital data were comprised of 13 variables. Therefore, for parsimony the hospital variables became the main domain of comparison. The side-by side joint display presents the main findings of the secondary hospital data in the first column, the findings of the survey data in the second column, and the meta-inference in the third column. Based on a reiterative process of comparing the complimentary findings across all the variables, meta-inferences were determined. The meta-inferences present a broader understanding of the inferences from the two complimentary aspects of the research by combining them together, where appropriate (Tashakkori & Teddlie, 2008).

The next chapter will offer a discussion based on the extensive findings of this research, in line with published research. The theoretical framework of social learning theory (Bandura et al., 1961) will be further explored in light of the findings.

8.2 Side by Side Joint Display of Multi-Method Research

Side-by-Side Joint Display of Multi-Method Research

Domain	Findings of Secondary Hospital Data Quantitative/Content Analysis	Findings of School and Youth Reach survey Quantitative	Meta-Inferences
Variable 1 **Yearly Presentations**	Overall, 1,325 (44% female, 56% male) acute presentations, between 2009-2019. Between 2009-2011 higher AED presentations by year, 2012-2019 higher or equal PED presentations by year. 2009-2015 higher male presentations by year, 2016-2019 higher female presentations by year.	AUDIT scores indicated no gender differences in alcohol consumption, alcohol dependence or alcohol problems. No gender differences in AUDIT risk category groups or gender differences in the level of reported binge drinking.	Yearly trends show overall a higher proportion of female children presented between 2016-2019 with acute alcohol-related harms, while engaging in similar patterns of alcohol behaviour as males. This suggests females may have had a higher susceptibility to AR harms from 2016 – 2019.

Variable 2 & 3 **Repeat presentation s within a 30-day period**	Nearly all repeat visits in a 30-day period were within the AED (3.8%). There was no association between repeat visits and gender.	Two in every three young people reported binge drinking. Overall, 5% fell within a high risk/dependency category on AUDIT scores, with no gender differences. Consuming 7-9 standard drinks or more, on a day when drinking alcohol was reported by 45% of young people. Higher prevalence of alcohol use among disadvantaged young people compared to national and European data across predominately middle to higher socio-economic communities.	Recurring acute alcohol-related harms may be indicative of high risk/dependent patterns of alcohol consumption, among binge drinkers, with no gender differences. There is a higher prevalence of harmful or risky patterns of drinking alcohol among young people living in urban disadvantage, compared to other socio-economic communities.
Variable 4 **Gender**	Overall, significantly more females presenting in PED and significantly more males presenting in AED.A high proportion of older males presenting with alleged assault in AED, with	Young people reported no significant gender differences in the mean scores of harmful consequences of drinking alcohol.	The overall cumulative impact of alcohol patterns and behaviours on alcohol-related harms may have no gender differences across self-

	lacerations/wounds/ injury. Suspected or alleged sexual assault was reported predominantly among females. Overall, males aged 18-years-old made up the highest proportion of presentations (33%) followed by female 15-years-old (23%).		reported harmful consequences of alcohol use and acute alcohol-related harms. Gender may be more significant within certain age groups and relative to specific types of alcohol-related harms.
Variable 5 **Age**	Overall, the highest proportion of presentations in PED was by 15-year-olds (47%). Followed by 18-year-olds (44%) in AED.	Among the young people surveyed 24% were 15 years-old, 56% were 16 years-old and 20% were 17 years-old. Average age 15.96 years.	The prevalence of acute alcohol-related harms may be age specific, with two vulnerable at- risk age groups identified: 15-year-olds and 18-year-olds.
Variable 6 & 7 **Referral Source & Mode of**	Overall, 92% were self-referrals. There were no significant gender differences by referral sources. There were a significantly higher proportion of PED presentations referred by An Garda Síochána. The	Nearly 8% of young males reported a relative, or friend or health care worker was concerned about their drinking. Another 9% reported a friend advised them to stop or cut down on their drinking.	Young people are not actively seeking referral pathways for their own alcohol behaviours. Self-referrals for acute medical emergencies are dependent on

Transport	majority of presentations were brought to the ED by ambulance (63%).		friends, family members, the public or An Garda Síochána to initiate an emergency response, Multiple agency resources are required.
Variable 8 Triage Category	A high proportion of PED presentations were assigned a very urgent triage category. A high proportion of AED presentations were assigned an urgent triage category.		This necessitates the need for emergency medical expertise to provide medical stabilisation to children and young people and further clinical care for children and young people with lacerations/wounds or injury.
Variable 9 Presenting Complaint	In PED, 70% of presenting complaints related to collapse, intoxication, overdose and ingestion. In	Young people self-reported they or someone else was injured due to their drinking (19%).	As nearly 20% of young people reported harm due to their drinking, a far greater percentage of

	PED, 20% related to laceration/wound/injury or pain compared to 53% in AED. By gender, 56% of female presenting complaints were collapse, intoxication, overdose and ingestion. Laceration, wound, injury or pain was the presenting complaint among 48% of males.		children and young people are naively unwilling to recognise or acknowledge that excessive alcohol use causes them harm. Two potentially at-risk groups were identified, each with their own presenting complaint. Firstly, children with direct acute harms from excessive alcohol use (collapse, intoxication, overdose, ingestion). Secondly, older males with laceration/wound/injury.
Variable 10 Doctor's diagnosis	In PED, 76% of the doctor's diagnosis related to intoxication, alcohol excess and ingestion compared to 29% in AED. In PED, 13% related to laceration/wound	The overall self-reported physical well-being of disadvantaged young people fell below the average score for their reference population, with a significant gender difference to the detriment of young females.	Disadvantaged young people may show a disproportionately higher susceptibility to the effects of alcohol, due in part to other

	compared to 22% in AED. In PED, 2.5% of presentations did not wait to be seen by the doctor, compared to 25% in AED. By gender, 58% of females were diagnosed with intoxication/alcohol excess and ingestion, compared to 40% of males. In PED, 11% of females were diagnosed with laceration/wound/injury compared to 24% of males.	Overall, 25% of young people reported having an existing medical condition across a spectrum of medical conditions.	health challenging risks (in particular females) in conjunction with alcohol use. Two specific at-risk groups have been identified, with different alcohol-related harms associated with each vulnerable group.
Variable 11 & 12 **Discharge outcome and Discharge destination**	In PED, 62% of the discharge outcomes related to admittance to hospital, compared to 9% in AED. There were no significant gender differences. In PED, 38% of the discharge destinations related to admittance to hospital or outpatient clinic, compared to		Medical stabilisation takes longer and requires more resources than the ED alone can provide. There appears to be a higher cost associated with PED than AED presentations, as children attending PED have a higher likelihood

	9% in AED. There were no significant gender differences.		of being admitted, increasing the overall costs.
Variable 13 **Content Analysis** **Alleged physical** **Assault and suspected sexual assault.**	Significantly higher presentations of reported physical assault by males in AED (21%). Significantly higher presentations of reported sexual assault of females across PED and AED (.8%)	The highest reported harmful consequence was "had a fight, argument or bad feelings with a friend" (30%). A quarter of young people reported they "got into fights, acted badly or did mean things" when they consumed alcohol (26%). There were no gender differences.	The effects of alcohol play a contributing role in being a potential perpetrator or victim of physical assault between the ages of 15-18-year-olds. Sexual assault is perpetrated against young females who have consumed alcohol. Although self-reported behaviours indicated no gender differences, actual harms show males are involved in physical aggression, much more than females. This suggests female

			aggression may be more verbal.
Polysubstance use	Significantly higher proportion of AED polysubstance presentations (25%) compared to PED polysubstance presentations (19%), with no gender differences.	The reported motivation to consume alcohol by young people “to get high” predicted 2.5 times increase in the likelihood to experience harmful consequences. Young males (14%) and young females (6%) reported they had gone to school drunk or high.	The value children and young people placed on the effects they wanted to achieve motivated them to participate in the risky behaviour of polysubstance use, regardless of the increased likelihood of adverse harmful consequences.
Psychosocial issues	A significantly higher proportion of female presentations reported psychosocial issues compared to males in both the PED and AED (17%). “Child states she drank half a bottle of vodka, when mum	Overall, disadvantaged young people reported lower psychological well-being than young people across middle to higher socio- economic communities. Mainly to the detriment of females. Lower psychological well-being predicted the increased likelihood of depression symptoms. Young	There is complete congruence between disadvantaged young females reporting lower psychological well-being, higher depression levels and reporting increased prevalence of alcohol

Free Text Comment	questioned child, she became very aggressive punching spitting and kicking. Superficial wounds noted on arms and legs and child disclosed to doctor that she has cuts to left thigh from deliberate self-harm. Tonight, child disclosed to mum she wanted to die".	females reported higher than average depression levels (49%). Depression levels predicted increases in the likelihood of alcohol use. Motivations for consuming alcohol; "helps if you are feeling nervous or depressed" predicts an increased likelihood of alcohol use. Motivation; "to cheer you up when in a bad mood" predicts an increased likelihood of binge drinking. Motivation; "to forget about your problems" predicts an increased likelihood of harmful consequences from alcohol. No gender differences in motivations.	use, resulting in alcohol-related harms, with associated psychosocial issues. Young people are motivated to drink alcohol as a direct result of experiencing psychosocial issues. This indicates a potential correlation between alcohol use, deliberate self-harm and suicidal ideation.
Law Enforcement Agency involved	An Garda Síochána were actively involved as the first responders, caring for children and liaising with parents, the ambulance service and	The study cohort are all under the legal age to purchase alcohol or consume alcohol on-premises. However, young people reported purchasing alcohol both off-premises and on-premises for their	The lack of stringent adherence to alcohol regulations results in a cause-and-effect scenario.

	emergency departments (13%).	own consumption, across a variety of alcohol products. Young people reported purchasing alcohol without the need to produce legal identification of age (25%) or by using fake identification (12%). Young people reported in the past two months, someone has offered to give, buy or sell them alcohol (64%).	Children are illegally obtaining and consuming alcohol in excess, resulting in alcohol-related harms. The effect is An Garda Síochána as a law enforcement agency are providing protective community engagement to vulnerable minors. This places a burden on community resources.
Alleged “spiking” **Free Text** **Comment 1**	More females alleged spiking of their drink (4.4%) than males. “Was at party, ? fell/fainted as per friends, friends concerned pt’s drink was “spiked” as pt was screaming and “thrashing about”.	Young people reported they have passed out or fainted suddenly when consuming alcohol (13%). No gender differences. Young people reported they suddenly found themselves in a place that they could not remember getting to because of their drinking,	The spiking of a child or young person’s drink is evidently a serious threat to their health and welfare. Alleged spiking was reported more among females, though concerning behaviours around loss of memory

Free Text Comment 2	"Patient states she is concerned as no memory of events last night, as per sister. ? patient is unresponsive. Admits took 3 alcohol drinks. Patient states she is worried her drink was spiked".	on a monthly or less basis (23% females, 19% males). 11% reported this happened to them more frequently.	and passing out suddenly are self-reported by both males and females. It is hard to differentiate the extent and validity of alleged incidents and equally the extent of unreported incidents, due to the collective symptoms associated with excessive intoxication, polysubstance use and the consumption of an unknown substance without the knowledge or permission of the child or young person.
Friends	Alcohol-related harms while socialising with friends was reported more by young	Peer support predicted the increased likelihood of alcohol use and binge drinking. Peer support	Drinking alcohol is clearly associated with socially orientated motivations,

	females (29%) presenting in the PED (33%).	predicted the increased likelihood of harmful consequences from alcohol use.	increasing the risk of harmful drinking behaviours and alcohol-related harm.
Free Text Comments 1	“Friends party last night and was drinking alcohol-vodka. Pt states that she awoke in her friend’s bed, alongside her friend pt does not recall how she got into the bed and noted bruising to rt forearm, lt and rt lower leg, red mark also noted to upper rt arm”.	The motives “because it helps you enjoy a party” and “because it’s fun” predicts 2 times increase in the likelihood of binge drinking. Young males reported their motive for drinking alcohol related to social inclusion - to fit in with friends” (29% males, 18.5% females). Young males reported drinking alcohol “to be liked” (20%) and “so they won't feel left out” (23%).	The context of their drinking does not increase the likelihood of alcohol use or binge drinking but may impact on the harmful consequences. Children reported their drinking in unstructured environments and were found in fields or parks, with varying levels of consciousness.
Free Text Comments 2	“Pt found by mother in park, was drinking with friends, drank large amounts of different types of vodka and Jägermeister”	The context of drinking alcohol is reported in someone else’s home (19%), in their own home (16%) and out on the street, park or other open space (12%).	

Chapter 9: Discussion and Conclusion

This chapter will discuss and interpret the main findings, on their own merit and in light of the preceding literature. Social learning theory was used as a lens, that was applied to better explain and understand alcohol behaviours and the relationship with predictive risk and protective factors (Kumar et al., 2022). The strengths, limitations and implications of the study are discussed. Finally, recommendations are deliberated in light of the main findings, with suggestions for future practice, policy and research. Finally, an overall conclusion of the study is provided.

Key Findings of the study

This section revisits the main aims and research questions of this study. Then presents the key findings from the descriptive, regression modelling and moderation models.

The aim of the study was to examine the outcomes of alcohol behaviours, alcohol harms and their predictive relationships across the multidimensional construct of health-related quality of life, depression, motivations and leisure time activities in relation to young people's self-reported outcomes. The specific outcomes were alcohol use, binge drinking, harmful consequences of alcohol use and depression. The sample was drawn from young people living in urban disadvantage.

The research questions were as follows:

1. What is the prevalence and frequency of alcohol use and binge drinking?
2. What is the measure of subjective health-related quality of life across five domains: (physical well-being, psychological well-being, autonomy and parent

relation, social support and peers and school environment) and perceived depression levels?

3. What is the association between alcohol behaviours and harmful consequences?
4. What are the predicted risk and protective factors associated with alcohol use, binge drinking, harmful consequences and depression?
5. Does the relationship between alcohol use and harmful consequences of alcohol use differ as a function of a moderator/mediator variable?
6. What is the scale and scope of alcohol-related harms as evidenced by self-reported negative consequences and alcohol-related emergency department presentations?

A reported increased likelihood on an outcome variable was indicative of a potential risk factor. A reported decreased likelihood on an outcome variable was indicative of a potential protective factor. By exploring the risk and protective relationships on alcohol outcomes in this manner, it is in no way deflecting from the real risk, the alcohol products themselves, rather than the behaviours of young people. Using the social learning theory framework of reciprocal determinism young people's behaviours, environment and cognitive processes influence the manner in which alcohol harms young people.

The key findings are presented under five main sections. Each section critically discusses that particular key finding, in light of earlier research and through the lens of the social learning theory. The key findings were obtained from both descriptive and inferential modelling, comprising binary logistic regression and moderation analysis. The binary logistic regression models identified the significant predictors of alcohol use, binge

drinking, harmful consequences and depression levels. Moderation analysis identified a relationship between the predictor variable alcohol use and the outcome variable harmful consequences through the influence of a third continuous moderator variable, school environment. Each key finding is presented in summary format first, followed by a more extensive discussion.

9.1 Association between alcohol behaviours and living in urban disadvantage

9.1.1 Key Finding

Prior research reports inconsistent results on the relationship between risky drinking behaviours and deprivation, among young people. Through the analysis of primary data, this study's findings conclusively contributes to the findings of earlier research studies. It supports the premise that living in urban disadvantage/deprivation demonstrates a higher prevalence of drinking behaviours among young people, compared to national and European data across predominantly middle to higher socio-economic communities. The findings were partially consistent with earlier research reporting lower frequency of alcohol consumption (fewer occasions) among young people from disadvantaged/deprived regions. This compares to higher frequency (more occasions) among more affluent young people (Pedersen and Bakken, 2016).

9.1.2 Discussion of Finding

The results indicated that a higher prevalence of harmful or risky patterns of drinking was evident among this sample of young people living in urban disadvantage, compared to international comparable data on alcohol use of young people across all socio-economic communities in Europe (Mokinaro et al., 2020). The findings are consistent, with studies by Clark et al. (2013) and Cambron et al. (2018) who measured alcohol behaviours in high deprivation areas and found a clear association with risky

drinking behaviours. According to Clarke et al. (2013) the demographic profile of heavy binge drinkers was more likely to be male and from higher deprivation living than low deprivation living. The findings in this study concur showing a higher prevalence of risky drinking behaviours among those living in urban disadvantage, but with no gender differences. This study highlights a convergence in risky alcohol patterns across gender, among disadvantaged young people. Although this study was cross-sectional in design, the longitudinal findings by Cambron et al. (2018) concurs by highlighting the significance of lower socioeconomic neighbourhoods in the initiation and progression of alcohol use trajectories, beyond the expected growth, among young people. However, the results are contrasting with the findings of Bellis et al. (2007) and Evans et al. (2019) both of whom found no association between binge drinkers and deprivation. Evans et al. (2019) reported no difference in alcohol consumptions levels between low, medium and high socioeconomic status. But like this study, found no gender differences in risky drinking patterns. This study highlights even more concerning alcohol behaviours among young people living in urban disadvantage, who have opted out of mainstream education at an early age (Youthreach n=19/DEIS band 1 schools n=288). The findings support the literature that dropping out of school places young people more at risk of developing harmful substance use, however the risk does reduce by continued training (Esch et al., 2014).

The overall percentage of disadvantaged young people reporting the use of alcohol was slightly higher than the national average. The literature reviewed in Chapter 2 indicated huge variances in the number of young people reporting alcohol use. This was due to the variation in factors being measured across the studies; reporting different drinking stages, sample age, cultures, socio-economic and demographic factors. Previous

research on binge drinking behaviours reported varying levels among young people aged between 14-18 years; America (16%), South Korean (11.8%), Hungary (19%) and Sweden (42%). In this study 64% of young people aged 15-17 years reported binge drinking.

On average disadvantaged young people reported the frequency they consumed alcohol as “monthly or less”. Although it is sometimes difficult to compare data across studies, similar comparative data report the lowest reported frequency across Europe were three occasions in the last 30 days, in Sweden, Estonia, Iceland, Norway and Finland, across all socio-economic communities. The reduced frequency (number of occasions consuming alcohol) that disadvantaged young people reported consuming alcohol is a very welcome outcome from this study. This result is consistent with the findings from Pedersen and Bakken (2016) indicating that 15–17-year old’s from higher affluent districts were more frequent drinkers than those from lower socio-economic districts. In addition, Bellis et al. (2007) reported living in disadvantage did not predict the likelihood of frequent drinking among young people. Based on the results of this study, consuming alcohol on fewer but heavier bingeing sessions, may result in similar amounts of alcohol being consumed as that of middle to higher socio-economic communities, but substantially increasing the risks of AR harm and injury, among disadvantaged young people.

In this study, It became apparent while comparing response outcomes across AUDIT measure (“how many drinks containing alcohol do you have a typical day when you are drinking”) and Revised AUDIT measure (“how many standard drinks do you tend to have on a day when you drink alcohol”) there was ambiguity on the part of young people in reporting the amount of alcohol they consumed. It seems young people reported the

number of drinks in terms of actual drinks consumed regardless of the alcohol strength, resulting in the underestimation of the volume of alcohol consumed and their level of binge drinking (AUDIT A2 and AUDIT A3). This finding is consistent with extensive research, showing that drinker's perceptions of a standard drink is inconsistent (Esch et al., 2014; Welsh et al., 2014) leading to over-pouring of drinks and the under-reporting of the levels of consumption (Gill & Donaghy, 2004; White et al., 2005). The AUDIT Revised A2R and A3R instrument offered a more precise operational criteria in self-reporting standard drinks consumed and binge drinking (Boniface et al., 2013), while accepting the limitations of published literature (Mongan & Long, 2015).

According to Hope (2009), the misuse of alcohol is occurring due to the lack of knowledge of the alcohol content in the growing number of alcohol products and the different variety in serving sizes offered both on-premises and off-premises. This study reports that alcohol is very easily obtained and very accessible. According to Clarke et al. (2013) the accessibility of alcohol through direct purchasing or obtaining alcohol from other peers or adults was found to have a strong correlation with binge drinking. The most popular reported context for drinking on the last drinking day was at someone else's home, or their own home, or out on the street, in a park or other open space. Along with this, the fact that spirits were reported as the most popular alcohol product purchased off-premises, which is not sold in set volumes and has a high ABV (alcohol by volume). Disadvantaged young people are obtaining high ABV alcohol products and naively controlling/pouring their own volume, with little knowledge of the number of standard drinks consumed or alcohol content.

9.2 Potential Risk Factors

9.2.1 Key Finding

Potential risk factors were clearly associated with socially orientated motivations, socially orientated behaviours involving peers and a lack of structured leisure time activities, among disadvantaged young people. The value placed on the socially orientated expectancies from consuming alcohol, motivated young people to consume alcohol, increasing the likelihood of risky binge drinking. Higher perceived social and peer support was a potential risk factor reporting the increased likelihood of alcohol use, binge drinking and suffering harmful consequences. This association of risky alcohol behaviours alongside friends was equally highlighted through the content analysis of the acute AR emergency department presentations. Choosing to hang out with friends in shopping centres, parks or streets placed disadvantaged young people at potentially greater risk of alcohol use and binge drinking.

9.2.2 Discussion of Finding

Motivations

An understanding of young people's motivations for drinking alcohol during the early initiation and onset phase is probably much more important than during adulthood, when drinking behaviours may be more habitual (Kuntsche et al., 2005). The value young people placed on the effects they wanted to achieve through alcohol, then motivated them to drink (Ryan & Deci, 2000). Vygotsky believed that children and young people develop their own meanings and values by interacting within their environment and community and subjectively assimilate appropriate meaning and values based on those that already exist (that is the social drinking norms). This is an implicit part of cognitive development (Verenikina, 2003). Research by Donovan et al. (2004) showed that early cognitions and beliefs about the effects of alcohol are already developed before ever consuming alcohol, through the early learning/socialisation process guided first by

parents, then friends, school, peers, and media. This learning/socialisation process reflects the wider expectancies and attitudes shared culturally in society (Murphy et al., 2016; Velleman, 2009). According to Velleman (2009) early learning relating to alcohol behaviours may not be any different to any other developmental learning which takes place, especially through parental modelling (Smit et al., 2018).

Aligned with these valued outcomes, drinking motives may serve varying purposes associated with antecedents, prior consequences and needs. The young person decides to drink alcohol on the premise that an affective change will be achieved, which may be internal or external. They may want to affect social rewards, enhance their mood, diminish negative emotions or seek peer acceptance. European data across 35 countries reported on alcohol expectancies (from a list of both positive and negative consequences) among young people aged 15-16 years. Irish students were among the highest across Europe to report positive consequences from alcohol use, associated with having fun. They reported a positive correlation between risky drinking behaviours and the expectancy that positive consequences will follow alcohol consumption (Hibell et al., 2009). Based on direct comparative data (Kraus & Nociar, 2016), disadvantaged young people, in this study, reported a significantly higher proportion of socially orientated motives (e.g., improves parties) and coping motives (e.g., to forget about your problems) for drinking alcohol, than the national and European averages. Motivations to consume alcohol that reflected the need for social inclusion (for example, to fit in, to be liked, and not to feel left out), reported similar proportions to national and European averages.

In this study, the highest reported motivations for drinking alcohol were: "because it helps you to enjoy a party, because it's fun, because it makes social gatherings more fun

and improves parties and celebrations", all very socially orientated motivations. Based on all the significant results reported in this study, the strongest significant results predicting binge drinking related to the self-reported motivations to drink alcohol. It seems that the main motive was that drinking improved or made social gatherings more fun, more than likely acquired through early social learning and social-cultural norms. The social motive "because it helps you enjoy a party", predicted an increased likelihood of binge drinking by nearly two and a half times. While the motive "to get high" (personal enhancement) predicted an increased likelihood of suffering harmful consequences of alcohol use by over two and a half times. Examining motivations of alcohol use among this subgroup is imperative to protect and limit early onset alcohol use and subsequent AR harms. The likelihood is that social alcohol motives and expectancies govern alcohol behaviours, which are influenced by peer relationships. The findings of this study highlight significant failings in Irish society which reinforces alcohol use as a desirable and acceptable social norm, especially among disadvantaged young people.

Peer Support

During adolescence young people seek independence, and the influence of family reduces, while the peer group and youth culture define their relations and experiences (Johansen et al., 2006). In this study, higher perceived social support and peer support indicated potential increased likelihood of alcohol use, binge drinking and harmful consequences from alcohol use, among disadvantaged young people, operating as a potential risk factor. This contrasts with only one earlier study, citing the association between poor social relations as a predictor of alcohol use, among secondary school students from both government funded and independent schools (Bond et al., 2007). However, generally the findings of this study build on the outcomes found in many other

studies undertaken among deprived young people. These studies reported being actively involved in sport or youth groups, or participation in multiple team sports increased the likelihood of engaging in binge drinking. (Bellis et al., 2007; Chung & Joung, 2019). The risk is not the leisure time activity per se, but the social aspect attached to the activity. The risk of binge drinking may be consistent with social events and peer pressure to participate in drinking or team bonding activities involving alcohol (Terry-McElrath et al., 2011). Interestingly, according to Bellis et al. (2007), being actively involved in sport or youth groups predicted a protective factor in drinking frequently or in public settings.

Earlier studies have reported on the type of peer relationships and the subsequent effects on alcohol use, which very much aligns with the findings of this study. Having friends that drank alcohol was one of the strongest predictors of binge drinking, among young males and females (Clark et al., 2013; Danielsson et al., 2011). Borsari and Carey (2006) review the quality of peer relations, citing more supportive peer relationships as having a strengthening impact on modelling, social reinforcement and social cognitions influencing alcohol use among young people. In addition, Cambron et al. (2018) highlights the attributable risk of poor family functioning in disadvantaged communities leading to involvement with deviant peers, increasing the risk of alcohol use in 14–15-year-old young people. Seeking peer support through membership of a large group or seeking peer support from older friends may pose potential negative risks for young people (Smyth & Darmody, 2021). The findings of this study exposes the

vulnerabilities of disadvantaged young people to a binge drinking culture which is widely and socially acceptable among their peers and adults alike.

Through the lens of social learning theory, young people vicariously observe differential consequences of peer drinking and perform similar behaviours based on the expected consequences or outcomes. Identifying with primary peers and the resultant reinforcing consequences (enhancing mood, having fun, peer acceptance) experienced by the peer model, or valued by the peer model, will reinforce new behaviours and further the acceptance of alcohol social norms. According to Bandura (1971) young people are exposed to a variety of modelling influences. Opposing modelling influences between adult and peer standards, found that young people were more susceptible to peer modelling. Identifying with certain peer behaviours may impact on the young person's choice of leisure time activities.

Leisure Time Activities

In this study, young people who reported frequently going with friends to shopping centres, parks, and streets for fun (hanging out in unstructured environments) as a leisure time activity, was a significant potential risk factor in both alcohol use and binge drinking. Interestingly, the context in which young people reported their alcohol consumption, in both structured and unstructured environments were not associated with binge drinking, in this study. Although, Bellis et al. (2007) reported deprivation increased the likelihood of drinking alcohol in public settings, rather than at home or someone else's home. Alcohol-related emergency department data also indicated acute harms to children "found" intoxicated in unstructured public settings, like fields and parks.

9.3 Potential Protective Factors

9.3.1 Key Finding

Potential protective factors were clearly associated with positive school environment in decreasing the likelihood of alcohol use and binge drinking. Positive

leisure time activities like reading books for enjoyment decreased the likelihood of alcohol use and binge drinking, while participating in structured leisure time evening activities and actively participating in sport decreased the likelihood of depression.

9.3.2 Discussion of Finding

School Environment

This study highlights the importance of keeping disadvantaged young people engaged in main-stream education, within a supportive and innovative learning school environment, which is crucial to social and educational development, and also reducing alcohol prevalence. School environment operates like a protective shield, when positive school norms result in increasing the likelihood of positive behavioural outcomes among young people (Bond et al., 2007; Catalano et al., 2004; Huang et al., 2022; Marsh, 2018). Interestingly, the results of this study concur and predict for every unit increase in school environment the outcome likelihood was a decrease in alcohol use and binge drinking. This indicates that positive school environment is a potential protective factor against alcohol use and binge drinking among young people living in urban disadvantage. Paradoxically, there was a strengthening relationship between alcohol use and experiencing harmful consequences of alcohol us, among those reporting higher school environment. Therefore, higher reported school environment has the potential to decrease alcohol use and binge drinking, but potentially increase harmful consequences. The incongruity of this finding is not easily explained but supports the hypothesis that the effects of alcohol vary depending on the young person's vulnerability. Less frequent and inexperienced novice drinkers may suffer harmful consequences of their alcohol use (Cherpitel et al., 2018), while modelling peer alcohol behaviours.

By exploring the four domains of the school environment variable further, three potentially protective spheres have been identified among a cohort of disadvantaged young people. Firstly, this study reports “the ability to pay attention in school” as a potential protective factor in decreasing the likelihood of alcohol use and binge drinking. Recent research among emerging adults suggested that attentional ability promoted resilience to binge drinking among those with a family history of alcohol use disorder, which is partially consistent with the findings of this study (Elton et al., 2021). Therefore, interventions to reduce alcohol use and binge drinking may possibly consider young people with attention deficits, who are in a higher-risk category.

A study into the effects of binge drinking (≥5 drinks for males, ≥4 drinks for females at least once in the past 3 months) during the critical period of adolescent brain maturation has indicated poorer neuropsychological functioning, with females showing a higher vulnerability, resulting in decreased attention and working memory (Squeglia et al., 2012). So, the ability to pay attention in school possibly protects young people from alcohol use and binge drinking, but in turn, alcohol use impacts on their ability to pay attention in school. The results of this study indicate that a much higher prevalence of harmful or risky patterns of drinking is evident among a sample of young people living in urban disadvantage, therefore it is difficult to know if young people may have attention deficits which already preceded and placed them at higher risk of alcohol use and binge drinking, or whether attention deficits possibly followed because of binge drinking behaviours. It is possible that one concurrently impacts the other, exacerbating poorer attention abilities and risks.

Secondly, “getting along with teachers” was a significant potential protective factor in decreasing the likelihood of binge drinking, in this study. These results are similar to earlier social development studies which reported on the potential failure of school relationships to support young people and the likelihood they will seek satisfying relationships elsewhere, potentially in relationships with deviant peers, which places them at risk (Catalano et al., 2004). Therefore, nurturing and fostering good teacher/student relations along with innovative learning and teaching processes to engage young people is imperative in educationally disadvantaged schools, for continued school engagement, social development, and reducing the likelihood of both risky patterns of alcohol drinking and depressive symptoms.

Thirdly, disadvantaged young people who reported “being happy in school” indicated a decrease in the potential likelihood of suffering from depression levels. This finding is supported by earlier studies on school connectedness and adolescent depression (Loukas et al., 2009; Millings et al., 2012; Shochet et al., 2006) citing school connectedness as a protective factor. School environment may buffer disadvantaged young people from exposure to negative risk factors inherent within their communities (Roche et al., 2015).

The fourth domain was “getting on well at school”. It was the only domain of school environment which did not significantly predict a relationship with any of the outcome variables alcohol use, binge drinking, harmful consequences, or depression levels, regardless of their perceived academic performance. These findings are in stark contrast with earlier research, showing protective associations between higher academic performance/proficiency and educational commitment and alcohol use (Catalano et al.,

2004; Danielsson et al., 2011; Huang et al., 2022; Johansen et al., 2006; Lukács et al., 2021; Pedersen & Bakken, 2016; Wheeler, 2010). It is possible the findings of this study reflects the lower academic aspirations and attitudes among students attending educationally disadvantaged schools and training centres.

Overall, a positive school environment is fundamentally instrumental in the healthy development and promoting healthy behaviours among young people living in urban disadvantage. The overwhelming evidence of this study combined with earlier research will help guide educational policy and practice, within disadvantaged communities. The basic principles and central constructs of social learning theory helps guide this process. Observation of teacher models in the attainment of knowledge, through coded information, later develops into individually distinct versions of a reproduced behaviour (Bandura & Walters, 1977). Cognitive processes of attention, retention, motor reproduction and motivation are constructs essential to positive observational learning. Competing sensory aspects within the lives of young people, means the process of attention is imperative to captivate and digest new learning, but more importantly encourage self-directed critical examination of learning (and life-long learning), rather than rote learning (Bandura, 1986). Teachers have the capacity to positively model influential attitudes and values. The retention of observed learning into meaningful symbols, images or verbal codes facilitates the reproduction of observed knowledge. The conversion of retained knowledge into motor reproduction or complex practical actions needs to be scaffolded by the teacher, to encourage and entice the full potential of the learned behaviour. Finally, the motivational incentive to perform the modelled behaviour is based on various reinforcers. Vicarious reinforcement means the student witnesses and observes the success of others through their reproduction of the

behaviour, which motivates them (Bandura & Walters, 1977). External positive reinforcement through social, tangible or token incentives, motivates students to achieve their developmental potential. This instils personal belief and self-efficacy expectations into young people, by attributing success to their own behaviours.

Promoting continued school engagement and social development, will reduce the possible likelihood of alcohol use, binge drinking and depressive symptoms among young people living in urban disadvantage. Outside the protection of a positive school environment, this study reports on the importance of how and where young people choose to spend their leisure time.

Leisure Time Activities

Disadvantaged young people reported how often they engaged in certain leisure time activities. In this study, reading books for enjoyment was a significant potential protective factor in both alcohol use and binge drinking, predicting a decreased likelihood of alcohol use and binge drinking, with an increase in reading books for enjoyment. This potential protective factor is a distinct finding among disadvantaged young people and has previously not been analysed within the reviewed literature as a potential risk or protective factor of alcohol use and binge drinking. In addition, developing and sustaining reading habits in young people has profound and far-reaching benefits, like improving academic achievement and promoting life-long learning (Mansor et al., 2013). While also developing mental capacities around attention and memory. As both mental functions are adversely affected by alcohol use (Squeglia et al., 2012).

Earlier research has shown differential associations and direct modelling has developmentally inspired and sustained children’s interest in reading for enjoyment.

Parents own reading behaviours within the home, and parents frequently reading to children permeates an enthusiasm for reading, from an early age.

It has been shown that the role of teachers within the classroom, sharing their passion and excitement for certain topics or genre of books are influential in supporting young people to become willing readers. An enthusiastic teacher as a reading role model was more strongly associated with slightly older adolescents (17-year-olds) compared to younger adolescents (14-year-olds) as having a significant role to play in motivating young people to read for enjoyment (Bhattachaijee & Khound, 2020; Chen, 2008; Strommen & Mates, 2004). Finally, the role of peers helps promote and sustain avid readers. Reading the same books as their peers, helps strengthen relationships through relatable discussion. So, having peers that read, predicts a potential willingness to model their behaviour as a form of social interaction, inclusion and enjoyment (Mansor et al., 2013). This asserts the importance of positive reading models for young people, to reduce the potential risk of alcohol behaviours.

Depression

Previous research with young adults and adolescence has shown interdependent, positive correlations between alcohol use and depressive symptoms (Caldwell et al., 2002; Graham et al., 2007; Marmorstein, 2009; O'Donnell et al., 2006). In this study, overall, mean t-scores for the children's depression inventory were within the average international score range (Kovacs, 2003). Overall, a quarter of young people reported their motivation to drink alcohol was because it helps when feeling depressed or nervous, with no significant gender differences. Interestingly, this motivation to drink alcohol when depressed or nervous predicted a significant potential protective factor against binge

drinking. Although, the results of this study are consistent with the literature in predicting alcohol use (Spirito et al, 2001), research by Chung and Joung (2019) reported associations between depression and an increased risk of binge drinking, which is not supported by the findings in this study.

Actively participating in sport and exercise was found to be a protective factor in suffering from depression. Furthermore, reducing depression had the likelihood of protecting against alcohol use. This study predicted an increase in psychological well-being was a potential protective factor against depression levels. In addition, young people reported how often they went out in the evening to a disco, café, party, increases in this type of leisure time activity predicted a decreased likelihood of depression levels, with no gender differences.

9.4 Alcohol-Related Harms

9.4.1 Key Finding

Firstly, AR harms were subjectively self-reported from the perspective of disadvantaged young people. The results indicated that peer support was a potential risk factor in the likelihood of disadvantaged young people suffering harmful consequences from alcohol use. The moderator variable school environment was found to strengthen the relationship between alcohol use and harmful consequences. Secondly, acute AR harms were objectively observed through AR emergency department presentations, which identified two specific at risk groups, both presenting with exclusive AR harm. These two at risk groups were 15-year-old males and females and 18-year-old males. The literature consistently confirms that young people living in deprivation/disadvantage significantly experience more AR harms than those of higher socio-economic status (Evans et al., 2019; Pedersen & Bakken, 2016). In addition, this study calls attention to other

deficits in health-related quality of life domains and depression experienced by disadvantaged young people.

9.4.2 Discussion of Finding

Alcohol-related harms

According to the WHO (2012) people living in social disadvantage experience more alcohol-related harm than those of higher socioeconomic status. This is also supported by more recent research by Pedersen and Bakken (2016) and Evans et al. (2019) reporting more AR harms to disadvantaged risky drinkers compared to higher socio-economic risky drinkers, consuming the same levels of alcohol. Additional health challenging risks are associated with living in urban disadvantage which disproportionately impacts disadvantaged young people over those living in higher socioeconomic environments, regardless of similar drinking patterns (Mäkelä & Paljärvi, 2008). The implications of this study's results signify a potential increased vulnerability to the effects of alcohol and resulting AR harms, for young people living in urban disadvantage. Firstly, a higher prevalence of harmful or risky patterns of drinking is evident among a sample of young people living in urban disadvantage, compared to European comparable data on alcohol use of young people across all socio-economic communities (Mokinaro et al., 2020). Secondly, a potential susceptibility to the effects of alcohol due to other unhealthy behaviours or environmental risks, as a result of living in urban disadvantage, as evidenced by lower physical and psychological outcomes reported, than their European peers across all socio-economic communities. Pedersen and Bakken (2016) highlight a similar vulnerability by disadvantaged young people to higher risks from lower multiple substance use, compared to more affluent areas reporting higher multiple substance use, but with reduced risks.

Danielsson et al. (2012) investigated self-reported alcohol-related harms using the European School Survey Project on Alcohol and Other Drugs (ESPAD) 2007 data. Due to data limitations only 23 out of the original 35 countries were included (Ireland was excluded). They measured alcohol consumption levels and alcohol-related harms, due to personal alcohol use, in the past 12 months. Physical fighting and unprotected sex were the most frequently reported harms by 16-year-old boys. Performing poorly at school and problems with parents were most frequently reported harms by 16-year-old girls. The data were collected across predominately middle to higher socioeconomic communities.

This study partially concurs with Danielsson et al. (2012), indicating the most frequently reported harms by young males were “got into fights, acted badly, or did mean things”. The most frequently reported harms by young females were “had a fight, argument or bad feelings with a friend”. Across comparative European data, 13% on average reported AR physical fights, with twice as many young males than females reporting such behaviour (Hibell et al., 2009). National research by Költő et al. (2020) reports in general, young people from lower social class are more likely to report involvement in physical fighting, than young people from other social groups. Therefore, the addition of alcohol into the equation, may escalate the risk of physical violence and AR injuries/harms among young people living in urban disadvantage. In this study, increased peer support and increased school environment were significant potential predictors of increased AR harm. Acute AR injuries are evident through emergency department presentations reporting alleged assaults, which were partially or wholly attributable to the patient consuming alcohol.

Acute Alcohol-related injuries/harms

This is the first study conducted in Ireland analysing acute AR presentations by children and young people presenting at the emergency department of two busy urban hospitals. In the PED, AR presentations accounted for 1% of all the presentations by children aged 12-15 years, for the period 2009-2019. This study identified in particular two at-risk groups, potentially vulnerable to acute alcohol-related harms. Firstly, a high proportion of 15-year-old males and females presented to the PED. Their presenting complaint was primarily intoxication/overdose or ingestion (70%). The doctor diagnosed alcohol excess/intoxication or ingestion (76%). These presentations warranted being triaged very urgently and were mainly brought in by ambulance. In over a third of cases it resulted in the child being admitted to the hospital. The second vulnerable at-risk group identified by the results are 18-year-olds presenting at the AED. A significantly high proportion of males presented with laceration/wound/injury (27%). These presentations were mainly triaged urgently and were mostly brought in by ambulance. A significantly higher proportion of males alleged they had been physically assaulted (23%) of which (19%) presented in the AED. Polysubstance use was also significantly higher in AED (25%), with no gender differences. In conclusion, the results have identified two specific at-risk groups and has identified very different alcohol-related harms associated with each vulnerable group.

Both these vulnerable at-risk groups are in very transitional stages of their young lives. In relation to the first group (15-year-olds), according to the Irish health behaviour in school-aged children (HBSC) study (Gavin et al., 2015), initiation of risky drinking behaviours were clearly defined from age 15 years onwards, with similar prevalence rates

for males and females. The initiation of risky drinking behaviours is evidenced through the high volume of acute AR presentations by 15-year-old males and females. Harmful consequences of risky drinking behaviours may be associated with novice drinking experiences; with little or no biological tolerance for alcohol, poor comprehension of alcohol content in drinks, mixing drinks, not pacing their alcohol intake, drinking in unstructured environments, and engaging in risky activities while intoxicated (Cherpitel et al., 2018). Culminating in acute alcohol-related harms like alcohol excess/intoxication and ingestion. A more concerning factor is the proportion of children engaging in polysubstance use (19%). The triage nurse categorised most children's AR presentations as category 2 (needing very urgent attention) and a high proportion were assigned a discharge outcome of admittance to hospital. This necessitated emergency medical expertise to provide medical stabilisation, over a period of time. Through content analysis one of the most frequently used words to emerge from the triage comments was "found". Often these children were found in fields, parks and unstructured environments alone, with varying levels of consciousness, which places them in even greater danger.

In contrast, the second at-risk vulnerable group (18-year-olds) are now entering early adulthood and can legally purchase and consume alcohol off-premises and on-premises, in Ireland. Early adulthood means less restrictions and more autonomy to determine their own actions and behaviours (Schulte et al., 2009). According to Young et al. (2002) age trends suggest that alcohol use developmentally increases from adolescence to early adulthood. In addition, gender comparisons become less aligned, at early adulthood males become increasing more at risk of problematic drinking, alcohol use disorders and alcohol dependency, compared to females reaching early adulthood.

The context of their drinking is now driven more by the night-time entertainment industry (for example, nightclubs) which facilitates heavy episodic drinking (Lindsay, 2012).

Research by Barnett et al. (2003) on alcohol-related harm among older adolescents treated in emergency departments, reports they are not inexperienced drinkers. It found that those presenting with alcohol-related harms reported heavier and riskier drinking patterns and alcohol-related problems than those patients whose presentations did not involve alcohol. Similarly, findings by Spirito et al. (2001) on a younger cohort (13 to 17 years) compared an alcohol-positive group and an alcohol-negative group both presenting to the emergency department. The alcohol-positive group reported higher alcohol use and alcohol-related problems, alongside more complex behaviours including polysubstance use, higher depression levels, and reporting more alleged assaults compared to the alcohol-negative group. These additional complex issues, alongside alcohol use, were also noted among children and young people in this study.

In this study, polysubstance use was reported by 19% of children and 25% of young people during their AR presentation at the emergency department of two busy urban hospitals, with no gender differences. A multitude of varying substances were reported in combination with alcohol during their presentations (e.g., marijuana, cocaine, diazepam). This is extremely concerning behaviour resulting in acute harm. However, collecting self-reported data on the combined or alternate use of other substances was outside the scope of this research. Earlier research conducted by Lea et al. (2009) on ED presentations, reported similar proportions of children engaging in polysubstance use involving alcohol (20.2%). According to Kelly et al. (2015) an association between polysubstance use and

psychological distress was evident in a large sample of Australian students, aged 12-17 years. Although psychological distress was evident among alcohol users, polysubstance users reported even higher psychological distress. According to Viertiö et al. (2021) psychological distress relates to symptoms of stress, anxiety and depression. In reviewing the data in this study, young females reported lower psychological well-being and higher depression levels and reported significantly higher psychosocial issues in relation to their AR presentation to the ED, than young males. This may suggest a vulnerability to psychological distress and a potential risk of females engaging more in polysubstance use. However, no gender differences were identified among polysubstance presentations in this study, suggesting more complex relationships associated with polysubstance use.

Previous studies among ED alcohol-related presentations involving children and young people have failed to report the specific diagnostic details of AR injuries/harms (Lea et al., 2009; McNicholl et al., 2018). This study offers a greater comprehension of the presenting AR injuries/harms and diagnostic AR injuries/harms by children and young people suffering acute AR injuries/harm requiring medical treatment. An explicit understanding of AR injuries/harm by age and gender is crucial to direct harm-reduction prevention/intervention strategies appropriately. The results have clearly indicated specific AR injuries/harms at presentation and at diagnostic stage, which are unique by age group and gender, also by gender within age groups.

The overall utilisation of resources for AR presentations is evident across three main agencies: hospital services, ambulance services and An Garda Síochána (Irish police service) services. Alcohol-related presentations generate a greater burden on ED clinical staff in terms of time and resources, possibly to the detriment of other patients (Mabood

et al., 2013). In the PED, 38% of alcohol-related presentations were admitted to hospital, with an estimated discharge date of 2.5 days (ICD 10 Code F10.0) to 4.4 days (ICD 10 Code F10.2), placing pressure on in-bed hospital services. Nearly two thirds of all AR presentations arrived at the PED and AED by emergency ambulance service. Therefore, paramedics were called out to attend to an alcohol-related medical emergency and initiated treatment to the child or young person at the scene and enroute, before handing over to the ED. According to Glencorse et al. (2014) the attitudes of paramedics in caring for alcohol-related injuries or illness in the UK, reflected low levels of commitment and motivation and had no referral pathways open to them to provide alcohol interventions. In addition, nearly 13% of PED alcohol-related presentations, in this study, involved the help of An Garda Síochána, displaying a duty of care for children at risk of alcohol-related harms. Engaging the services of three agencies to attend to AR presentations places additional strains on already limited services, especially when 25% of young people were triaged and then did not wait to be seen by a doctor and left the hospital.

The type of risky drinking behaviours reported by disadvantaged young people, are undoubtedly causing adverse negative consequences, harm or injury, which young people may not be consciously acknowledging. Young people may have alcohol outcome expectancies of positive reinforcement effects, which consciously or unconsciously supersede any perceived risks or negative consequences of their drinking (e.g., punishment from parents, lower academic performance, deficits to attention and memory, physical harm or injury) (Borsari & Carey, 2006). Alcohol outcome expectancies are formed within the early social learning framework, creating cognitive processes which govern future alcohol behaviours (Jones et al., 2001). Alternatively, observing the consequences of an action when performed by peers (modelling) may include the typical

stage of alcohol intoxication, when blood alcohol levels (BAL) are elevated. However, observing the same model approximately 8-12 hours later, when blood alcohol levels have returned to zero, with the accompanying physiological changes (hangover) may not be observed (Stephens et al., 2008). Young people may display unconscious disconnect between the effects of elevated blood alcohol levels and the after-effects many hours later.

9.5 Gender Differences

9.5.1 Key Finding

The results highlight a number of significantly different alcohol outcomes and predicted alcohol outcomes between young males and young females, living in urban disadvantage. The findings of this study indicate concerning gender disparities in physical well-being, psychological well-being, autonomy, parent relations and depression scores, to the detriment of young, disadvantaged females. In addition, young females are at higher risk from the effects of alcohol due to biological sex differences (Graham et al., 1998) and are at higher risk from the harmful consequences of alcohol use (Cortés-Tomás et al., 2017). A higher proportion of females presented to the emergency department with AR harms relating to sexual assault, alleged spiking of their drink and psychosocial issues, than young males. A higher proportion of young males presented with AR laceration/wound/injury due to alleged physical assault.

9.5.2 Discussion of Finding

Health-Related Quality of Life Domains

Overall, disadvantaged young people reported below the average European range on physical well-being and psychological well-being, two domains of health-related quality of life. This is consistent with the literature, with lower socioeconomic categories

expected to report lower HRQoL (Ravens-Sieberer, 2006). Gender differences were evident, with females reporting significantly lower physical well-being, psychological well-being, and autonomy and parent relations, compared to males. Interestingly, none of the above mentioned HRQoL domains were predictors of alcohol use, binge drinking or harmful consequences of alcohol use.

Two earlier studies of younger children aged 7-12 years from the same urban disadvantaged region, reported all children were within the average European threshold on all five HRQoL domains (Banka, 2018; Wynne et al., 2014). This is inconsistent with this study's findings based on a slightly older cohort. These findings suggest that the impact of living in disadvantage on health-related quality of life factors may become more pronounced, especially for young females, during adolescence than in earlier periods of life. According to Johansen et al. (2006), unhealthy lifestyles are formed during adolescence (for example, poor diet and lack of exercise). However, disadvantaged young people have a substantially greater risk of harmful health behaviours. Based on the earlier findings from a younger cohort showing higher HRQoL scores, it offers hope for intervening gender specific strategies after the age of 12 years to address the decreased HRQoL of young people and in particular young females, living in urban disadvantage. Overall, the lower psychological well-being reported by young females was a potential risk factor in suffering higher depression levels. Overall, how HRQoL domains had decreased from previous literature among a similar younger cohort was of concern. In addition, the findings showed a significantly higher proportion of females reporting psychosocial issues alongside their AR presentation across both PED and AED, compared to males.

Depression

A protective association between active leisure time activities and depression were found among young people living in urban disadvantage. A significantly greater proportion of males reported actively participating in sports, athletics or exercising, compared to females, which predicted a decreased likelihood of depression levels. Twice as many young males reported being active almost every day compared to young females. This protective factor is crucial where mental health challenges and socio-emotional outcomes have extensive consequences among disadvantaged young people (Shumba et al., 2021). The reduced activity reported by young females may partially explain the gender differences seen in the reported depression levels of disadvantaged young people. Nearly half of the young females reported above average (higher) depressive symptoms.

Overcoming the perceived cognitive and physical barrier's which seem to deter young females from participating in sport during their adolescent years is imperative. These may include poor self-efficacy, lack of self-discipline, peer discouragement and anxiety. Wider social barriers may include lack of support from family and friends, lack of parental modelling and gender typing. Environmental factors may include neighbourhood safety issues, winter weather conditions, lack of resources and access to facilities, financial costs and competing with technology (for example, time spent on social media) (Sabharwal, 2018). This is one measure, if addressed, may help to improve the physical and psychological well-being along with reducing depression levels of disadvantaged young females.

Parental Monitoring

In this study, young males reporting better parental relations and less parental monitoring compared to young females. Although, young females reported more frequent parental monitoring than young males in this study, this did not translate into reduced levels of alcohol use in comparison to males, with similar concerning consumption levels reported by young females. Earlier research explored parental monitoring and alcohol use in young people. They reported delayed initiation, reduced levels of alcohol use or decreased risk of binge drinking, through various parental monitoring strategies (Danielsson et al., 2011; Ryan et al., 2010; Spirito et al., 2001). In this study, the frequency in which parental monitoring was applied did not predict a protective factor on alcohol outcomes. More specific parenting strategies may be more impactful as a protective factor of alcohol behaviours, than the frequency in which monitoring/rules are applied within the home and outside the home, by parents. The social learning process of young people's drinking behaviours will be greatly affected by parental definitions or attitudes to their child's drinking, which define their behaviour as appropriate or inappropriate. Setting normative definitions and modelling responsible alcohol behaviours, are more likely to act as a deterrent to risky alcohol behaviours among young people (Norman & Ford, 2015).

Motivations

In this study, a significantly larger proportion of young males, compared to females, reported their motive for drinking alcohol was at times "to fit in with a group they liked" or "to be liked". This implies a need for social acceptance and social inclusion.

Young males may further seek a perceived social appeal or perceived desirability through their participation in drinking activities with their peers.

AR Harms

In this study, there were significant gender differences in the proportion of doctor's diagnosis due to AR presentations. A higher proportion of young females were diagnosed with alcohol excess, intoxication or ingestion, while a significantly higher proportion of males had a diagnosis of laceration/wound/injury. In addition, a significantly higher proportion of males reported alleged assault associated with an AR presentation. This is an interesting finding in light of the most frequently self-reported AR harmful consequences by disadvantaged young males (got into fights, acted badly, or did mean things). This finding concurs with earlier research by Lea et al. (2009) exploring AR injuries to young people presenting at Canadian ED's over a four-year period. They reported similar findings that violence-related injuries were predominantly among young males presenting. Young males alleging assault were potentially victims of alcohol-related public violent displays of masculinity, perpetrated by other males (Lindsay, 2012; Parrott & Eckhardt, 2018). Alcohol as a contributing cause of aggression is fundamentally a male dynamic. Research by Erol and Karpyak (2015) presents evidence of increased peripheral testosterone levels in healthy males at low doses of alcohol consumption but decreasing testosterone levels at the acute intoxication stage. While Eriksson et al. (2003) reports a positive correlation between testosterone and physical alcohol-related aggression.

Through content analysis of the triage comments, over 17% of females reported a psychosocial issue in relation to their alcohol-related presentation. However, only 4.3% of females with an AR presentation were given a doctor's diagnosis of psychosocial.

Therefore, serious psychosocial issues associated with alcohol use may be under-diagnosed and therefore go untreated. Diagnostic emphasis and emergency treatments are fundamentally based on the medical stabilisation of alcohol affects, within the emergency setting (Mabood et al., 2013). Evening and night-time presentations are a barrier to accessing specialist child and adolescent mental health services, which are only staffed during business hours, within the hospital. Hoy (2017) predicted a significant likelihood of a young person being readmitted with a subsequent AR admission if the initial AR admission included a mental health issue or self-harm, predicting females were more likely than males to return with an AR readmission. A strong positive correlation between psychosocial issues and alcohol use is further evidenced by Lea et al. (2009). They reported AR self-harm accounted for 14% of presentations, predominately among females in Canada. O'Donnell et al. (2017) reported increases in AR self-harm admissions among females in Western Australia and England. With self-harm being the leading source of AR injury in England, particularly among females.

9.6 Implications of the findings

The study's findings imply both short-term and long-term health inequities for young people living in urban disadvantage. A high proportion of young people reported they engaged in drinking behaviours, resulting in some form of AR consequences. AR harms manifest either biologically, psychologically and/or socially. Even mild/moderate alcohol consumption affects neurological processes like attention and memory, interfering with the critical stage of brain maturation which naturally occurs during adolescence into early adulthood. The high AUDIT scores reported by a quarter of young people surveyed, may potentially indicate a presence of an alcohol use disorder or potentially alcohol dependence now or later in life.

The bi-directional association between mental health issues and alcohol use is complex, but this study highlights a clear relationship between depression and psychosocial issues and alcohol use. Alcohol may be acting as a gateway to other substances, with polysubstance use being reported by a quarter of young people who presented with acute harms. AR presentations involving psychosocial issues included self-harm, suicide ideation and overdose. Risky drinking behaviours, motivated by the need to cope with mental health symptoms, will only serve to intensify mental health issues further for young people (Doyle et al., 2022). Aspects of health-related quality of life outcomes and depression outcomes are shown to adversely affect young people, to the greater detriment of young females. Progressing into early adulthood with these deficits will impact on long-term health, well-being and relationships.

This study reports on concerning diagnostic presentations of acute AR injury/harms experienced by young people, who are not only developmentally vulnerable, but who may be susceptible to a pattern of acute harm based on age, gender and demographics. There may be long term effects of acute AR harms or repeated AR harms which ultimately can result in conditions like liver disease, cancer and fatality. This places a substantial burden on the health service executive in Ireland, involving the ambulance services, ED nursing and clinical staff, hospitalisations, GP services and referral outreach services like Youth Drug and Alcohol Service (YoDA).

Peer drinking can lead to deviant behaviours, anti-social behaviours and involvement in risky sexual behaviours. Young females reported alleged spiking of their drinks with severe adverse effects, along with a small proportion reporting sexual assault. Young males reported alleged physical assault and presented with lacerations, wounds

and severe injuries, as a direct result. Having close peers that consume alcohol places the young person at additional risk of alcohol use, binge drinking and suffering AR harm. These modelled alcohol behaviours become accepted as alcohol social norms, influencing the young person's attitudes and alcohol behaviours into their adult lives.

Social harms are evident as young people reported a change in personality when they drank alcohol. They reported arguing, fighting and doing mean things when they drank alcohol. These negative effects can impact family dynamics, parental relationships, sibling relationships and the wider well-being of extended family members. Alcohol use can undermine all facets of social life (e.g., peer relations, teacher relations, sporting coaches and youth leaders). The socio-emotional cost can be devastating and far-reaching among disadvantaged young people who may already be challenged in their everyday lives. Young females may be particularly vulnerable reporting lower psychological well-being and higher depression symptoms. This may leave a legacy of fractured relationships, lower self-esteem and lower self-efficacy.

Alcohol use may reduce academic performance and impede developmental aspects associated with the school environment. Young people attending disadvantaged schools (DEIS Band 1) show higher absentee rates, lower retention rates to school leaving age, and lower progression rates to third level education, than national averages (Shumba et al., 2021). Alcohol use may contribute further to these shortcomings, impacting on future career choices and opportunities.

9.7 Strengths and limitations of the study

Through the various stages of the study strengths and limitations were identified. The strengths are discussed in section 9.7.1. The limitations are discussed in section 9.7.2.

9.7.1 Strengths

The ecological validity of a study was defined by Kihlstrom (2021), as the extent the findings relate to a real-world situation under investigation by the researcher. One of the strengths of this study is its ecological validity in collecting data directly from young people in DEIS band 1 schools and youth training centres, located in a highly disadvantaged region. The data provided a realistic viewpoint of life among young people living in urban disadvantage.

The study ensured a multi-dimensional approach to evaluating outcomes for disadvantaged young people, providing novel insights into alcohol behaviours and potential risk and protective factors specific to this cohort. The findings do not fully concur with research undertaken among young people across all socio-economic communities and therefore provides support for significant different drinking patterns and predictive relationships among young people living in urban disadvantage.

The study recognises the importance of this under researched group of disadvantaged young people. The sample was uniquely taken from both mainstream schools and alternative training centres for young people. The findings therefore contributed a broader and more realistic perspective across the lives of young people living in urban disadvantage, offering justification for further longitudinal research.

This study identified the stage processes involved in alcohol use and reviewed the risk and protective factors based on the distinction between stages of alcohol use and discriminated between risk and protective factors associated with alcohol use, binge drinking and harmful consequences of alcohol use. The study highlights the potential in advocating social learning strategies in disadvantaged schools, and the imperative role of positive teacher and peer relationships/modelling. Such strategies may also improve

health-related quality of life, cognitive development and potentially reduce the risks of alcohol use, binge drinking and depression.

Internationally, there are only a limited number of studies which have measured AR emergency department harms/injury among children and young people (Philips et al, 2019). Previous studies have reviewed AR hospital admissions and AR hospital re-admissions which although valuable, limits the findings to young patients which are admitted to hospital. This omits a large proportion of acute AR harms/injuries presenting through the emergency department first, which may or may not be admitted to hospital. This study provides 11 years of valuable data across AR emergency department presentations. This study's findings contribute to the limited number of international studies in the field.

This is the first study in Ireland examining the scale and scope of AR presentations in the acute emergency department setting among children and young people aged between 12-18 years. It is the first retrospective study with 11 years of data offering comparisons by age groups (12-15 years and 16-18 years) and by gender. In addition, the study identified six risk categories, based on the reported alcohol behaviours and drinking context of children and young people.

Having identified two at risk vulnerable groups to AR harms, an emerging development pattern of acute AR harms may be recognised through the findings. The results offer a greater comprehension of the type of AR harms diagnosed, by age and gender variances. Identifying and understanding the complexities of acute AR harms presented by vulnerable children and young people provides a comprehensive platform

to inform prevention strategies, policy decisions, clinical practice and harm-reduction interventions more appropriately.

A unique contribution of this study is the integration of the findings across the two main design methods (primary data collected from the survey questionnaire and ED secondary data on AR presentations – Chapter 8). The integration of the findings strengthened and reinforced the outcomes and provided a distinct combined assessment of the alcohol behaviours of young people living in urban disadvantage and acute AR harms they suffer.

The findings from this study highlight concerning and important gender sensitivities and trauma experienced among a proportion young people living in urban disadvantage and children and young people presenting with AR presentations. Internationally, gender responsiveness is high on the agenda of policymakers. To aid successful policies on alcohol prevention, interventions, harm-reduction and recovery models, gender focused solutions and trauma-informed approaches need to be explored.

9.7.2 Limitations

There were limitations in relation to the survey of young people aged 15-17 years. The KIDSCREEN 27 instrument measured health-related quality of life domains and included the dimension on school environment. The school environment measure was surveyed in both post-primary schools (high schools) and Youthreach centres. Though applied to the same age cohort, using the same methodology, both the schools and Youthreach centres are environmentally different in their learning processes and reward systems, so this may have been reflected in their responses. However, as naturally occurring, the representation from Youthreach centres was very low (19/307).

Although this study strived to address some of the research gaps and weaknesses of earlier research and provided clear observations of the HRQoL, depression levels and alcohol behaviours of disadvantaged young people at a given time point, the cross-sectional nature of the study design limits the findings achieved. Data were collected at a given point in time, meaning no temporal changes across the variables were measured. Therefore, it is not possible to infer causation between reported associations between predictor and outcome variables. The validity is compromised by measuring the association between the predictor variables and already established outcome variables (Carlson & Morrison, 2009). It is possible to assume that many of the predictor variables were not constant over time and may be impacted by experiencing the outcome variables (Kesmodel, 2018). This has implications for the sample's representativeness to extend the observed results to a wider disadvantaged population. A more rigorous longitudinal research design, with a larger sample, over many years, is required to establish inferences around definitive cause and effect relationships and more fully address the weaknesses of previous research. (Solem, 2015).

The lower than hoped recruitment rate (59%) may have reflected the strict criteria for active consent to participate in the survey, from a parent or guardian, along with survey fatigue expressed by many schools. This limits the generalisability of the research findings, based on the overall sample size (n=307). Further research is required among disadvantaged young people to fully understand the nuances of the reported reduced frequency in alcohol use, ensuring alcohol is not being substituted with other risky substances or behaviours. A limitation of this study was the sole focus on alcohol, without the inclusion of any other substances.

There were also limitations in relation to the secondary data from the hospitals. Data were possibly omitted which related to alcohol-related harms due to the young person's consumption of alcohol, which was not captured within the data fields. This may be due to the omission of key search words or miss spelt errors when personnel input the data into the data management system. Based on the methodological approach utilised, the data provided a significant representation of the ED presentations, by young people, due to their personal consumption of alcohol, over an eleven-year period. The data were collected from two urban hospitals, located on one site, which limits its generalisability. The hospital data management system only recorded repeat presentations within a 30-day period of the initial presentation. Thereafter, repeat presentations are recorded on the data management system as a new presentation. This limits the data available on repeat presentations. The data collected were limited to discharge outcomes only, with no information available on alcohol services follow-up plans or mental health follow-up plans. Unfortunately, the secondary data from the hospitals did not indicate if a brief alcohol intervention was undertaken with the young person presenting.

9.8 Recommendations

Based on the significant findings from the study it is apparent that outcomes among young people living in urban disadvantage do not fully align with outcomes among young people from middle to higher socio-economic communities. Therefore, the assumption that generic approaches to alcohol education, prevention, interventions and harm reduction strategies being effective among young people across all communities may be naive. The following recommendations are guided by two conceptual constructs. Firstly, this study considered the development of disadvantaged young people through a social, cultural learning perspective. A social learning framework asserts that social

learning takes place within the young person’s community and social network, therefore the recommendations will be contextual and appropriate.

Secondly, young people integrate and develop within various ecological and interrelated systems. This study has reviewed potential risk and protective factors of alcohol behaviours across individual but interdependent systems like peer support, parental relations, and school environment. Systems theory informs us that peer systems, family systems, school systems and wider community systems are all interdependent on one another, within in a far greater more complex system. The many components of the complex system cyclically impact one another (Bertalanffy, 1968). To address the multiple potential risk and protective factors of alcohol behaviours and the overall reported lower health-related quality of life of disadvantaged young people, a systems approach informs the development of the recommendations. Harnessing the resources of already existing community supports, which may have the capacity to expand or diversify their activities, will ensure long term sustainable prevention activities within disadvantaged communities. The following recommendations are made based on the findings and conclusions already presented. The recommendations are presented under three main headings; education, policy and practical recommendations. The sequence in which the recommendations are presented does not reflect any order of significance and a holistic systems approach informs the development of the recommendations.

9.8.1 Education recommendations

1. Key Recommendation –Alcohol Harm-Reduction Programmes.

Within schools, training centres and disadvantaged communities, alcohol harm-reduction programmes need to be trauma informed in their approaches and tailored to

the needs of disadvantaged young people. Nationwide, the standard curriculum alcohol programmes may not be adequate for young people living in urban disadvantage.

Discussion of Recommendation - Alcohol harm-reduction programmes

The findings of this study indicated a high proportion of young people are already consuming alcohol on at least a monthly or less basis, if not more frequently. Therefore, harm reduction education programmes would be more appropriate than abstinence education programmes for these young people. Prevention efforts would need to be targeted at a much younger age group. A substance use programme was designed in late 2019, to assist teachers with a substance use module, as part of the Social, Personal and Health Education (SPHE) curriculum delivered in the schools senior cycle (15–18-year-olds). This is not a mandatory module within the school's curriculum. An impact and process evaluation of the current substance use programme is required. Thereafter, it is recommended that a more selective educational programme needs to be tailored to the needs of disadvantaged young people engaging in higher consumption patterns, who are more susceptible to AR harms, with lower physical and psychological well-being. Substance use programmes need to be trauma-informed in their application, due to potential hidden harms from parental substance use, or other hidden adverse experiences in their lives. Education programmes may also need to be tailored to specific age groups, as identified by the types of AR harms young people reported.

Educational programmes should include guidance on improving young people's understanding of the strength of alcohol drinks, standard drink measures, on-premises and off-premises variations in drink sizes and alcohol by volume (ABV). This could increase awareness around neurological and biological AR harms. Attention should be focused on the most vulnerable groups identified, 15-year-olds transitioning into alcohol use and

binge drinking behaviours, as well as 18-year-olds suffering physical injury associated with male aggression, having consumed alcohol. Alcohol motivations and the explicit involvement of peers in alcohol behaviours which support and reinforce risky drinking behaviours, as a desirable social norm, needs to be challenged. Programmes need to fortify emotional regulation around alcohol behaviours, to reduce aggressive behaviours. This could build resilience and self-efficacy to resist peer pressure or question peer norms. In particular, dispelling the cognitive dissonance young people consciously or unconsciously disconnect between alcohol consumption and subsequent negative consequences or AR harms/injury.

Education programmes ultimately need to be designed to aid young people in their decision-making around alcohol behaviours, rather than direct self-regulation. There is also a wider opportunity to educate young people on polysubstance use. As no gender differences were found in alcohol consumption patterns, it may be possible to instigate harm reduction education programmes in both same sex and mixed gender schools and training centres, or mixed community-based programmes in collaboration with local Drug and Alcohol Task Forces. Protective factors need to be nurtured and enhanced (school environment and reading for enjoyment) while limiting the impacts of risk factors (peer support, hanging out with friends in unstructured environments and depression levels).

2. Key Recommendation - School environment

In order to retain disadvantaged young people in mainstream education, this study recommends that the perception of academic success in schools needs to be re-evaluated. This study advocates for a student-centred approach with nurturing pedagogies which encourage academic aspirations, as opposed to focusing on purely points gained from state examinations.

Discussion of Recommendation - School environment

The Delivering of Equality of Opportunity in Schools (DEIS) programme is designed to alleviate educational disadvantage for young people in both primary and post-primary schools. Two programmes supported under DEIS is the School Completion Programme and The Home School Community Liaison Scheme, which have been effective in seeing declining numbers of young people leaving school early. Their aim is to retain disadvantaged young people in main-stream education and to support parents to enable young people to continue in education, fostering positive attitudes to learning among families. Youthreach services provide continued educational training for early school leavers who have disengaged with school. A report in 2019, noted the growing complex needs of early school leavers with poor literacy skills, learning difficulties, mental health issues, substance abuse, anti-social behaviours, and trauma, which may be a result of adverse childhood experiences (Smyth et al., 2019). The results of this study highlighted specific at-risk groups of alcohol use and binge drinking including young people with attention deficits, struggling to form relationships with teachers, who are unhappy in school and displaying depression symptoms. These may also be the same children at-risk of early school leaving.

Monitoring student success through higher levels of student school connectedness/bonding, higher levels of being happy in school and getting along with teachers, can indirectly promote academic achievement. This study identified these same factors as potentially reducing alcohol use, binge drinking and depression among young people, behaviours which are barriers to academic success (Catalano et al., 2004). A new holistic perspective to education is required amid changing society and changing educational challenges (e.g., more children attending with special needs), education is no

longer solely academic. Through well-being coordinators, pastoral teachers and teachers of social, personal and health education (SPHE) classes, schools are taking on the mantle of providing tools and skills to scaffold young people for life, not just academically.

Disadvantaged communities are provided with supportive programmes for families and young people. However, often those challenged with the greatest problems, are the hardest to engage in these programmes. Schools as intermediaries are ideally placed to bridge the divide between young people, their parents and outside community agencies. It is recommended that DEIS schools and Youthreach training centres located together within certain disadvantaged communities, experiencing similar societal and educational challenges join forces and collaborate on in-school support programmes which they have tailored to their own student's needs. (e.g., peer to peer support, mentors, early intervention programmes), learning and adopting programmes from one another. For disadvantaged young people who are more susceptible to AR harms and report lower health-related quality of life outcomes, it is recommended school programmes strive to build self-esteem, self-efficacy, empowerment, resilience, emotional regulation, social development and relationship building, making young people feel like they belong, they matter and scaffolding them to make responsible decisions around their alcohol behaviours and peer choices. Alcohol harm reduction efforts may be best served through positive school bonding and positive teacher relationships, modifiable constructs which may protect young people. This may be achieved through professional development programmes for teachers.

For young people that struggle in the educational environment, it is critical that school interventions to improve their school environment meet their specific needs.

Identifying attention deficits, socio-emotional issues or trauma in a young person, may require more multifaceted interventions (Marsh, 2018), aiming to reduce the likelihood of school disengagement and subsequent alcohol behaviours. Collaboration with parents could be achieved through parent/teacher meetings, school websites and direct emails and texts, promoting effective dual interventions (school and home) through their alliance and co-operation (Danielsson et al., 2011).

9.8.2 Policy recommendations

1. Key Recommendation - Promoting Reading for Enjoyment

Government funding needs to be provided to extend the Junior Certificate School Programme (JCSP) demonstration library project to all DEIS post-primary schools nationally. There are currently only 30 funded libraries under this project nationally. In the short-term, opening another 20 libraries in post-primary DEIS schools will only fulfil the long-awaited aspiration of 50 libraries, which was planned seventeen years ago. In the medium-term, all post-primary DEIS schools in the country need a library supported by a qualified librarian. With the ultimate aim of improving literacy skills and supporting reading for enjoyment among disadvantaged young people, their parents and their community.

The current limited JCSP library project is targeted at young people in the junior certificate cycle only (aged 13-15 years), which promotes good reading habits in slightly younger people. However, it is important to ensure the continued progression of reading for enjoyment from the junior certificate cycle into the leaving certificate cycle (aged 15-18 years). Based on the findings of this study it is recommended that the project be extended to continue to include students even when they reach the leaving certificate cycle. Currently, the library facilities are available to slightly older students, however,

there is no planned strategy to motivate them to stay engaged in reading within school and therefore at home, as was previously the case in the junior certificate cycle. Competing interests or unstructured leisure time activities may find them involved in alcohol use. Continued inclusion of older students will continue to facilitate the improvement of their literacy skills, attention and memory skills, but is also a potential protective factor in the likelihood of alcohol use and binge drinking.

Unfortunately, the extension of the JCSP demonstration library project will not benefit young people attending Youthreach training centres who may be at greater risk of literacy difficulties and engage in riskier drinking behaviours. It is recommended to link these young people with their local public libraries, ensuring each student is signed up as a member of their community library and structuring time each week within their curriculum and at home, for reading books for enjoyment. Public libraries run many initiatives for young people like Comicfest, Creative Campus, Music Technology, Science talks, and podcasting to encourage engagement and develop a passion for reading.

Discussion of Recommendation –Promoting Reading for Enjoyment

Reading for enjoyment was reviewed as a leisure time activity among disadvantaged young people. It predicted a significant potential protective factor in both alcohol use and binge drinking, with no significant gender differences. Therefore, fostering a culture of reading for pure pleasure among disadvantaged young people may potentially reduce the likelihood of engaging in risky alcohol behaviours.

Literacy skills among young people attending urban disadvantaged schools (DEIS schools) in Ireland, are well below the national standards. Young people are challenged by poor support systems at home, poor literacy skills among parents, few books within

their homes and high absenteeism at school (Kennedy & Shiel, 2010). To overcome this barrier to educational disadvantage the Junior Certificate School Programme (JCSP) Demonstration Library Project commenced in 2002. The main objective was to increase literacy skills among underachieving disadvantaged young people attending DEIS schools. This was to be achieved by setting up high quality school libraries, staffed by a full-time qualified librarian. Based on the experiences of the first 11 libraries, longitudinal evidence-based outcomes showed positive correlations between library use and encouraging developmental outcomes, increased educational aspirations and reading for enjoyment. In 2005, under Delivering Equality of Opportunity in Schools (DEIS) the project was to be extended from 11 libraries to 50 libraries in total, all within disadvantaged schools. Twenty years on since the first libraries were formed, and although continuous evaluations have shown the significant benefits, only 30 JCSP Demonstration library projects are operational currently, not fulfilling the aspirational quota.

The project was set up under the junior certificate schools programme (JCSP). Therefore, young people aged 13-15 years approximately are the main beneficiaries. A library class is part of their timetable each week. A passion for reading is fostered and encouraged through engagement with the librarian and teachers, collaboratively working together. The library is a space to breath, to dream, to lose themselves in a book, offering the skills of life-long learning. The library was designed to be more than a room full of books, but a vibrant hub at the heart of the school. Young people are encouraged to read in the library and at home. The selection of books and materials to interest the young people is expertly managed by the librarian, while being responsive to student selections. The librarian supports the young people through their habit of reading, alongside before-school and after-school events and activities. Additional supports are offered through an

on-line digital library called "Sora" which is available to all students. Tablets are provided to challenged students offering dyslexic font, read-along books and audiobooks, or for those that just prefer digital books. This does not exclude disadvantaged young people from borrowing e-books, who may not own a tablet themselves. There are no repercussions or fines for late returns or damage to books, which may place financial strain on a parent.

Through the school libraries project, further family and community initiatives to nurture the benefits of reading for enjoyment, focused on family literacy programmes. The BoB project (books in a box) provided books and other reading materials to disadvantaged families, alongside advice for parents on the benefits of reading and how to assist their children in reading for enjoyment. Parents' book clubs provide literacy skills for parents in a supportive environment. These projects incorporate home, JCSP library, public libraries and the wider community. These initiatives are not broadly applied across all 30 DEIS library sites but are driven by individual librarians serving specific disadvantaged communities.

Currently, 30 post-primary schools serving the most disadvantaged communities in Ireland have libraries staffed by a fully qualified librarian, addressing the needs of disadvantaged young people. In addition, private fee-paying post-primary schools from the most affluent communities in Ireland can afford to have libraries staffed by a fully qualified librarian. In between, most other post-primary schools in the country may have a room full of books with outdated teacher-selected materials, without a full-time librarian.

Young people have a large variety of on-line media to navigate (blogs, tweets, Instagram, Facebook) which leaves other forms of written media competing for their attention (Rutherford et al., 2017). A lack of parental modelling within disadvantaged homes, may have detrimental effects on reading abilities and enthusiasm for books, among young people. Therefore, cultivating a reading engagement in schools, through the modelling of a professional librarian and teachers, which also reaches out and supports parents is a proven strategy.

2. Key Recommendation -Making Every Contact Count (MECC)

Based on the concerning AR harms reported in this study, Making Every Contact Count training is urgently required within the CHI hospitals and general emergency departments to ensure that treatment stretches beyond the scope of symptoms and fulfils its potential of meaningful dialog, screening and a brief intervention with referral pathways.

Due to the high proportion of 15-year-olds presenting with acute AR harms to the PED, as evidenced within this study, it is recommended that mandatory training be provided to ED paediatric nurses in delivering a brief alcohol intervention, the SAOR model. This model may need some adaptation when applying to such young patients. Currently, neither MECC nor SAOR training has been provided to paediatric ED nursing staff at the urban hospitals, which were the focus of this study.

This study recommends that the MECC and SAOR training be extended to other agencies, such as paramedics and An Garda Síochána as part of their professional development plan. This study highlights their involvement in the caring process for young people suffering from alcohol-related harms/injuries.

Discussion of Recommendation - Making Every Contact Count (MECC)

Making every contact count is a health behaviour change intervention adopted by the Irish health services (Health Service Executive). It is a framework for health behaviour change incorporating an implementation plan for all health care professionals in Ireland. It is based on the premise that every healthcare professional has the potential to instigate behaviour changes through advice and interventions, promoting healthy lifestyle choices, and ultimately preventing or reducing chronic disease. It focuses on four risk determinants of chronic disease: tobacco, physical inactivity, harmful consumption of alcohol and poor diet. The framework is designed to ensure every healthcare professional can effect a systematic change towards health improvement through supportive dialog when coming in contact with patients. The MECC implementation roll-out commenced in 2019 but was paused due to the global pandemic (covid-19) in 2020 and 2021. It recommenced in 2022 and is currently awaiting research recommendations on how best to optimise the implementation of MECC.

The findings of this study relating to acute AR harmful presentations to the emergency department by children and young people is the first of its kind in Ireland and offers real tangible insights into how MECC may be operationalised for children and young people presenting with AR harms.

Currently, the three main children's hospitals in Ireland have amalgamated under one umbrella, labelled Children's Health Ireland (CHI), forming one organisation, as a national entity, to deliver care to children in Ireland. This is laying the foundations for the opening of one large children's hospital in 2024. This study has identified the most vulnerable age and gender groups, alongside the types of AR harms experienced, which will inform CHI on essential decisions around policy, clinical practice, training and public

healthcare initiatives targeting children with alcohol and polysubstance use harms, prior to the opening of the new amalgamated hospital setting. According to O'Shea & Goff, (2009) nurses and other frontline health care professionals are pivotal in delivering screening and brief interventions (SBI) for harmful alcohol use in emergency departments in Ireland. The SAOR model is advocated as a flexible and user-friendly SBI within Irish acute hospital settings.

Ideally, interventions need to be designed to capture all AR presentations (not just those that are hospitalised). In this study, a quarter of young people did not wait to be seen by a doctor and left sometime after being triaged, even though they may have arrived by ambulance. Making every contact count means capturing every AR presentation and optimising their healthcare outcomes in collaboration with their parents/guardians, no matter how brief the hospital visit or how brief the intervention. In addition, it is recommended that psychosocial issues pertaining to AR presentations, which may have gone unidentified and untreated previously, as indicated in this study, may be acknowledged and diagnosed through MECC dialog. Recognising a dual diagnosis of psychosocial/mental health issues and harmful alcohol use will offer greater opportunities for children and young people to receive appropriate therapeutic interventions. Since 2020, within the Irish health system it has been accepted that those with a dual diagnosis need to access mental health supports and psychiatric services, as a result of alcohol disorders (Department of Health, 2020).

As highlighted in the findings, two other valuable points of contact include the two main agencies also involved in attending children and young people suffering AR injury/harms; the paramedics and An Garda Síochána, which currently are engaging and caring for children and young people suffering AR injury/harms. Neither of these agencies

fall under the MECC roll-out plan. This study recommends that both these agencies undertake the MECC training as part of a professional development plan. It is hoped that this will maximise the potential for meaningful engagement and act as a referral pathway, somewhere along the spectrum of care.

3. Key Recommendation - Hospital Software Systems

There is need to programme hospital software systems to automatically capture data on alcohol-related presentations, repeat presentations and polysubstance use presentations of young people.

Discussion of Recommendation – Hospital Software Systems

This is the first study to offer data on AR presentations by children and young people, in Ireland. Ideally, the programming of hospital data management systems to automatically identify and record alcohol-related data, polysubstance use data and psychosocial data, without lengthy laborious filtering and auditing processes, would ensure data are always available and current. This would aid policy decisions, clinical practice, training and public health initiatives. In addition, if hospital data management systems tracked all repeat AR presentations, this would raise a "red flag" among alcohol vulnerable children and young people, exposed to repeat AR harms/injury. Currently, the symphony data management system only records within a 30-day period. Thereafter repeat presentations are recorded as a new presentation. Identifying escalating trends in harms/injury through polysubstance use is also imperative. Through Children's Health Ireland, the new amalgamated Children's hospital due to open in 2024 is an ideal project to pilot this initiative.

9.8.3 Practical Recommendations

1. Key Recommendation – Disadvantaged young females

It is recommended that additional out-of-school/community supports be developed with a gender specific emphasis. Predominantly tackling the identified deficits among disadvantaged young females. These programmes could be delivered by existing community youth services, ensuring cost effective and accessible delivery of services by qualified practitioners, but with an emphasis on gender sensitivities.

Discussion of Recommendation – Disadvantaged young females

Due to young females reporting lower HRQoL domains and higher depression levels, collaborative community and after-school programmes are needed. The aim is to encourage young females to actively participate in physical activity, sporting activities and exercise along with organised leisure time activities, which are potential protective factors in decreasing depression levels, which ultimately decreases the risk of alcohol use. Currently, the scheme "UBU- Your Place Your Space" (Department of Children, 2022) supports vulnerable or disadvantaged communities, working with young people developmentally and socially. These services would be adequately placed to offer additional supports to disadvantaged young females, while providing significant positive role models in the form of qualified youth workers. These may be very beneficial relationships for young females who report lower parental relationships. Also, recruiting female sporting heroes as role models (e.g., Kelly Harrington – Olympic gold medal winner, Louise Quinn- Irish National soccer team) to advocate for young females participation in sport, at community level.

2. Key Recommendation - Peers and structured leisure time activities

It is recommended that parents and teachers promote, encourage and provide links to young people towards organised leisure time activities, shared with friends, which do not involve alcohol.

Discussion of Recommendation - Peers and structured leisure time activities

The study's findings between parents, peers and school environment provide three differently complex but interlinked environments in which young people have to navigate multiple behaviours, across specific types of social relations, in a given context. The findings indicate peer influence seems to dominate through differential association rather than peer pressure. The differential association of peers in predicting the likelihood of alcohol use, binge drinking and suffering negative consequences of alcohol was one of the most consistent risk factors of this study, which concurs with earlier findings (Krohn et al., 2016).

The challenge is to negate the influence of alcohol-using peers. Ideally, it would be hoped that young people foster quality peer relationships that are respectful, supportive and model modest alcohol use or personal choices to abstain (Borsari & Carey, 2006). However, in reality, the overall aim may be more successfully achieved through positive, structured and organised leisure time activities shared with friends, which do not involve alcohol. In this study, young people hanging out with friends in parks, open spaces and shopping centres predicted a potential risk of alcohol use and binge drinking. Adults need to practically support young people in their chosen activity. Leading youth organisations in Ireland (e.g., Foroige) support young people in their communities, encouraging personal responsibility while developing their skills, talents and interests. This is achieved

through youth clubs, interest clubs, youth cafes, neighbourhood youth projects and teen parent support programmes. Targeted programmes are designed for those with social, economic or educational disadvantage, towards building self-esteem, confidence and building the capacity to consider the risks and consequences of their actions.

An innovative joint initiative by the Health Service Executive (HSE) and the Gaelic Athletic Association (GAA) the amateur sporting organisation for promoting Irish football, hurling and camogie, was launched in 2004. The Alcohol and Substance Abuse Prevention programme (ASAP) was designed to prevent and reduce AR harm to young people through a nationwide network of GAA clubs across every community in Ireland. It takes a health promotion approach to alcohol prevention (Galvin, 2006). Building on its success of the ASAP programme, the Healthy Club Project (HCP) commenced promoting health and well-being of club members and the wider community. Coaches have the tools necessary to instigate a structured conversation (guided by the SAOR intervention model) with any player about their harmful use of alcohol or other substances, the first stage of any intervention. Although a positive initiative, it was born out of a historical culture of playing sport and socialising at the club bar afterwards. It is recommended that other large organisations which are based at grass roots level, in every community across Ireland, learn from this model. (e.g., The Football Association of Ireland, The Irish Rugby Football Union (both previously having close sponsorship ties with the alcohol industry), Scouting Ireland, Irish Girl Guides, Tennis Ireland and The Irish Athletic Boxing Association). This would offer young people an opportunity for engagement in organised, supervised, healthy, active leisure time activities with friends, increasing their physical well-being, increasing their psychological well-being, reducing the likelihood of suffering from depression, while limiting their exposure to alcohol.

3. Key Recommendation - Parents

It is recommended that every family which presents with a child or young person suffering an AR harm, to any emergency department, should through MECC be offered information on referral pathways to alcohol youth services, such as Yoda. In addition, be offered information on community parenting support services such as Foroige.

Discussion of Recommendation - Parents

It is recommended that future approaches, engage with vulnerable families which may be struggling with financial hardship and the accompanying emotional distress, health inequities and possible alcohol or substance misuse. This is in order to support and strengthen families, through family support programmes. Parents need to understand the importance of being a relevant role model, via a positive reflection of their own alcohol behaviours and attitudes. Parents need to be involved in meaningful discussion, monitoring and supporting change in young peoples' alcohol behaviours and if necessary encouraging new friendships, away from deviant peer groups. They must support school attendance, school engagement and connectedness, and self-efficacy to fully engage in school life (Cheng & Lo, 2017); ultimately strengthening the parent/child relationship.

There are currently family support programmes in place with good referral pathways between youth services, addiction services and mental health services within disadvantaged communities (Strengthening Families programme, Parents Plus programme, The Childhood Development Initiative, Parenting drop-in services). However, reluctant and hard to reach families make engagement very difficult and ineffective, although some services offer transport, childminding services and meals to remove barriers to attendance. Based on the acute AR harms reported in this study, all of these

parents should be encouraged to seek practical support in parenting their child or young person about their alcohol behaviours.

Through co-operative collaboration between parents and schools, parents can collectively come together to decide on rules, boundaries, safeguarding, tolerance levels, consequences and attitudes to alcohol use among their children and their peers. Through the support of other parents, they can become better role models for their children and collectively support one-another through responsible neighbourhood monitoring.

4. Key Recommendation - Treatment /Motivations

It is recommended that a health information approach be advocated to address the core cognitions of parents, children and young people around alcohol behaviours. Recommendations by Davies et al. (2017) exploring experiences that may lead to a change in drinking habits, advocated a health information approach using specific concrete experiences that are relatable. It is recommended that the case histories derived from the hospital's emergency department data accurately reflects the lived experiences of young people suffering acute AR harms/injury presenting to the ED. These may be used as valuable data in which to assist behavioural change techniques among disadvantaged parents, children and young people.

Discussion of Recommendation - Treatment/Motivations

According to a recent report, alcohol treatment outcomes for young people in Ireland are poor. They report unchanged alcohol behaviours in 71% of young people on follow-up. It was reported young people showed a lack of motivation to reduce or abstain from alcohol use. Young people were reluctant to acknowledge drinking behaviours were risky or commit to change drinking behaviours, although clearly suffering AR harm (Doyle

et al., 2022). The findings of this study emphasise the need to change core cognitions based on young people's expectancies and motivations as to why they consume alcohol, before behavioural change is possible. The make-up of their cultural learning has clearly advocated a positive orientation and an underestimation of the risks.

9.9 Future Research

This study highlights significant findings and answers the research questioned posed around alcohol behaviours, risk and protective factors and AR harms. However, it also generates new research questions which may be addressed in future research, among young people living in urban disadvantage.

- Longitudinal research is required to establish more cause-and-effect relationships between this study's predictor and outcome variables.
- Examining the role of family structure in predicting alcohol behaviours and AR harms.
- Examining the role of adverse childhood experiences (ACES), in predicting alcohol behaviours and AR harms.
- Examining the role of parental alcohol attitudes and parental alcohol exposure, in predicting alcohol behaviours and AR harms.
- Examining the prevalence and frequency of alternative substances and polysubstance use including alcohol.
- Examining the harms and negative consequences of polysubstance use.
- Future research may consider a gender specific approach to examining barriers to participation in sport and exercise among disadvantaged young females.

- Longitudinal research may be required to monitor the developmental changes in potentially deteriorating HRQoL domains from primary school age through to secondary school age, among disadvantaged young people.

Conclusion

The overall lower frequency in which disadvantaged young people reported consuming alcohol is a welcome outcome from this study. This study has defined potential risk and protective factors relating to alcohol use, binge drinking and harmful consequence of alcohol use through the associated health-related quality of life factors, leisure time activities and depression. A holistic approach of enhancing the potential protective factors identified and reducing the potential risk factors identified, while addressing lower health-related quality of life dimensions, will explicitly reduce the health inequities among young people living in urban disadvantage.

The promotion of healthy leisure time activities like reading for enjoyment, encouraging young females to participate more in physical exercise, challenging young people's perceptions of alcohol norms, monitoring positive peer relations and the activities through which these friendships are endorsed will protect disadvantaged young people from the harmful consequences of alcohol use, binge drinking and depression levels. This study reports novel new domains of school environment and asserts the possible protective effects from a social learning perspective through positive socialisation, cognitive development and scaffolding of young people within the context of their schools, parents and the wider community, to protect them from risky alcohol behaviours and depression. Understanding the critical moderating effect of school environment provides clarity for whom and under which conditions alcohol intervention

strategies can be directed within schools and training centres. Through school initiatives and professional development programmes, enhancing the co-occurring protective factors of school environment and reading for enjoyment could generate a strong protective effect, as each potentiates the other.

The results offer both self-reported negative consequences of alcohol use and clinical evidence of acute AR harms/injuries. This study raises greater awareness of two specific at-risk age groups, both suffering unique AR injury/harm, which may be indicating a developmental pattern.

The results offer a platform to inform appropriate alcohol prevention, intervention, and harm reduction, while addressing the importance of HRQoL dimensions. Through the study's theoretical perspective, the relevance of significant supportive adults in the lives of disadvantage young people, is very apparent, alongside positive peers. Social learning theory has shown that behavioural change is possible through cognitive and environmental changes. Challenging early alcohol outcome expectancies offers potential for prevention. Identifying drinking motives offers potential for effective harm reduction strategies (Kuntsche et al., 2005). The findings of this study highlights a need for disadvantaged young people to find health parity and equity with other socioeconomic communities.

"There are perhaps no days of our childhood we lived so fully as those spent with a favourite book"

(Marcel Proust, Trinity Library Bookmark, TCD)