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**An Adolescents Peer-led Motivational Interviewing Intervention Conducted in Low
Socio-Economic Community Youth Organisations to Change Health Risk behaviours
(Smoking, Alcohol and Sedentary Behaviours).**

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in partial fulfilment of the requirements for the Degree of Doctor of**

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Vol I

Supervisor: Prof. David T. Hevey (Trinity College Dublin)

Declaration

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Angela Hickey

28th of September 2023

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Thesis Summary

Behaviour change techniques, employ various strategies to reduce lifestyle health risk behaviours which contribute to chronic disease. Smoking, alcohol consumption and physical inactivity are behaviours that are often instigated during adolescent years. This stage of life is also synonymous with decisions that are based on autonomy and can impact lifestyle behaviours. Risks and protective factors are associated with these choices and can have a significant impact on present and future health outcomes depending on the decisions that are made. Engaging in health risk behaviours can contribute to ill health and lead to non-communicable disease later in life.

MI is a proven method for health behaviour change and has been widely used to manage health related problems and health risk behaviours. Peer led MI has been used effectively amongst adult populations, with a value placed on the relatedness that exists between peers. Adolescent peer led interventions have been successfully conducted in clinical, school and community settings to reduce health risk behaviours. However adolescent peer led MI interventions have not been explored to reduce health risk behaviours. The overall aim of this thesis is to explore the effect of an adolescent peer led MI intervention on behaviour change in low SES community youth organisations. A process evaluation was conducted to investigate the feasibility, acceptability and effectiveness of the peer led MI intervention.

Chapter 1 provides an overview of the literature and information on the determinants of health and the association of engaging in health risk behaviours and the prevalence of non-communicable diseases. Environment, community, individuals, peers, and families of adolescent health interact with risks and protective factors at each of these levels in their environment.

Chapter 2 provides a review of the literature on the effectiveness of MI interventions to reduce health risk behaviours. One main outcome from this review is the absence of adolescent peer led interventions despite the influence that peers have on each other during this life stage. Both risk and protective factors can influence intervention development and one main outcome from this review is the absence of adolescent peer led interventions that incorporate MI as a component despite its efficacy among this cohort.

Chapter 3 detailed the specific aims, objectives, and hypotheses for the research conducted in this thesis. The methodology that was used to address these aims and is described in this chapter. Chapter 4 presents a qualitative study exploring the knowledge and experiences of key stakeholders (n=9) in the first phase of the process evaluation. A

descriptive approach was taken using thematic analysis identifying three main themes: (1) Relevance of youth organisation programmes for adolescent service users, agreement on the appropriateness of the three health risk behaviours targeted for change and that peer led programmes were universally understood to be the best fit for adolescents. (2) implementation of the MI intervention, outlined recruitment strategies, consideration for intervention timing and the importance of building upon existing relationships established through trust. (3) Considerations for training included, modifying training techniques and adapting content according to the developmental stage of participants, with a focus on capturing the attention of participants, at this stage to support their further engagement through the intervention process.

Chapter 5 presents peer educator (n=6) qualitative feedback following their implementation of the pilot trial. This pilot trial builds upon and was informed by the stakeholder interviews. Both constitute the first phase of the process evaluation for the feasibility trial to investigate any issues through qualitative feedback. A descriptive approach was taken for the data provided in the focus group and small group semi-structured interviews. Thematic analysis identified three main themes: (1) Peer educator MI training experience, with considerations for refinement on the length and content to enhance participant engagement, (2) Peer educator experiences of engaging in the intervention process exploring the peer to peer interaction and suggested improvements in the delivery of MI sessions and strategies for participant recruitment, (3) peer educator reflections underscored training as a critical point in the intervention process, where MI skills could be developed.

Chapter 6 represented the second phase of the process evaluation and details of the quantitative study (n=171) are presented in this chapter to test the efficacy of behaviour change. The intervention MI group (n=44) addressed the intervention efficacy for the primary outcomes (smoking, alcohol consumption and physical exercise) across three time points (baseline, -6 weeks, -3 months). The health behaviour talk provided a comparative group (n=127) for the three health risk behaviours. Statistically significant decreases in total alcohol dependency scores were reported for MI participants at post baseline time points. No significant reductions were reported in cigarette smoking between groups. Statistically significant increases were reported for importance to change a health risk behaviour but not for confidence in the MI group, however, confidence to change trended towards significance for the intervention group between baseline and time two. Pre and post PA scores reported statistically significant increases for most categories in ITT and PP analysis between time 1-2. Maintenance of increased PA for all categories in ITT and PP analysis

was reported, where statistically significant increases were reported in PA between time 1-3.

Chapters 7 and 8 present qualitative findings on the main study trial across four youth organisations representing three communities for the intervention condition. Chapter 7 presents youth worker experiences of the MI training process and their role in supporting peer educators who delivered the MI intervention to their peers. A descriptive approach was taken for the data provided in semi structured interviews with youth workers (n=7). Thematic analysis identified five main themes. The first theme pointed towards relevance of the peer led health prevention programme, and the potential for it to provide opportunity for their service users to develop skills. The second theme focused on programme delivery, in the context of the supports that youth workers provided to peer educators during the intervention process. The third theme identified training as a key component to the intervention process, where youth workers and peer educators' engagement would be established and influence the overall impact of participation in the programme. The fourth theme provided details of the opportunities and challenges encountered through their participation in the programme. The last and final theme captured the youth workers perspectives on the feasibility of the implementing a peer led health behaviour change programme within their youth organisations.

Chapter 8 presents the peer educators and recipients perspective of delivering and receiving the peer led MI intervention respectively. This chapter provides insights into participant motivations to participate in the intervention. Both educators and recipient discussed their responsiveness to the programme and motivation to participate in as outlined in the first two themes. Participants' interpersonal characteristics and social interactions supported their participation in the MI intervention and are described in themes three and four. The final theme describes participants challenges, barriers, and the advantages that they attributed to their engagement on reflection of participating in the intervention process.

The final chapter integrated the empirical findings presented in this thesis and discussed the implications for the process evaluation of complex health behaviour change interventions. Process evaluations provide detailed insight into multisite trials, where the "same" intervention may be implemented and received in different ways for complex health behaviour change interventions. The medical research council guided the implementation and evaluation of the intervention for the first two phases of the process evaluation. The theoretical implications of this research were identified, and limitations of the research and directions for further research were suggested. This research identified the acceptability and

feasibility of MI as a method for adolescents to work with their peers to reduce health risk behaviours. The evaluation of the process may guide future programme design, implementation, and evaluation in communities. The intervention may also be adapted to other communities and settings (e.g., sports clubs, schools) and tested in a larger random controlled trial (RCT). Further research is recommended at both a national and international level, to target health behaviours in marginalised communities by adopting a similar MI peer led approach and in collaboration with community members.

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List of abbreviations

ABC	Area Based Childhood
ACTION	“Adolescents Committed to Improvement of Nutrition and Physical Activity”
Add Health	National Longitudinal Study of Adolescent to Adult Health
AHEAD	Activity and Healthy Eating in Adolescence
ASSIST	A Stop Smoking In Schools Trial
AUDIT	Alcohol Use Disorders Identification Test
AUD	Alcohol Use Disorder
BA	Brief Advice
BFBO	Brighter Futures Better Outcomes
BI	Brief Interventions
BMI	Body Mass Index
CBT	Cognitive Behaviour Therapy
CSDH	Commission on the Social Determinants of Health
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition
ED	Emergency Departments
ESPAD	European School Survey Project on Alcohol and other Drugs survey
FAS	Family Affluence Scale
Go Active	Get others Active
GUI	Growing Up in Ireland Study
HBSC	Health Behaviours in School aged Children
HED	Heavy Episodic Drinking
HI	Hollingshead Index.
HIP	Health Initiatives Program
HIV	Human Immunodeficiency Virus
HYP	Healthy Youth Places
IYM	“It’s Your Move!”
MAS	Material Affluence Scale
MET	Motivational Enhancement Therapy.
MI	Motivational Interviewing
MISC	Motivational Interviewing Skill Code
MITI	Motivational Interviewing Treatment Integrity
MINT	Motivational Interviewing Network of Trainers
MRC	Medical Research Council

NICE	National Institute for health and Clinical Excellence (UK)
NCD	Non-Communicable Disease
OARS	Open ended question, Affirmation, Reflection, Summary
OPIC	Obesity Prevention in Communities
PLAN-A	Peer-Led physical Activity iNtervention for Adolescent
PRALIMAP	“PRomotion de l’ALIMentation et de l’Activité Physique”
SDH	Social Determinants of Health
SDT	Self-determination Theory
SEP	Socio- Economic Position
SES	Socio- Economic status
SII	Slope Index of Inequalities
STEAM	Science, Technology, Engineering, the Arts and Math
TCD	Trinity College Dublin
T.E.E.N.S.	Teaching Encouragement Exercise Nutrition Support
TY	Transition Year
VAHCS	Victorian Adolescent Cohort Health Study
W.H.O.	World Health Organisation
YRBS	Youth Risk Behaviour Survey
YLP	Youth Lifestyle Program

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Conference Proceedings Arising from this Thesis.

Presentations

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M, Lawler, Hickey, A., E, Nixon, C. Darker, M, Barry, C.A. Field, F. Doyle & Hevey, D.T. (March 2019). Effectiveness of a peer-led motivational interviewing intervention for increasing physical activity among at-risk adolescents. 33rd Annual Conference of the European Health Psychology Society, Dubrovnik, Croatia.

Hickey, A., M, Lawler, E, Nixon, C. Darker, M, Barry, C.A. Field, F. Doyle & Hevey, D.T. (September 2018). The effects of training adolescents in a proven method for behaviour change- A pilot study. 10th IUHPE - Health Promotion in the Life Course Conference, Trondheim, Norway.

Chapter 1. General Introduction

1.1 Chapter aims.

The burden of disease has shifted in developed countries from infectious to non-communicable diseases (NCDs) (Boutayeb & Boutayeb, 2005; Din-Dzietham et al., 2007; Resnick et al., 2012), resulting in global increases in mortality and morbidity rates (Bennett et al., 2018). The most prevalent health risk behaviours that contribute to preventable disease include tobacco smoking, alcohol misuse, drug and substance use, unhealthy diet, sedentary behaviour, and unprotected sexual intercourse (James et al., 2018). Engaging in these health risk behaviours elevates an individual's susceptibility to a range of NCDs (Bauer et al., 2014), and adolescence is considered as a key period where health behaviour choices can positively or negatively impact on an individuals' future health (Ortega et al., 2013; Sawyer & Azzopardi, 2018). Evidence suggests that it is during this phase of life that there is an increased risk for adolescents to develop unhealthy behaviours (de Winter et al., 2016). Furthermore, once initiated, evidence supports the persistence of such behaviours into adulthood (de Winter et al., 2016), often leading to enduring negative impacts on their health across the lifetime (Djossé et al., 2009; McCambridge et al., 2011). This time of life is a key period for targeted support to promote healthy lifestyles and to prevent the initiation of health risk behaviours (Johnson et al., 2011). The increased prevalence of health risk behaviours amongst both adult (Hoffmann et al., 2018) and adolescent populations (de Winter et al., 2016) is closely associated with low socio-economic status (SES), increasing the risk for the development of chronic diseases among this demographic (Chen et al., 2006; McLaughlin et al., 2011; Richter et al., 2009; Von Rueden et al., 2006).

This chapter will describe the social determinants of health and social factors that contribute to health inequalities. It will also outline theoretical frameworks that describe social factors impacting the health of adolescents. Adolescent health risk behaviours will be discussed with a focus placed on the prevalence of alcohol, smoking, and sedentary behaviour.

1.2 Defining the Social Determinants of Health and Socio-Economic Position.

The World Health Organisation, Commission on the Social Determinants of Health (CSDH) define the social determinants of health as “the conditions in which people are born, grow, live, work and age” (World Health Organisation, 2008, p. 1). Social determinants of health (SDH) include both economic and social circumstances affecting and influencing health, such as money, power, and resources at local levels, nationally and

internationally (Solar & Irwin, 2010). The CSDH conceptual framework seeks to explain the relationships between the social, economic, and political factors that influence SES and the effect that SES stratification has on the determinants of health (Solar & Irwin, 2010). The CSDH framework outlines social selection, social causation and the life course perspective as dominant pathways and mechanisms for SDH. The social selection perspective signifies the role that SES plays in determining the health of an individual, and is defined by material, behavioural, psychosocial, and biological factors that influence distal and proximal pathways from SES to health (Braveman & Gottlieb, 2014). The social causation perspective is argued to be the primary explanation for inequalities in health according to SES and which is associated with the increased prevalence of health risk behaviours (Currie et al., 2008; Hoffmann et al., 2018; Huijts et al., 2017; Marmot et al., 2012; Pickett et al., 2005). Communities situated in low SES areas experience higher incidence of morbidity and mortality rates (Conroy et al., 2010; Hoffmann et al., 2018). The ‘social determinants of health’ are understood to be widely responsible for the social gradient in health and contributing factors include engaging in health risk behaviours, access to and affordability of healthcare, environmental risks, and the psychosocial impact that poverty has on health outcomes (Frohlich & Abel, 2014; Galobardes et al., 2006).

The concept of socioeconomic position (SEP) is commonly used in health research to understand and explain the impact of inequality for health outcomes (Frohlich & Abel, 2014; Galobardes et al., 2006). Numerous measurements assess SEP for both the individual and groups within their society referring to both social and economic factors that affect their health (Kaplan et al., 2000). The relevance of SEP for health outcomes is observed at various stages of life and numerous indicators that relate to SES are widely recognized as important when considering determinants of child and adult health (Diliberti, 2000; Gaspar et al., 2010; Lantz et al., 1998; Marmot et al., 2012). Social gradients are consistent during infancy, early childhood, and adulthood, and emphasise poverty as a risk factor for ill health and for the relationships between SES inequalities and health outcomes (Due et al., 2011; Kassebaum et al., 2016).

Assigning membership grouping for adult health is based on education, occupation, and income, with a recommendation for researchers to use at least two indicators of social class in their measurements (Ensminger et al., 2000; Matthews & Gallo, 2011; McLaughlin et al., 2011). Numerous measures have been designed, revised, and used in research of SEP with respect to the impact that indicators have on associated health outcomes and to capture a family’s SEP including the Hollingshead index (HI), which has undergone numerous iterations (Ensminger et al., 2000; Haug & Sussman, 1971; Hollingshead, 1975). A consensus

among researchers has been agreed that assessing parental education, occupation and income provide accurate indicators of SES (Willms & Tramonte, 2014).

Adolescent health is reliant upon social gradient, whereby the prevalence of ill health increases as SEP decreases (Chen et al., 2006). European and American adolescent participants in Health Behaviours in School aged Children (HBSC) study, from socially disadvantaged areas reported higher rates of poor subjective health (Moore et al., 2015), had multiple health complaints (Holstein et al., 2009), and lower life satisfaction (Ravens-Sieberer et al., 2009) when compared to their peers from more affluent areas. Cross national studies on health inequalities for adolescents are limited and instead the focus on health inequalities has been based on socially disadvantaged groups (Karvonen & Rahkonen, 2011; Starfield et al., 2002). Adolescent SEP is measured most frequently based on the mother's education level (Ensminger et al., 2000), on the basis that parental occupation has been found to be a valid way to approximate adolescent SEP, when the indicator is head of the household (Pfortner et al., 2015). This is comparable to the previously and most frequently used SEP indicator of the adolescent or child which was assessed on the father's income (Pueyo et al., 2007).

Capturing the effect of health disparities among adolescent cohorts through SEP can be problematic, as the research process often encounters difficulties when collecting parent data (Currie et al., 1997). The Family Affluence Scale (FAS) measurement was developed in response to these difficulties, merging adolescent and parent information and has been recognized internationally as a good indicator of child material deprivation (Currie et al., 2008). However, its application has raised questions on its relevance across cultures and its validity of SEP findings for different adolescent cohorts (Koivusilta et al., 2006; Von Rueden et al., 2006). An adaptation of the FAS to address these questions is the Material Affluence Scale (MAS) used to assess the SEP of adolescents in developing countries (Doku et al., 2010).

The FAS measurement is one of three measurements that have been widely administered to assess health inequalities among adolescents (aged 11-15 years) in HBSC longitudinal studies across 34 European countries and North America. These measures included the slope index of inequalities (SII) and the relative index of inequalities with two main aims. The measurements sought to understand the impact of secular trends and the effects of national wealth distribution on adolescent health (Moore et al., 2015). An emphasis was placed on inequalities for adolescent health and for differences between SES groups based on the distribution of wealth for the adolescent population (Elgar et al., 2015). Adolescents who perceived their family wealth to be a lower subjective SES reported greater

rates and incidence of complaints in health. Findings placed thirty-four countries in four groups for categories based on social inequalities. Irish adolescents, who were members of Group A (Austria, Canada, France, Ireland, and Lithuania) reported constant health inequalities and experienced an increase in multiple health complaints over 16 years based on social inequalities. This was comparable to Group B (twenty-nine countries) who reported inequalities in health complaints that remained constant over time and Group D (Spain and Greenland) who reported no social inequalities for health complaints. Group C (Ukraine) was the only country that demonstrated a decrease in health complaints based on family wealth between 2002-2010 (Moore et al., 2015).

1.3 Social factors and influences on adolescent health.

Adolescence is a period within the life course that is typically observed as healthy and a time where health choices are made that can have positive or negative effects on health into adulthood (Sawyer & Azzopardi, 2018). Adolescent health is a key factor to consider as patterns of behaviours established during this time can contribute to the ill health of an individual into middle and late adulthood (Moreno-Maldonado et al., 2019; Raphael et al., 2018). The early initiation in health risk behaviours leads to an increased likelihood that an individual will experience harm and that the behaviour becomes problematic during adulthood (Donovan, 2004). Long term health, education and behavioural trajectories are extremely important in the context of early childhood experiences. During adolescence developmental trajectories can be amplified and this stage of life is a key period where health risks can be potentially averted through the implementations of relevant interventions and programmes for health to support their healthy transition into adulthood (Hale & Viner, 2012; Patton et al., 2009).

Adolescence is realised through the initiation of puberty, characterised by sexual and brain maturation. These developmental phases often place adolescents in vulnerable situations with increased susceptibility to harms (Spear, 2000). Sensation seeking tendencies are also heightened with an increased desire to engage in activities that create dopamine responses as a reward in cognitive and socioemotional brain regions (Steinberg, 2007). Increased risk taking is strongly associated with middle adolescence (Steinberg, 2004) and with engaging in health risk behaviours (Reyna et al., 2013; Romer et al., 2017; Stockings et al., 2016). The greatest impact on adolescent health are structural determinants such as the wealth of the nation, equality in income and access to education. Proximal or intermediate determinants including family connectedness and school exposure directly impact adolescent health and are key to understanding the vulnerabilities of young peoples'

engagement in health compromising behaviours (Moreno-Maldonado et al., 2018). Placing an emphasis on education, academic achievement and parenting styles promote future pathways for the adolescents and support their health and well-being into adulthood (Resnick et al., 2012; Viner et al., 2012). Supporting education, creating opportunities to develop decision making skills and fostering autonomy can have a positive impact on adolescent social development and health (Sawyer et al., 2012). It is recognised that these years are marked by a period of growth and autonomy, where establishing identity independent of parents is often important (Hartup, 1996).

Health behaviours for adolescents are socially patterned and health risk behaviours are more frequent in socially disadvantaged areas for this age group (Viner et al., 2012). Furthermore, adolescence is a social time where interactions among peer relationships foster a sense of self (Hartup, 1996; Larson & Brown, 2009). It is during this life stage where a shift occurs for adolescents from previous heavy reliance on parental decision inputs to independent decision making (Baer & Peterson, 2002). This increase in autonomy facilitates the ability to make independent choices and can increase the likelihood of engaging in health risk behaviours (de Winter et al., 2016; Hoffmann et al., 2018).

Research that has been conducted with adolescents from populations in low SES or disadvantaged neighbourhoods has found that they have lower levels of parental monitoring and increased engagement in risky behaviours (Browning et al., 2005; Kerr & Stattin, 2000). Furthermore, adolescent health choices during this stage of life may experience increased susceptibility to peer influence and the subsequent engagement in health risk behaviours that are often legitimised as part of growing up (Brechtwald & Prinstein, 2011; Mutschler et al., 2018). Establishing credibility and status within a group can be influenced by peer approval and shared environment influences can play a part in the transmission of behaviours across social settings (Allen et al., 2005; Hartup, 1996)

A systematic review of studies, using data from the National Longitudinal Study of Adolescent to Adult Health (Add Health) emphasised the impact that adolescent friendship networks had on engagement in health risk behaviours (Jeon & Goodson, 2015). Findings in the review indicated that friendship relationships promote increased risky behaviour and targeting friendship groups in health promotion research for this cohort may provide greater insight on why they engage in health risk behaviours in a social context (Jeon & Goodson, 2015). Similar findings were reported in a longitudinal study conducted in Finland, whereby one of the components sought to assess the influence of friendships on alcohol consumption behaviour among 1,204 Finish adolescents. The study emphasised distinct stages when adolescents experience various levels of social influence from their peers, suggesting that

early adolescence is a critical time to establish social resistance to engaging in health risk behaviours, and that interventions targeting middle adolescence should capitalise on peer led relationships (Mercken, Steglich, Knibbe, et al., 2012). Furthermore, the literature suggests that schools present as an appropriate setting to conduct health research among adolescent populations (Shackleton et al., 2016; Xu et al., 2020). This is on the basis that the education system is accessed by this age group daily and presents opportunities for adolescents to socialise and participate in peer groups that are established within a larger network (Daddis, 2010; Lorant & Tranmer, 2019; Parkin & McKeganey, 2000). As such research that has been conducted in the education setting has been successful in recruiting adolescents to participate in health promotion and behaviour change interventions that seek to deliver a health message to this cohort (Barr-Anderson et al., 2014; Corder et al., 2021; Thomas et al., 2013; White et al., 2017).

1.4 Adolescent health risk behaviours

1.4.1 Physical activity (PA)

The level of PA is reported to be low across all age groups, having a direct impact on increased mortality or morbidity (Shields et al., 2010). Sedentary behaviour is defined as sitting and lying down during hours awake in the day (Tremblay et al., 2011) and increasingly there is a focus on child and adolescent health research to investigate sedentary behaviour and levels of PA (Carson et al., 2016; Tremblay et al., 2011). The W.H.O. guidelines recommend that time spent sedentary should be limited particularly with respect to time spent on screens (Bull et al., 2020). Recommendations for levels of PA for children and adolescents, requires that they engage in at least 60 minutes of moderate to vigorous intensity activity (MVPA) daily, with the incorporation of activity that strengthens muscle and bone at least three times per week (Bull et al., 2020; Chaput et al., 2014; Salmon et al., 2008). Guidelines on PA inform both research and public health promotion where there is an increased focus on evaluating and promoting PA levels.

Adolescence is also a period of life where there is a capacity and an opportunity to promote health in parallel with the social development observed in this age group. Examining sedentary behaviour in research has become increasingly important due the increased rates of this behaviour among children and adolescents (Carson et al., 2016). Recommendations from a systematic review of 232 studies conducted among school aged children indicated that a child or adolescent should spend no longer than 2 hours in sedentary behaviour (Tremblay et al., 2011). These findings are further supported in another review of the literature which emphasises the increased risks associated with screen time or

television watching and their negative association with emotional and social health indicators for this cohort (Carson et al., 2016). Furthermore, a meta-analysis of studies on obesity rates among children and adolescents globally emphasises the impact and the prevalence of sedentary behaviour in recent years across Europe, America, Canada, and other developed countries. The analysis also indicated that the greatest incidence of obesity was found to be among ethnic minority populations and low SES groups (Pinhas-Hamiel et al., 2022). The HELENA study which was conducted with European adolescents (n=534), aged between 12.5 to 17.5 years, examined the associations between PA, sedentary time, screen time, cardiorespiratory and muscular fitness with cardiovascular disease. Findings indicated that increased levels of vigorous, cardiovascular, and muscular fitness and decreasing television watching time had the strongest association with reducing the risk of developing cardiovascular disease (Barker et al., 2018).

Capturing levels of adolescent PA have been provided through CDC data in the Youth Risk Behaviour Survey (YRBS). Reported levels of PA indicated that only 23.2% of adolescents met the recommended PA guidelines, with a greater percentage of male students reporting to have engaged in PA compared to a lower rate of female students (30.9% versus 15.4%). Levels of PA indicated a linear decrease between 2011 to 2019, suggesting a cause for concern for U.S. public health policy. Increases in the risk of developing chronic illness is evidenced amongst this age group including Type 2 diabetes, heart disease, obesity, hypertension, and lower academic achievement (Rasberry et al., 2016). From a national standing, according to data from the GUI longitudinal study one quarter of the Irish population under the age of twenty-five years are overweight or obese (O' Mahony et al., 2021) and internationally it is estimated that worldwide forty-one million children under the age of five were overweight or obese (Hales et al., 2018). As a result, both PA and sedentary behaviour remain to be a growing concern for developing NCDs and present as a public health concern globally (Atkin et al., 2013; Chau et al., 2013).

1.4.2 Cigarette Smoking.

Cigarette smoking remains the leading cause of preventable diseases in the world, with low- and middle-income countries representing the highest incidence of tobacco related diseases and deaths (Kassebaum et al., 2016). Although there has been a marked decrease in smoking behaviour in middle- and high-income countries, it continues to be the leading cause of preventable death in the United States (Cornelius et al., 2019). Dependency on nicotine increases in line with the younger a person begins to smoke and as such targeting smoking behaviour during adolescent years has been a priority for public health in many countries (Hanafin & Clancy, 2019).

Cigarette smoking is the most common form of addiction and represents the largest problem for global health, with seven million deaths attributed directly to tobacco use worldwide. It is the leading preventable cause of mortality and morbidity in the United States and is the leading determinant of health associated with six of the eight risk factors leading to death (Bennett et al., 2018). A substantial proportion of adult smokers (90%), smoke their first cigarette before the age of eighteen, increasing their risk of adverse health outcomes later in life (Cornelius et al., 2019). Nicotine dependency and prevalence of cigarette smoking behaviour are increased for those who initiated smoking during adolescent years when compared to those who started smoking as an adult. Consequently, adolescence is a key period for early intervention and prevention for smoking behaviour as the predictors for continuance and prevalence in the behaviour are greater with increased health risk outcomes (Chassin et al., 2002). A multi-level study across 29 European countries highlighted the prevalence of smoking behaviour in low SES groups and emphasised the health inequalities among those from disadvantaged areas. Levels of tobacco use for European young people at eleven years old are similar at less than 1%, with the prevalence of tobacco use for young people increasing when surveyed at aged fifteen. Austria and Lithuania reported the highest incidence of smoking at 25% compared to that of adolescents in Norway and Portugal at 10%, suggesting that socio-environmental factors influenced the prevalence of tobacco use as outlined in HBSC study data (Pfortner et al., 2016).

Cigarette smoking amongst Irish adolescents has decreased from 41% in 1995 to 13.1% in 2015 (Li et al., 2018; Sunday et al., 2021). These decreases are supported by the national strategy to reduce smoking behaviour in Ireland (Ireland Department of Health, 2013). The age of initiation has also increased from 14.6 years in 2002 to 2003 to 16.4 years in 2019–20 (Mongan et al., 2021). However, a recent survey conducted by ESPAD, reported increases in smoking behaviour among Irish adolescents (15 -16 years) between the years 2015 to 2019 from 13.1% to 14.4% respectively and significant increases in electronic cigarette use (Creamer et al., 2019; Espad, 2020). Decreases in cigarette use have also been observed among adolescents in the U.S. according to Add health longitudinal data. High school students' cigarette use decreased from 36.4% in 1997 to 8.8% in 2017. However, 36.5% of adolescent respondents in this study reported to use tobacco products, with the most widely used product reported to be an electronic vapor (Creamer et al., 2019).

1.4.3 Alcohol Consumption

Alcohol use is strongly associated with times of celebration in European and Western cultures, and the behaviour is the leading, most commonly first used substance by

adolescents in Europe. According to findings in a recent systematic review of the W.H.O. Global Burden of Diseases, Injuries, and Risk Factors Study, alcohol use is the second highest risk factor for disease amongst young people (10 to 24 years) (Murray et al., 2020). As such, adolescent alcohol consumption, specifically binge drinking, is a growing concern globally. Heavy episodic drinking (HED) or binge drinking is quantified as the consumption of alcohol which is equal to or greater than sixty grams of pure alcohol or the equivalent to five or more drinks on one occasion (Roerecke & Rehm, 2013). Age is a factor in predicting the adverse health outcomes experienced later in life for alcohol use and misuse (Beckham, 2007), especially for those individuals who engage in drinking alcohol in their early adolescent years (Petit et al., 2013). Young people who consume alcohol before the age of 14 years are at increased risk of developing unhealthy drinking behaviours into adulthood (Bellis et al., 2009; Grant & Dawson, 1997). Furthermore, the harms experienced due to reduced inhibitions when under the influence of alcohol and subsequent engagement in risky behaviours can result in harm to themselves and others (Patton & Viner, 2007). Adolescents aged between 15 to 19 years are reported to engage in the highest incidence of binge drinking in European countries and Canada, followed by Brazil and America respectively (Downing & Bellis, 2009).

Hazardous and harmful drinking behaviour is indicated when the consumption of alcohol places the individual at risk for psychological or physical harm. Both categories of drinking behaviour can be measured using the W.H.O. Alcohol Use Disorders Identification Test (AUDIT) (Babor et al., 2001). A high score on the AUDIT is an indication of alcohol use disorder (AUD) according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (DSM-5, 2013). Hazardous drinking behaviour represents a sizeable proportion (64%) of those who reported to have consumed alcohol on the National Drug and Alcohol Survey (NDAS) in Ireland (2019-20) (Mongan et al., 2021) and these patterns of drinking behaviour were similar those reported in the 2016 Healthy Ireland Survey (Ipsos, 2017). HED behaviour has decreased among young Irish adolescents; however, the Healthy Ireland Survey reported an increase in drunkenness for sixteen- and seventeen-year-olds (Ipsos, 2017; Költő et al., 2020). Although there is a positive trend towards the later initiation of alcohol consumption across Europe and in Ireland, once the behaviour is initiated there is an increase in the level of alcohol consumed and most notably Irish adolescents are reported to be above the European average (O' Mahony et al., 2021).

The literature outlining the prevalence of problematic adolescent drinking behaviour is supported through data collected in longitudinal studies (Jeon & Goodson, 2015; Olsson et al., 2015; Redfield et al., 2020). The Victorian Adolescent Cohort Health Study

(VAHCS) longitudinal data on health risk behaviours reported high incidents of binge drinking for those Australian respondents who engaged in alcohol use during adolescent years. Findings also indicated that those who engaged in alcohol consumption were at greater risk of developing alcohol disorder in early adulthood when compared to those peers who reported not to drink during this stage of life (Olsson et al., 2015). These findings support data reported in the HBSC longitudinal study for decreases in the initiation of alcohol and the prevalence of alcohol use during adolescent years between the years 2009-2019. One in three adolescents from this cohort report to use alcohol, and females reported to consume higher rates of alcohol and engaged more frequently in binge drinking than adolescent male respondents (Redfield et al., 2020). The YRBS data collected as part of the longitudinal Add Health study captured trends in adolescent health risk behaviours in the U.S. These findings build upon 2011 data which indicated that 70.8% of adolescents in the United States reported within their lifetime to have “ever had at least one drink of alcohol on at least 1 day”, and of those who reported to have drunk alcohol at least once, 38.7% of them had consumed alcohol in the past thirty days, representing a 12% decrease from the data presented in 1991 (Jeon & Goodson, 2015).

1.5 Adolescent peer education and promotion for health risk behaviours.

Peer education is a popular approach that is adopted in research to promote positive health and to challenge health risk behaviours. Health education and promotion interventions have successfully recruited adolescents to participate as peer leaders or educators to deliver health messages to their peers (Fujimoto & Valente, 2012; Haug & Sussman, 1971; Telch et al., 1990). Qualitative studies have emphasised the positive impact that adolescent peer led health programmes have on increasing participants self-esteem and overall well-being during and after this stage of life (Carlin et al., 2018; Corder et al., 2020; James et al., 2018; Rose-Clarke et al., 2019; Story et al., 2002). Moreover, it is considered an acceptable approach for adolescents due to the existence of their shared experiences and personal characteristics (Cruz et al., 2012; Wolf & Bond, 2002). In addition to its suitability, the peer led approach can be more cost effective than some professional delivery of health programmes (Medley et al., 2009). Peer led approaches discussed in a meta-analysis on youth substance misuse interventions and programmes found that the presence of a peer component is more effective than those that do not possess one (Macarthur, Harrison, et al., 2016; Tobler & Stratton, 1997). This approach to health promotion can provide access to often hard to reach groups, including those from marginalised

communities who may not traditionally engage in health programmes or initiatives (Bonevski et al., 2014; Medley et al., 2009; Yancey et al., 2006).

The successful implementation of peer support initiatives and programmes have been found to increase positive health behaviour change and to foster feelings of relatedness between peers (Niemi & Ryan, 2009). Furthermore, informal peer led approaches have been argued to support increased autonomy for peer educators in their scheduling, individual style, method of delivery and content of the health message to their peers over more formal peer education programmes (Green, 2001). Young people who train as peer educators have been argued to communicate information better to their peers when compared to adults and are perceived to be credible sources of information during this interaction (Turner & Shepherd, 1999). Training peer educators presents as a critical time for intervention effectiveness and can impact the sustainability of an intervention. Recruiting appropriate educators or mentors, training them to acquire the necessary skills to deliver the intervention, and providing ongoing training to ensure that educators are supported in their role is recommended and has been discussed in the literature for adolescent behaviour change interventions (Gorely et al., 2019). Peer educators have been recognised as a key factor in the effectiveness of such school-based programmes and health promotion strategies (Mellanby et al., 2000). However, challenges have been discussed in the literature as to why peer education can fail with five main reasons identified. These reasons include the absence of clear aims and objectives, low investment, inability to recognise the complexity of peer education, ambiguity on boundary issues, inadequate training, and the absence of continued support for peer educators throughout the intervention process (Walker & Avis, 1999). Furthermore, establishing confidence amongst peer educators in their role following training is extremely important and considered vital for effective intervention implementation.

1.6 Peer education health interventions

Peer led health educational programmes and interventions have been delivered in both schools and health care settings to increase health awareness among recipients, for physical inactivity, smoking prevention, sexual health, drug, and human immunodeficiency virus (HIV) prevention (Benton et al., 2020; Frantz, 2015). Peer education programmes that have adopted a targeted approach to include young people in health promotion in schools have been successful in reducing or preventing the initiation of smoking, alcohol, and marijuana use (Audrey et al., 2006; Benton et al., 2020; Ellickson & Bell, 1990; Frantz, 2015; Hawkins et al., 2016). The impact of peer influences on adolescent health behaviours

is recognised in the literature (Maxwell, 2002), and peer-led education interventions have been found to be effective in promoting health (Harden et al., 1999).

Educational programmes delivered by peers, have skilled adolescent recipients with resisting pressure to smoking, initiating smoking and in reducing adolescent use of alcohol consumption (Botvin et al., 1990; Telch et al., 1990). Although schools present as a convenient and relevant setting for health promotion and education, the effectiveness of school-based smoking prevention programmes vary. Most notably A Stop Smoking in Schools Trial (ASSIST), involving participation from students across fifty-nine schools in the UK, trained students in peer support, to informally chat with their peers to encourage cessation in smoking activity. This school-based peer-led anti-smoking intervention reported positive changes in adolescent smoking-related behaviour (Audrey et al., 2006). Reductions of 18% in smoking behaviour were reported in the intervention group when compared to the control group (Audrey et al., 2006; Campbell et al., 2008). However, the existing literature concerning interventions employing peer-led randomized controlled trials (RCTs) for smoking cessation initiatives is limited (Thomas et al., 2013).

Similarly, positive effects have been reported in the peer led project ALERT, where adolescent peer educators delivered a drug prevention curriculum to help young people resist and avoid drug use in thirty participating schools in the U.S. (Ellickson & Bell, 1990). The Abuse Prevention Peer Booster Programme also reported similar effects where the peer led approach to drug prevention was prioritised over the other adult led approaches to deliver the information to young people (Botvin et al., 1990). More recently, adaptations of the ASSIST intervention have produced peer led programmes (FRANK friends, FRANK+) which were evaluated for the feasibility and acceptability of peer led drug interventions implemented in Welsh schools. Findings indicated that the peer led intervention was acceptable to students, parents, and teachers. Furthermore, given the intervention types of FRANK + (a follow on from ASSIST), Talk to FRANK (10 week peer-to-peer support intervention) and FRANK and friends (an informal conversational style intervention between peers), FRANK and friends was considered more preferable over the other interventions (White et al., 2017).

The influence that peers exert on adolescent PA and diet has been evidenced in the literature (Finnerty et al., 2010). Systematic reviews of the literature have sought to understand the influence that adolescent peers have on increasing PA in behaviour change interventions and recommendations have been made to capitalise on the ability of adolescent peers to positively influence health behaviours (Fitzgerald et al., 2012; MacDonald-Wallis et al., 2012). Friendship groups have been found to have an important

part to play in shaping health behaviours (MacDonald-Wallis et al., 2012). Peers can influence PA in several ways including social supports, norms, friendships, group affiliation and it is suggested that interventions take advantage of these characteristics to support positive behaviour change (Fitzgerald et al., 2012). Adaptations of the ASSIST programme to increase PA and promote healthy diets include the AHEAD and PLAN-A programmes. The AHEAD (Activity and Healthy Eating in ADolescence) feasibility study was conducted in a school-based peer led obesity prevention programme using both diet and PA as components for a behaviour change to prevent obesity (Bell et al., 2017). The PLAN-A (Peer-Led physical Activity iNtervention for Adolescent) physical activity intervention recruited adolescent girls as participants in eight schools in England. This peer led intervention was conducted to assess the feasibility of increasing girls' activity levels through their friendship groups (Sebire, Banfield, Campbell, et al., 2019). As part of the feasibility process both evaluations sought to understand the effectiveness of training and experiences of participants in the peer led interventions to ascertain their acceptability.

Understanding the acceptability of a peer led programme has been captured through the views and experiences of educators in feasibility trials (Barr-Anderson et al., 2014; Sebire, Banfield, Campbell, et al., 2019; Sebire et al., 2016; Stead et al., 2017). A school-based pilot peer-led anti-smoking intervention with Malaysian adolescents ($n=2,118$) aged 13 to 14 years sought to understand the peer educators experience of participating in the peer led intervention. Key findings in the evaluation process reported high student recruitment, a greater number of boys than girls attended peer education training and peer educators increased their knowledge and attitudes on the risks associated with smoking behaviour (Melson et al., 2017). Similar educator experiences were captured in a qualitative study that sought to understand the value of the peer educator role who related the risk factors for chronic diseases of lifestyle to their peers. Following the implementation of a health education programme, educators contributed their experiences of engaging in the peer led process. This provided peer educators with the opportunity to contribute and actively engage in the evaluation process of the intervention. Their role was considered crucial to the success of such approaches to programme delivery; however, the study highlighted the importance of supporting peer educators in their role for the duration of the intervention process (Frantz, 2015a). Similarly, the GoActive 8-week physical activity intervention in secondary schools captured experiences of peer educators through focus groups in the pilot stage of the intervention. Improvements included that teachers undertake a greater role in supporting peer educators, improvements to training and continued mentoring peer educators throughout the intervention process (Corder et al., 2016).

Research has shown that adolescent peer educators are considered acceptable in their role, that they can deliver health promoting information to their peers and that they can influence their peers in understanding the risks of engaging in health risk behaviours (Audrey et al., 2006; Bell et al., 2017; Benton et al., 2020; Frantz, 2015; Maticka-Tyndale & Barnett, 2010). Suggesting that they may function as role models among their peers and serve as individuals who offer the possibility of projecting norms in healthy behaviours. However, no studies to date have explored the feasibility of adolescents delivering a peer-led motivational interviewing (MI) intervention for adolescent health behaviour change. Chapter 2 will provide a narrative review of the literature on MI and interventions that have used MI as a component for adolescent health behaviour change. These health behaviour interventions will be discussed but not limited to adolescent health risk behaviours including cigarette smoking, alcohol consumption and sedentary behaviour.

1.7 Conclusion.

In most developed countries, NCDs present as a major public health issue, and are associated closely with health risk behaviours often initiated during adolescent years. Alcohol consumption, cigarette smoking, and sedentary behaviour are all risk factors for injury and disease and contribute to premature deaths. The prevalence for these health risk behaviours is increased for those who live in low SES communities and national strategies seek to reduce the harms associated with engaging in these behaviours. Furthermore, national, and international research seek to develop and incorporate prevention programmes to reduce the harms associated with these behaviours particularly for vulnerable groups. Peer education and peer led interventions have been successfully implemented with adolescent cohorts to increase their PA and to decrease their smoking and alcohol consumption behaviours. Chapter 2 will describe MI as a therapeutic approach and review the literature where MI has been used to support adolescent to change their health risk behaviours.

Chapter 2. Literature Review

2.1 Chapter aims.

Chapter 2 describes MI as a therapeutic approach to support individuals to work through ambivalence and to commit to changing personal behaviours (Miller & Rollnick, 2002, 2012). This narrative review defines MI and its scope of use among adolescent cohorts for health risk behaviours. Theoretically, MI is considered to be a good fit for adolescents (Baer & Peterson, 2002) and the literature contributes to the strength of its use for evidence-based approaches for intervention and in the prevention of the initiation of health risk behaviours (Barnett et al., 2012; Kohler & Hofmann, 2015; Mutschler et al., 2018). The review will evaluate the empirical evidence and effectiveness that MI interventions have had on adolescent behaviour change. It will also highlight the strengths and limitations of various approaches outlined in the literature. It will explore the influence of intervention characteristics and possible mechanisms of change working in MI interventions to understand programme effectiveness. In doing so the aims and objectives of the current research will be framed.

2.2 What is MI?

MI is a collaborative client centred counselling approach that aims to help individuals explore and resolve ambivalence about behaviour change. It was originally developed to address alcohol addiction, but its principles have since been applied to various areas including health behaviour change, addiction treatment, mental health, and other behavioural changes (Miller & Rollnick, 2012; Miller & Rose, 2009). The core principles of MI are to listen and strengthen an individuals' own motivation for change rather than imposing external motivation or advice. It draws upon several principles from different disciplines within psychology, instead of directly evolving from one specific theory. MI considers the individuals' motivation, self and whole with regards to their development and commitment to change. This therapeutic approach capitalises on the innate desire for individuals to grow according to motivation, self-direction, and desire to achieve actualization in meeting their potential (Miller & Rollnick, 2013).

Key elements of MI include expressing empathy and exploring ambivalence through discussion to build confidence within the client. Developing the discrepancy between the clients' current behaviour and desired goals and rolling with resistance acknowledges and respects the client's autonomy to express concerns that they hold without judgment. The counsellor encourages the client's self-belief to make positive changes by emphasising their

strengths and past successes. The use of open-ended questions, reflective listening, affirmations, and summarising of points during discussion supports the clients' self-efficacy and confidence (Heckhausen & Hechhausen, 2010). Due to the nature of this client centred, non-judgmental approach it has been an effective tool in promoting behaviour change and enhancing motivation for positive life changes. MI is widely used in the field of healthcare addiction treatment and mental health as well as in helping individuals adopt healthier behaviours such as weight management, smoking cessation, and adherence to medication regimes. MI has been successful in targeting specific health risk behaviours including substance misuse, exercise, and diet in both adult and adolescent populations and across a variety of different demographics such as SES groupings, ethnic and cultural backgrounds (Hetteema et al., 2005; Lundahl et al., 2013; Thøgersen-Ntoumani et al., 2019).

MI is now an evidence-based practice, having evolved through its use across numerous settings and where research has supported its efficacy for use (Barnett, Sussman, Smith, Rohrbach, & Donna Spruijt-Metz, 2012; Morton et al., 2015). Most of the research has been conducted with adult populations to overcome addictive behaviours and it is both applicable and widely used in primary health care settings (Morton et al., 2015). Systematic literature reviews comparing MI treatment interventions among adult populations support its efficacy in behaviour for substance abuse (Smedslund et al., 2011) and alcohol misuse (Vasilaki et al., 2006). Research has highlighted the acceptability of using MI among adolescent populations (Cushing et al., 2014; Resnicow et al., 2006), and evidence of its acceptability and efficacy to change adolescent health risk behaviours is promising (Barnett, Sussman, Smith, Rohrbach, & Spruijt-Metz, 2012; Cushing et al., 2014; Gayes & Steele, 2014; Jensen et al., 2011; Vallabhan et al., 2018; Wachtel & Staniford, 2010).

2.3 MI as treatment for adolescent health risk behaviours.

Young people who engage in health risk behaviours can present as ambivalent towards behaviour change and MI is considered an appropriate approach for this population due to the non-confrontational style that it adopts (Slesnick et al., 2000). A systematic review of the literature for MI interventions conducted with adolescents explored the mechanisms and context under which MI supports behaviour change for this age group (Baer & Peterson, 2002). Self-determination theory (SDT) provided a framework to understand the mechanisms: SDT focuses on personality development and behaviour change, and it assumes that the individual strives for personal growth (Deci & Ryan, 1980). Findings in a review of MI studies indicated that there were three main mechanisms (autonomy, competence, and relatedness) and certain contexts impacting these mechanisms

(school setting, proficiency of clinician, peer, and parental involvement), where MI interventions worked for adolescent cohorts. Furthermore, the analysis explored incidents where MI yielded significantly larger effect sizes and highlighted that the context under which MI is delivered to adolescents can produce different outcomes (Mutschler et al., 2018).

The literature on MI delivered to younger populations has focused on those aged between twelve to twenty-four years. Studies targeting health risk behaviours include those that have sought to reduce alcohol consumption (Bailey et al., 2004; Tanner-Smith & Lipsey, 2015; Wachtel & Staniford, 2010), substance misuse (Barnett, Sussman, Smith, Rohrbach, & Donna Spruijt-Metz, 2012; Henneberger et al., 2020; Jensen et al., 2011; Kalkhuis-Beam et al., 2011; Sorsdahl et al., 2015), dietary adherence and obesity (Christie & Channon, 2014; Cliff et al., 2010; Dombrowski et al., 2012; Pearson et al., 2014; Resnicow et al., 2006), sedentary behaviour and to increase PA (André & Béguier, 2015; Christison et al., 2016; Friederichs et al., 2015). MI has been delivered in a variety of contexts and has targeted different health risk behaviours and the mechanisms under which behaviour change occurs can vary. However, a meta-analysis conducted to investigate the effectiveness of MI for health behaviour change found that participant motivation to change is an important factor to consider when conducting behaviour change interventions with this age group (Gayes & Steele, 2014).

Furthermore, MI has been implemented as an intervention delivered to young people with variations in dosage and the method in which it is received. Studies have varied from participants receiving one to six MI sessions (Gourlan et al., 2013; Gray et al., 2005; McCambridge & Strang, 2005; Osilla et al., 2015). Studies have also varied in their method of delivery, with some studies delivering MI sessions in combination with cognitive behaviour therapy (CBT) (Bailey et al., 2004) or motivational enhancement therapy (MET) in the interventions (Miranda et al., 2017). MI sessions have been delivered in person and with followed up sessions received by participants over the telephone (D'Amico et al., 2008). Assessing maintenance of behaviour change have also varied according to duration of follow up data collected. The shortest follow up data collection is presented at two months (Bailey et al., 2004) and three months (Baer et al., 2007; Cimini, Monserrat, Sokolowski, Dewitt-Parker, Rivero, Lee, et al., 2015; D'Amico et al., 2008). While stronger evidence in maintenance of behaviour change has been evaluated where data has been collected at twelve and fifteen month follow up time points (McCambridge & Strang, 2005; Palm et al., 2016).

2.4 Adolescent sedentary behaviour and MI.

Research has demonstrated the efficacy of MI in its approach to improve health behaviours for exercise, diet, and diabetes in adult populations (Morton et al., 2015). Clinical research has sought out effective interventions to increase PA and to reduce body mass index (BMI) among young people who are obese or who are at risk of obesity. Studies that have implemented MI as a component of the intervention to increase PA often recruit obese or young people who engage in sedentary behaviour (Cliff et al., 2010; Resnicow et al., 2006; Vallabhan et al., 2018). MI interventions have been implemented in schools with adolescents to increase their PA to W.H.O recommended moderate to vigorous physical activity levels and to promote healthy eating (Flattum et al., 2009; Kong et al., 2013; Neumark-Sztainer et al., 2008). Studies have also successfully recruited and retained homeless youths who are considered hard to reach populations in MI interventions to increase their PA and to improve their diets (Black, Hager, Le, Anliker, Arteaga, et al., 2010; Love-Osborne et al., 2014; MacDonell et al., 2012; Resnicow et al., 2005). MI interventions studies often recruit convenience samples of adolescents in clinical and hospital settings, where it has been used as a component of treatment to decrease their BMI, to improve their diets and to increase their PA (Ball et al., 2011; Davis et al., 2011; Gourlan et al., 2013; Olson et al., 2008; Walpole et al., 2013).

Targeted approaches to increase PA and to improve diets of young people is on the premise that where MI has been used, positive outcomes have been reported for adolescents in their adherence to diet and in their acceptance of the MI approach (Black, Hager, Le, Anliker, Sonia Arteaga, et al., 2010; Flattum et al., 2009; Gourlan et al., 2013). It has also been found to support treatment adherence for obese adolescents to a healthy diet (Ball et al., 2011; Bean et al., 2015) and evaluations of the approach are conducted to understand the mechanisms of change for adolescents during MI sessions when compared to those in a control or waitlist condition (Carcone et al., 2016).

2.4.1 Delivering MI in a school setting to increase PA.

School based interventions can support the recruitment and retention of adolescents who are at risk of obesity over a prolonged period of time. Studies have sought to evaluate the acceptability of MI as a method to engage adolescents to decrease their sedentary behaviour and to improve their diets. Positive outcomes were observed during the assessment of the 'New Moves' programme, which recruited female participants ($M=17$ years) considered at risk of becoming overweight or obese in a community and school setting. Participants ($n=20$) received MI in the intervention condition every few weeks

lasting between 20-25 minutes per session over a nine-week period. The focus of MI sessions was on participants setting goals related to PA, nutrition, and social support to achieve the goals set. Participant goals were reported to be achieved 75% during the nine-week intervention and attrition was reported to be low with eighty-one percent of participants attending all seven MI sessions (Flattum et al., 2009). A follow-on study to “The New Moves” school programme with adolescent girl participants (14 -17 years) further reinforced the acceptability of MI as a method to engage adolescents in PA. Findings indicated statistically significant decreases in sedentary behaviour approximately 9 months post intervention for those who attended at least five of the seven MI sessions. Furthermore, the study reported a high satisfaction rate for participants who engaged in the one-to-one MI sessions (95%) and it was suggested that counselling sessions enhanced the New Moves programme. MI was considered an acceptable approach for adolescent students to engage in and to support them in increasing their PA during this school-based intervention (Neumark-Sztainer et al., 2010).

Similarly, a school-based weight management feasibility study conducted in New Mexico, that sought to increase PA and improve nutrition was delivered in two school-based health centres. The programme “Adolescents Committed to Improvement of Nutrition and Physical Activity” (ACTION), recruited overweight and obese adolescent participants ($n=51$) aged between 13.9 to 16 years. ACTION participants ($n=28$) received eight MI sessions from a nurse practitioner to improve their nutrition and increase their PA. While remaining participants ($n=23$) received standard care with one visit to the health centre, where they received recommendations for healthy weight. The comparison between groups demonstrated significant improvements at seven month follow up in ACTION participants’ BMI and waist circumference, indicating the potential of the intervention to reduce adolescent susceptibility to developing health risk complications such as diabetes and obesity into adulthood (Kong et al., 2013).

2.4.2 Accessing hard to reach groups to increase PA.

When conducting research, adolescents are considered to be a hard-to-reach group and their continued engagement in the research process often encounters challenges and barriers, particularly for those from low SES or disadvantaged populations (Bonevski et al., 2014; Yancey et al., 2006). One study that demonstrated a high level of MI engagement is described in the “Go Girls” intervention to increase PA and improve nutrition among African American adolescent females. Participants were assigned to a high-intensity (20-26 sessions) or moderate-intensity (6 sessions) condition. The high-intensity group received 4-6 MI sessions over the telephone with a focus on goal setting to achieve 30-minute of PA

and all participants engaged in healthy eating activities. Despite the acceptability of engaging in MI, findings in the study's outcomes for participant BMI reductions indicated no significant differences between groups at the six month or at one year post baseline follow up data collection (Resnicow et al., 2006). Another study successfully recruited adolescents ($n=235$) aged between 11 to 16 years in low SES communities. Participants engaged in a 12-session community-based health promotion programme designed to reduce their obesity rates. The intervention group were paired with mentors (college graduates) who delivered MI sessions that explored the adolescent experiences of healthy eating and PA. MI sessions sought to increase participants' confidence in adopting new behaviours. The study reported high retention rates (76%) in the intervention condition, statistically significant decreases in snacking and in increases in PA when compared to those in the control condition (Black, Hager, Le, Anliker, Arteaga, et al., 2010).

Similarly, obese Latino adolescents ($n=38$) were recruited from a school-based health centre that incorporated MI to increase their PA. The study's aims were to evaluate the effectiveness of the MI and reported success in the recruitment and retention rates, emphasising the acceptability of the MI approach with an adolescent cohort in a lifestyle intervention. Health educators explored the efficacy of providing additional supports to participants to help them set personal goals to improve their lifestyles. The study reported high retention rates for both the control (87%) and intervention groups (94%) but did not report statistically significant decreases in adolescent BMI (Love-Osborne et al., 2014). In addition to evaluating outcomes, research has also sought to explore the feasibility of delivering MI to adolescents for behaviour change. African American adolescents (13-17 years) received four 60-minute MI sessions in a pilot study to investigate the feasibility of the approach in promoting healthy eating and increasing participants' PA. Nutrition counselling was received by all participants. MI participants reported improved habits and an increase in their intrinsic motivation to engage in PA. These findings provided some indication of the feasibility of delivering MI to adolescents to target and promote healthy eating and to increase PA (MacDonell et al., 2012).

MI in a hospital or clinical setting to decrease sedentary behaviour.

Clinical settings have provided an opportunity to recruit patients who are obese or who are at risk of obesity in research to support them in changing their diet and to increase their PA. One study implemented the Health Initiatives Program (HIP) with Canadian adolescents ($n=46$) who accessed a multidisciplinary paediatric management clinic. The study sought to examine the effectiveness of MI and CBT in promoting participant nutrition

intake and to increase their knowledge on PA. Participants were randomly assigned to one of two conditions to assess the effectiveness of MI in decreasing BMI and to increase PA. Although, no differences were reported for increased PA in the intervention group, findings reported statistically significant decreases in BMI for intervention participants when compared to two other conditions Youth Lifestyle Program (YLP) and waitlist control group (Ball et al., 2011). Another weight loss programme incorporated MI as a technique to engage adolescents in a hospital setting to manage their weight. All participants received a standard weight loss programme and the intervention condition received two individual thirty-minute MI sessions in addition to six MI sessions over the phone. Statistically significant increases were reported in PA for the intervention group. Findings also indicated that those in the MI condition perceived hospital staff to be supportive of them during their receipt of the intervention (Gourlan et al., 2013).

The Healthy Teens study also assessed the impact that brief MI sessions had on adolescents to increase their level of knowledge and change their behaviour with respect to nutrition and PA. Participants who were recruited in a primary care setting were assigned to either the control group receiving usual care or to the MI intervention group. MI sessions were guided by information on the risks associated with health behaviours and motivation to change for diet and PA. MI participants reported statistically significant self-reported increases in exercise levels and diet improvements. Furthermore, when compared to the control group those who received MI were more likely to make planned actions for multiple health-promoting behaviours targeted for change in the intervention. These findings underscore the development of health promoting skills established through participant engagement in MI sessions (Olson et al., 2008). Building upon these findings, a study conducted in a paediatric outpatients' clinic demonstrated how MI supports the adolescents' participation in the research process. Although similar results were reported for statistically significant increases in all participants' self-efficacy for behaviour change, participants in the intervention condition displayed greater engagement in the treatment provided to them when compared to the control group (Walpole et al., 2013).

It is important to consider the methods and approach under which MI is received by adolescents as it can highlight challenges associated with the implementation process. One study discussed how the intensity and subsequent programme fatigue impacted upon participant BMI outcomes. Four individual MI sessions and four group MI sessions were delivered to Latino adolescent females ($M=15.8$ years) in the intervention group in addition to attending circuit training (60-90 minutes per session) twice a week over a sixteen-week period. Participants were randomly assigned to one of three groups, the control group, the

circuit training group, or the circuit training and MI group. Those participants who received MI sessions did not significantly improve their health outcomes when compared to the two other conditions. Furthermore, MI sessions were reported by participants to be too frequent, lacked autonomy, and there was a requirement to perform specific goals outside of the circuit training programme (Davis et al., 2011). In contrast, another study conducted with obese adolescents examined a similar level of programme intensity. The study explored the effectiveness of integrating a PA programme with a psychological strategy that draws upon MI techniques, (Motivational Enhancement Therapy - MET) to decrease BMI and increase PA. Retention rates of participants in this study were high (89.7%) and statistically significant decreases were reported in BMI and in increasing PA across the 16-week intervention. The PA programme incorporated 50 minutes of PA, three times per week in addition to MET sessions to change participants' psychological variables related to PA. The psychological variables increased with significance for self-efficacy and the perceived benefits of PA and statistically significant decreases were reported for perceived barriers to engaging in PA (Lee & Kim, 2015). Using MI as a component can lead to positive outcomes for behaviour change, including reductions in BMI, improvements in PA levels both of which can contribute to long term health benefits. However, the addition of parental participation and the impact on adolescent participants in increasing their PA and dietary behaviour changes have also been explored in the literature.

2.4.3 Parental support during adolescent MI sessions.

Parent child dyads have been incorporated into MI interventions further supporting reductions in obesity and increases in PA for adolescent cohorts. Adolescent participants ($n=36$) recruited in a Canadian paediatric outpatient clinic received nutrition and PA education. These sessions were delivered to children with their parent as dyads in 4 MI sessions (30–45-minutes) in addition to four follow-up phone calls. Improvements in dietary outcomes, and quality of life were reported in the study's findings (Chahal et al., 2017). Similarly, Iranian adolescents ($n=357$) participated in a pre/post study to evaluate an MI based counselling session for nutrition and PA education in a paediatric outpatient clinic. Intervention participants received 6 weekly MI sessions (40 minutes per session) and their parents participated in a group MI session. Findings were in favour of using the MI approach and where there was parental involvement, statistically significant reductions were reported in participants' cholesterol, triglycerides, and BMI and increases in their self-reported dietary and PA measures. Furthermore, the study found that parental involvement was favoured over participants receiving MI on their own (Pakpour et al., 2015). A RCT that adopted a parent child dyad approach with adolescent participants in an urbanised

medical clinic also supported parental involvement in MI sessions in addition to an existing programme where parents participated in nutrition education. The addition of MI based counselling to the four 60-minute sessions on nutrition education that all participants received, indicated statistically significant lower fast food and soft drink intake for MI participants. However, although motivation to increase PA was self-reported, activity levels decreased for MI participants (MacDonald-Wallis et al., 2012). Further evidence to support the inclusion of parental involvement was reported in study conducted with American adolescents (n=130) who were patients in a paediatric clinic. All participants received the standard care that adopted a child parent dyad dynamic for nutrition and PA education. Those in the intervention condition received the added component of MI sessions. Although no differences were reported for BMI between groups, MI participants increased their vegetable or fruit intake and reduced their screen time with statistical significance (Tucker et al., 2013).

The mechanisms under which MI has worked have also been explored during the research process. An MI based coaching tool to child parent dyad sought to understand mechanisms for change during sessions where a focus was placed on goal setting strategies for nutrition and PA education. One MI session was delivered to the dyad and findings indicated that although there were no differences for reductions in BMI at one and six months follow up, self-reported dietary and PA goals were reported to have been met by participants. Additionally, almost half of participants reported a high motivation to change their behaviours during the MI session (Christison et al., 2016). In another study, statements of ambivalence for PA and diet were examined during MI sessions expressed by adolescent participants and their parents. The first MI session alone was received by adolescents and parents independent of each other and the final MI session was delivered to the dyad to explore ambivalent statements directed towards weight loss. Findings emphasised the importance of understanding a person's readiness to change their behaviour. They also indicated greater divergence in ambivalence for participants' PA-related changes and greater convergence for nutrition-related changes. Ambivalence rates were higher for parents compared to adolescents during MI sessions. However, the study also found that when nutritional changes were discussed, ambivalence was greater for adolescent participants (Carcone et al., 2016).

2.5 Adolescent alcohol consumption and MI as a Brief Intervention (BI).

BIs have been found to be effective tools in addressing immediate problematic behaviour for alcohol misuse (Wachtel & Staniford, 2010). Patient admittance to emergency

departments (ED) can provide health care professionals with an opportunity to reach adolescents who present with alcohol related injuries. Delivery of BIs to young people is based on their admission specific to the misuse of alcohol. The literature exploring behaviour change interventions for young people who present in the ED for alcohol misuse supports the use of MI (Cancelliere et al., 2018; Monti et al., 1999; Spirito et al., 2004). A systematic review and meta-analysis highlighted the positive effects for young people who engaged in MI as a BI following treatment in emergency care to reduce their alcohol consumption (Kohler & Hofmann, 2015). Findings outlined harm minimizations including decreases in drink driving, alcohol related injuries and other alcohol associated problems for young people who received MI compared to control groups (Bailey et al., 2004; Monti & Monnig, 2016). A secondary analysis conducted to assess the effectiveness of MI based alcohol RCTs for young people who attended EDs for alcohol related injuries explored the mechanisms of change that occurred during sessions. Findings highlighted the importance for participants to develop strategies to reduce their alcohol consumption in addition to developing several protective behavioural strategies during MI sessions (Walton et al., 2017).

MI interventions with young people have also been implemented in psychiatric or outpatient substance abuse settings to address risk and problematic behaviour. These studies have provided researchers with the ability to assess the effectiveness of delivering BIs that incorporate MI to elicit behaviour change (Goti et al., 2010). These settings often provide health care professionals with an opportunity to deliver a greater number of MI sessions to inpatients over a longer period of time. Health risk behaviours are often associated with poly substance use and targeting these behaviours during MI sessions have produced varying effects on behaviour change. Use of substances during adolescence such as tobacco and marijuana, or alcohol and marijuana often coexist and the effect of receiving MI to target one health behaviour can influence one or other health risk behaviours (Cancelliere et al., 2018). Vulnerable adolescent populations who have received brief MI interventions to reduce substance misuse have also found varying outcomes in health behaviour change. Peterson et al. (2006) reported short term effects in the reduction of substance misuse and alcohol consumption among homeless adolescents (n=286) aged 14 to 19 years following their receipt of a brief MI intervention. While a follow-on study which sought to improve the effectiveness of a brief MI intervention delivered to substance-using homeless adolescents (n=117), found no significant benefit to their receipt of the intervention to reduce their substance use (Baer et al., 2007).

MI interventions have also been delivered to support young people to reduce their alcohol consumption behaviour across numerous settings. These settings have created opportunities for health professionals and others to address risky alcohol consumption behaviour by way of brief interventions (BIs). Treatment centres and hospital ED (Goti et al., 2010; Peterson et al., 2006; Wachtel & Staniford, 2010), education settings (Cimini, Monserrat, Sokolowski, Dewitt-Parker, Rivero, & McElroy, 2015; Grenard et al., 2007; McCambridge & Strang, 2004, 2005; Thush et al., 2009), youth centres and services (Bailey et al., 2004; D'Amico et al., 2008; D'Amico, Houck, Hunter, Miles, Osilla, et al., 2015; Kealey et al., 2009; Palm et al., 2016; Peterson et al., 2006) have provided convenient access to adolescent populations where alcohol and substance misuse have been identified as problematic. The focus of the literature that has sought to evaluate the effectiveness of MI to elicit reductions has primarily been on young people aged 12-25 years (Wachtel & Staniford, 2010). These approaches have sought to reduce alcohol consumption and the risks associated with engaging in the behaviour.

One literature review of MI interventions targeting adolescent substance misuse identified twelve studies that examined alcohol use among this cohort (Jensen et al., 2011). The purpose of the review was to evaluate the effectiveness of using MI for decreases in alcohol-related problems and in alcohol consumption for adolescents who received MI across studies (Bailey et al., 2004; Spirito et al., 2004; Stein et al., 2006; Tevyaw & Monti, 2004; Thush et al., 2009). Adolescent participants in one of the studies received either an individual MI (IMI) session or an IMI and a follow up family MI session in ED. Both conditions indicated reductions in alcohol consumption at three and six months follow up. The study concluded that MI had a positive effect on adolescent drinking patterns and the inclusion of the family component produced slightly better effects for reducing alcohol consumption behaviour (Bailey et al., 2004). Spirito et al. (2004) examined the effectiveness of a brief MI session compared to standard care with adolescents in an ED. Findings indicated reductions for both conditions, however those who received MI decreased their frequency of alcohol consumption and the quantity of alcohol consumed with statistical significance when compared to the comparison group (Spirito et al., 2004). Similar reductions in rates of alcohol use and marijuana were reported at three month follow up, for incarcerated adolescents who received MI and who were compared to a comparison group who received relaxation training (Stein et al., 2015). However, another study that assessed students ($n=125$) implicit and explicit alcohol related cognition through Implicit Association Test (IAT) following their receipt of one MI session found no

significant changes in their alcohol related cognitions, suggesting limited effects for the use of MI to elicit behaviour change (Thush et al., 2009).

A critical review of the literature identified fourteen studies where participants ($n=2114$) aged 12–25 years received BIs in clinical, college or university and youth service centre settings to reduce their alcohol misuse and binge drinking behaviour. Findings indicated that MI was the only BI that had some success in reducing the harms associated with alcohol consumption. Settings included hospital ER departments ($n=4$), colleges and universities ($n=7$), a healthcare clinic ($n=1$) and a youth service centre ($n=1$). The geographical spread of studies in the analysis included the USA ($n=12$), the Netherlands ($n=1$) and Australia ($n=1$) (Wachtel & Staniford, 2010).

The use of MI in BIs for adolescents is often tailored to the individual and is designed to help young people recognize their own personal motivation to reduce their alcohol consumption (Carey et al., 2006; Murphy et al., 2001). BIs constitute brief advice that can involve encouragement and discussions with patients with no follow up or written advice to support behaviour change (Doyle et al., 2022). The use of open-ended questions and reflective listening techniques support young people to explore the various consequences of their drinking, personal values, past successes, and personal goals associated with their drinking behaviour (Carey et al., 2006). The goals of the intervention are often discussed in the first session, or initial assessment, and then revisited and adjusted as needed throughout the intervention (Murphy et al., 2001). Although there is evidence to support the effectiveness of MI in BIs targeting problematic alcohol use among adolescents, there is also evidence that this approach can be challenging to implement (Wachtel & Staniford, 2010). Adolescents often prefer to take an active role during the BI and may not be as receptive to the directive nature in which MI is delivered in these settings (Carey et al., 2006). Additionally, the use of MI may require more time and resources than other forms of BIs (Marlatt, Baer, Kivlahan, Dimeff, Larimer, & Quigley, 1998). Despite these challenges, there is evidence that the use of MI in BIs targeting problem alcohol use among adolescents can be an effective way to reduce both the quantity and frequency of alcohol use among young people (Borsari & Carey, 2005; Carey et al., 2006; Marlatt et al., 1998; Spirito et al., 2004; Monti et al., 2007; Murphy et al., 2001).

2.5.1 MI in a hospital or clinical setting to decrease alcohol consumption.

A systematic review and meta-analysis of the literature has highlighted the positive effects that MI has had on young people who have been admitted to emergency care. Its application has been found to be an effective approach in reducing alcohol consumption and

minimising alcohol related harms (Kohler & Hofmann, 2015). Strategies used to encourage alcohol reduction and exploration of consequences associated with alcohol misuse were found to be the ones most effective for behaviour change. One study reported significant reductions in alcohol quantities consumed and consequences associated with risky alcohol consumption for adolescent participants (Baer et al., 2001), building upon previous findings in a study that demonstrated the efficacy of MI as a component to reduce alcohol consumption (Marlatt, Baer, Kivlahan, Dimeff, Larimer, & Quigley, 1998). The most effective reductions have been found to be among those who have engaged in high levels of alcohol consumption (Monti et al., 2007; Spirito et al., 2004). Furthermore, the analysis indicated that MI had greater success in reducing alcohol related consequences when compared to the control group across four of the seven studies (Bernstein et al., 2010; Cunningham et al., 2009; Monti et al., 1999, 2007). However, the review noted differences in treatment and study quality varied where there was lack of information on how MI was delivered and if adaptations to MI were applied for the younger cohort of participants (Kohler & Hofmann, 2015).

Adolescents and young people who present at hospital for alcohol related problems such as alcohol related injuries are considered at greater risk for their alcohol consumption behaviour (Bernstein et al., 2010; Cancilliere et al., 2018; Monti et al., 2007; Walton et al., 2017). Partial success has been reported for the use of MI techniques in interventions with short term follow ups. Kohler et al. (2015) emphasised the minimisation of the harmful effects of alcohol consumption including acute, health and social harms, for those participants who received interventions using MI techniques and when compared to a control group (Borsari & Carey, 2005; Monti et al., 1999). Reductions in problematic alcohol consumption such as binge drinking behaviour were also reported for interventions that incorporated MI techniques for participants who chose to reduce their alcohol consumption (Borsari & Carey, 2005). Studies have reported reductions in alcohol consumption (Carey et al., 2006), and significant reductions in alcohol use (Monti et al., 2007), while other studies have reported no significant differences for reductions in alcohol between groups (Murphy et al., 2001; Thush et al., 2009). However, significant improvements in quantity and frequency of alcohol use have been reported for adolescent ($n=152$) participants who received MI when compared to those who received standard care in an ED (Spirito et al., 2004). MI has reported the most positive results for young people who presented in EDs who are admitted because of their problematic alcohol use. However, these positive results have focused on harm minimisation and indications suggest that they require long term follow up care (Wachtel & Staniford, 2010).

2.6 Adolescent Smoking Behaviour and MI.

MI has been delivered successfully and in combination with other psychosocial interventions to reduce smoking behaviour, but methods differ across studies. One such MI intervention reported significant decreases in cigarette smoking for adolescents ($n=79$) who received an individual MI session, a follow up MI telephone booster session and a parent support advice session when compared to a control group ($n=83$) who received a brief advice session (Colby et al., 2012). Similarly, a German cohort of adolescents ($n=139$) who reported to be daily smokers received group CBT in combination with MI sessions. Following this group intervention, they received an individual MI session and 4 weeks after care consisting of messaging (SMS) via phone with messaging incorporating MI. Results indicated that 30.2 % of participants self-reported cigarette cessation, 37.7 % decreased their cigarette use by half, and 24.4 % of participants reported abstinence with the follow up treatment provided (Bühler et al., 2012). Web based interventions have also incorporated MI to reduce smoking behaviour amongst adolescent cohorts. Although websites have provided a source of accurate information around the risks of smoking, their use in interventions that target this cohort are limited. One study sought to incorporate MI techniques through online journaling and the use of an interactive website which was found to support the motivation of adolescents categorised as resistant to cessation at baseline. This intervention also sought to prevent non-smoking adolescents becoming regular smokers at 6 months follow up (Norman et al., 2008). There is support in the literature for the use of MI techniques in prevention and intervention programmes that seek to promote smoking cessation among adolescents. However, the approach is considered more effective when it enlists a number of key adults to support adolescents in their behaviour change (Fritz et al., 2008).

Research on the effectiveness of MI interventions has sought to understand long-term smoking abstinence across different settings and compared to different approaches such as brief advice sessions. The HYP programme implemented an intervention with fifty-six high school students, referred by teaching staff to receive a one-hour MI session from the researcher who trained in MI. The intervention reported short term decreases in frequency and quantity of cigarettes smoked one month following their receipt of the intervention. However, changes in smoking behaviour were not maintained at 3 and 6 month follow up time points (Kelly & Lapworth, 2006). In another study adolescent psychiatric patients were recruited to participate in an MI intervention to reduce their smoking behaviour and reported abstinence over a longer period of time. Participants admitted for substance misuse had greater levels of abstinence in the smoking behaviour

following the intervention when compared to those who received brief advice in the first six months of this study (Brown et al., 2009). Similarly, maintenance in reduced smoking behaviour was also reported for U.S. adolescent participants in an ER setting. Participants ($n=85$) aged between 14-19 years, who received a one-hour MI session to reduce their smoking behaviour in the MI condition indicated statistically significant decreases in self-reported smoking behaviour at 3 month follow up data collection and statistically significant decreases in their cotinine levels when compared to their baseline data (Colby et al., 2005).

There is compelling evidence that programmes based on MI strategies are effective in reducing smoking behaviour although these reductions have not been found to be maintained at 6- and 12-month follow-up time points (Grimshaw & Stanton, 2013). One study demonstrated the efficacy of this approach in a RCT with U.S. adolescents (aged 14-18 years), who received one of two treatments. The intervention group ($n=177$) received 5 MI sessions, compared to the control group ($n=178$) who received brief advice (BA) to support them in reducing their smoking behaviour. The findings from this study reported no significant difference between groups at the end of the intervention. Adolescents who received MI sessions nonetheless reported greater reductions in cigarette use when compared to the group who received BA (Audrain-McGovern et al., 2011a). It also appears adolescents' motivation to stop smoking is important for behaviour change outcomes. Significant decreases in smoking behaviour were reported for adolescents ($n = 1058$) who received up to 9 sessions of MI over the phone when compared to a control group ($n = 1093$) who received no MI sessions. Motivated participants engaged in an initial 5-minute counselling session to reduce smoking behaviour. Three subsequent telephone MI sessions were received, and those who continued or who demonstrated further motivation to change smoking behaviour received an additional 6 MI sessions. Results indicated that adolescents who received MI sessions and who were motivated to stop smoking (receiving additional MI sessions) when compared to the control group had significantly higher self-reported abstinence rates in smoking behaviour post intervention (1 and 6 months) (Kealey et al., 2009)). These findings were further supported by a more recent study conducted in Denmark with adolescents ($n=642$) who received MI sessions to support smoking cessation. When compared to waitlist control ($n=505$) adolescent daily smokers in the intervention condition self-reported abstinence at 1 but not at 12 months follow up (Dalum et al., 2012).

2.7 Discussion.

The literature supports the use of MI to engage adolescents in a therapeutic manner to reduce their health risk behaviours. It is widely recognised that health risk behaviours including alcohol consumption, tobacco smoking and sedentary behaviour contribute to ill health in adulthood, particularly when there is early initiation in these health risk behaviours during adolescent years (Bennett et al., 2018). MI is an effective tool to elicit behaviour change both alone and in combination with other components in interventions, which have sought to target health risk behaviours for change. Its effectiveness of use has been demonstrated amongst adolescents in varying contexts and settings (Mutschler et al., 2018). Adolescents have received BIs with MI as a component in interventions from health care professionals to support change for health risk behaviours. As MI creates a collaborative partnership to support behaviour change (Barnett et al., 2012) it is considered to be a ‘good fit for adolescent’ developmental trajectories and supports their independence to make decisions for themselves (Miller & Rollnick, 2013).

Chapter 1 outlined the literature, which has also recognised the value of peer education and it has been identified as an acceptable and effective approach to deliver health messages to adolescents (Frantz, 2015; Strange, 2006). Adopting this approach to health promotion in schools has been evidenced through process evaluations investigating their feasibility, acceptability, reach and fidelity of programme delivery. RCTs have sought to evaluate the effectiveness of interventions to change behaviour (Al-Iryani et al., 2013; Backett-Milburn & Wilson, 2000; Gorely et al., 2019; Story et al., 2002). Evaluating the feasibility of adolescent peer led approaches to elicit behaviour have provided insights into the acceptability of the approach from the perspective of both those who deliver and receive the intervention (Audrey et al., 2006; Catalano et al., 2004; Flattum et al., 2011; Hughes-D’Aeth, 2002; White et al., 201). Additionally, comparisons can be made between studies to understand important components including methods of training, intervention delivery, dosage, and timing. Capturing feedback from interventionists who deliver the health message and recipients who receive it contributes to understanding the acceptability of delivering a peer led approach.

The aims of this thesis will be to evaluate the feasibility of conducting an MI adolescent peer led intervention to change three health risk behaviours (cigarette smoking, alcohol consumption and sedentary behaviour) in youth organisations located in Irish communities of low socio-economic status. Chapter 3 will provide an outline on the stages of the evaluation process to assess the feasibility of the peer led MI intervention. This will provide the rationale for the aims and objectives of the current research.

2.8 Thesis outline.

This thesis explores an adolescent peer led MI intervention conducted over two phases (stage 1 – modelling phase; stage 2 – feasibility trial) as outlined by Medical Research Council (MRC) guidelines presented in Chapter 3. The first phase presents qualitative results from stakeholder interviews (Chapter 4) capturing insights into the implementation of the intervention in a youth organisation setting. The pilot study provides feedback from peer educators on their experiences of the MI process (Chapter 5). The second phase of the process evaluation uses a combination of mixed methods to present results of the feasibility trial. Firstly, primary, and secondary outcomes assessing behaviour change are presented (Chapter 6), followed by qualitative findings from the perspective of those (youth workers, peer educators and peer recipients) who engaged in the MI intervention process (Chapter 7 and 8). The concluding chapter will present key findings and a summary of reflections with respect to the overall process evaluation of the MI peer led behaviour change intervention (Chapter 9).

Chapter 3. Overview of Aims, Objectives and Methodology

3.1 Chapter aims/objectives.

The aim of this research is to assess and evaluate the feasibility, acceptability and effectiveness of a peer-led health behaviour change intervention among adolescents (aged 13-18) in relation to three core outcomes: (a) smoking, (b) alcohol consumption, and (c) physical activity. An MI intervention was delivered to peers in their youth organisations by adolescent peer educators who had trained in the technique. Health education and self-directed health behaviour change comprise the control intervention. A process evaluation approach was conducted consisting of three main stages to assess the adolescent peer-led MI intervention. It examines the implementation, receipt, and community context of the interventions to guide the interpretation of the outcome results through the piloting and feasibility of the study. The process evaluation explored the relevance and appropriateness of the MI intervention delivered and received by adolescents who accessed youth organisations. The focus for process evaluation was placed on training experiences, resources available to support the intervention delivery, barriers encountered, and strategies used to support the recruitment and retention of participating adolescents.

This evaluation adopted the United Kingdom's MRC guidance on developing, evaluating, and implementing complex health interventions (Craig et al., 2008). The three study stages explored the relevance of content, availability of resources and intervention delivery methods across studies. The phases as outlined by MRC guidelines are presented in graphical representation (see Figure 3.1 below). "Pre-clinical phases" explored the theories and empirical evidence in the literature that guided the development of the study and is provided in the first two chapters. The second stage or "Phase I/modelling phase" identifies the intervention components and active mechanisms, which are provided in the chapter 4 through stakeholder interviews and chapter 5 the pilot study. "Phase II/exploratory trial" of the study evaluates the intervention in a feasibility trial. The feasibility trial evaluated the intervention across three chapters (6-8) using a mixed methods approach. The current study sought to apply the knowledge and expertise of key stakeholders who work with the targeted adolescent cohort. Feedback provided strategies for learning (training), recruitment and retention of participants. Participant experiences (recipients and peer educators) provided insights into the intervention process at both the pilot stage and the intervention stage of the process evaluation.

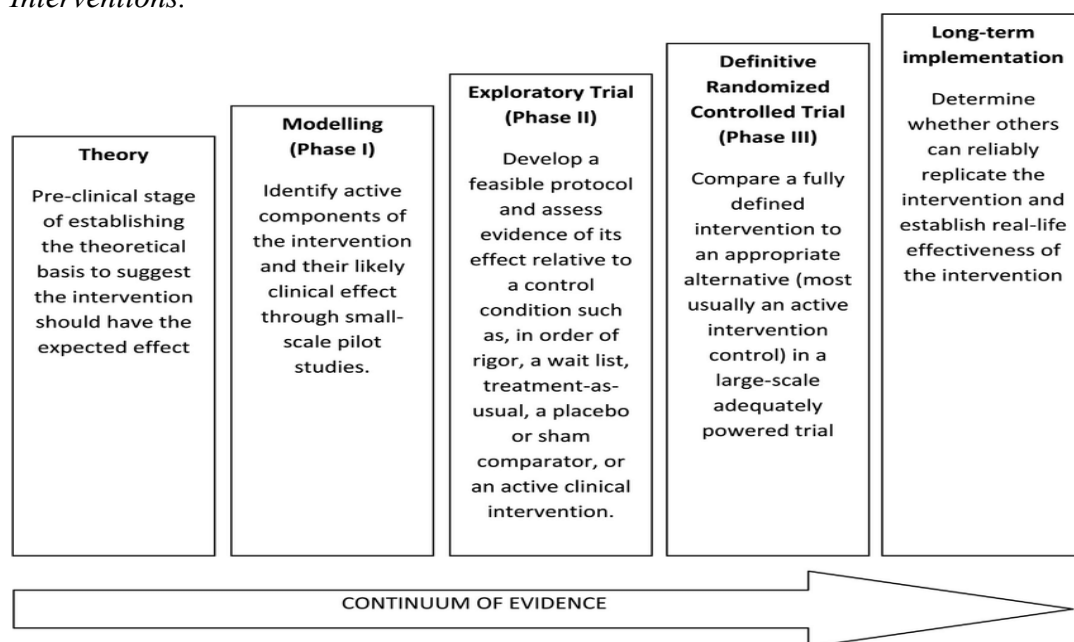
Several objectives were considered in this research.

1. Evaluation of a training programme that examined (a) the effectiveness of skilling adolescent peer educators in MI techniques, and (b) understanding their experience of being trained in MI.
2. To evaluate the implementation of the MI intervention from peer educator, recipient, and youth worker (stakeholder) perspective.
3. To measure the effectiveness of the intervention on increasing physical activity and decreasing smoking and alcohol consumption with the outcome and process evaluation.

To address the aims, objectives, and research questions, five studies are outlined presenting the stages of evaluation for the feasibility trial. The first study sought stakeholder contributions and the second study was conducted as a pilot study to evaluate the MI intervention. Study 3 examined the intervention efficacy for those who received the MI intervention from peer educators. Studies 4 and 5 explored the experiences of key stakeholders (youth workers) and participants (peer educators and recipients) in their delivery and receipt of the MI intervention (see Figure 3.2).

Figure 3.1

British Medical Council's (2000) Guidance on the Development and Evaluation of Complex Interventions.



3.2 Process evaluation.

3.2.1 Stage 1: Stakeholder Interviews and Pilot study

3.2.1.1 Study 1

Interviews were conducted with stakeholders to gain insight into optimising adolescent learning about health behaviours, to understand the culture of health in the

community, and their perspectives on the wider context in which health education and support are provided.

Research Question 1:

“What is the culture of health of young people in the community and what would support the adoption and acceptability of the health behaviour change interventions in youth organisations?”

3.2.1.2 Study 2

Focus groups were conducted with peer educators who piloted the MI intervention. Exploring their experiences of engaging in the process provides an understanding of the challenges, barriers, and experiences that they encountered in the implementation of the peer-led MI intervention.

Research Question 2:

“What were the peer educators’ experiences of participating in the training and delivering the MI intervention to their peers?”

3.2.2 MI Stage 2: The effects of an adolescent peer-to-peer MI intervention on health risk behaviours.

3.2.2.1 Study 3

In a sample of adolescents from low SES communities, the study’s aims were to examine the impact of a peer-to-peer MI intervention on health behaviour change for (a) smoking, (b) alcohol, and (c) sedentary behaviour. Intervention efficacy was measured through self-reported motivation and confidence to change the health risk behaviour, as well as self-report behaviour.

Research Question 3:

“What were the effects of the MI intervention on the primary and secondary outcomes at the participant level for (a) smoking, (b) alcohol, and (c) sedentary behaviour?”

Hypotheses:

(1A) Those participants in the peer-to-peer MI intervention will significantly decrease their smoking behaviour compared to the health behaviour talk comparison group.

(1B) Participants who chose to decrease their alcohol consumption in the intervention will significantly decrease alcohol consumption when compared to those who chose to reduce their alcohol consumption in the health behaviour talk comparison group.

(1C) Compared to the participants who chose to increase their physical activity in the comparison group, the MI participant group will show statistically significant increases in their physical activity.

(1D) Compared to the comparison group, the MI group will show a statistically significant increase in their confidence and importance to change their health risk behaviour scores.

3.2.3 MI Stage 3: Participant experiences of intervention engagement.

3.2.3.1 Study 4

The study aimed to understand the youth workers' perspective and experience of supporting the implementation of the intervention within their youth organisation.

Research question 4:

“What was the youth workers’ experience of participating in MI training and the implementation process of the MI intervention?”

3.2.3.2 Study 5

In a sample of adolescents who participated as peer educators and recipients, the study aims were to explore the experiences of adolescents in low SES communities, who trained as peer educators in MI and recipients who received the health message from their peers.

Research question 5:

“What is the experience of adolescents trained to become peer educators to deliver a health message to their peers?”

Research question 6:

“What were the experiences of peer educators in MI training and how effective was it in skilling participants in MI techniques?”

Research question 7:

“Do adolescent peer educators present as credible health leaders to enhance health behaviours?”

Research question 8:

“Is the MI peer led health intervention acceptable for adolescents to receive a health promotion message?”

3.3 Methodology

Adopting a realism approach to process evaluation considers the structures, mechanisms and contexts for change that occur during the intervention process (Kazi, 2003). The emphasis of the evaluation is placed on a priori knowledge, acquired through observation on those who receive an intervention and the conditions under which they receive it rather than commonly used experimental designs such as RCTs in research approaches (Bonell et al., 2012). However, there remains the requirement in process evaluation for the examination of the effects of the intervention. As such, this study adopts a mixed method approach, integrating both qualitative and quantitative methodologies within a paradigm of pragmatism

(Clark et al., 2009). Tashakkori and Teddlie (2003) defined pragmatism, as “what works” specific to the research questions under investigation. The study’s approach is in line with the MRC guidance for conducting a complex intervention (Craig et al., 2008; Craig & Petticrew, 2013). During the intervention development, a pragmatic approach was prioritised to explore what works, and to understand techniques and measures during the research process that were considered appropriate compared to adhering to the rigour of strict epistemological frameworks (Teddlie & Tashakkori, 2003). Adopting this pragmatic approach has been found to facilitate consideration for potential limitations, in addition to building upon the strengths of a mixed methods approach to research (de Visser et al., 2015).

Understanding what makes an intervention complex requires that two key questions be considered. The first key question when evaluating a complex intervention is to understand whether it is practical and can work in everyday practice (Haynes, 1999), and the second key question is to understand how the intervention works. To evaluate the effectiveness of the intervention, a pilot study and main study trial were conducted to explore the key issues of the intervention components. The recommendation for guidance of complex interventions is to adopt multiple methodological approaches (Moore et al., 2015). Approaching the evaluation of the MI intervention in this way facilitates examination of the fidelity and quality of implementation, provides insights into possible causal mechanisms, and can identify contextual factors associated with outcomes (Craig et al., 2008). Perceived sustainability, intervention fidelity and acceptability were explored during the process evaluation of the MI intervention. The first stage (Study 1 and 2) sought to understand the feasibility of the study and to assess the effectiveness of the implementation process. The second stage (Study 3, 4 & 5) sought to examine effectiveness of the intervention, through evaluation to optimise its design and to understand the feasibility of the intervention.

3.3.1 Ethical Considerations

It is critically important to take all possible precautions to minimise the risk of any disclosures during MI sessions. Strategies include the delivery of MI sessions in the participants’ youth organisation, when youth workers were either on site or present during the delivery of MI sessions. Furthermore, the presence of a youth worker on site provided continued support, guidance and served as a protective measure for all participants if any sensitive disclosures occurred during MI sessions. All youth workers were invited to attend MI training with PE’s. This created an opportunity to understand the content, context and method of delivery of MI sessions, and to assume an informed supportive role for PEs throughout the MI process. Where difficulties were encountered by PEs in the

recruitment, retention and correspondence with PR's, the appointed youth workers supported service users throughout the MI process. Participants also completed a contact, at the beginning of the first MI session. A signed agreement was the initial step in the MI workbook (see Appendix E), and which outlining the expectations of each participant during the process, and which include child protection and welfare component.

3.3.2 Stage 1: Stakeholder interviews (Study 1) and pilot study (study 2).

Key stakeholders in the community, who had direct contact with or experience of working with the intended recipients and participants of the MI intervention (education representatives, youth workers, MI trainers etc.) advised on the acceptability and feasibility of the MI intervention in low SES community youth organisations (Study 1). Interviews explored the acceptability and feasibility of delivering an adolescent peer led health intervention in low SES community youth organisations. Study 2 evaluated the MI training, MI delivery and participant recruitment strategies, with attention placed on issues that arose during the intervention delivery. Small group interviews were conducted with peer educators.

Results from both studies 1 and 2, informed adaptations made to the intervention condition and guided the implementation of the main study trial. The intervention trial adopted a mixed methods approach, as using just one approach to collect data collection was considered insufficient in evaluating the intervention (Clark et al., 2009).

3.3.3 Stage 2: Assessing the effectiveness of the MI intervention.

Study 3 examined primary outcomes (smoking, alcohol consumption and physical exercise) assessed at baseline and post-baseline (6 week, 3 months) to capture changes to the intervention over time. The efficacy of the MI intervention is evaluated based on the outcome's measures for the three targeted behaviours. Alcohol consumption, smoking and physical activity were assessed at baseline and post-baseline (6 week, 3 months) following peer recipients' participation in the MI intervention or health behaviour talk.

3.3.4 Stage 3: Participant experiences of the MI intervention

Qualitative analyses build upon the quantitative results in the feasibility trial. Studies 4 and 5 capture the experiences of youth workers (study 4), peer educators and participants (study 5), in their participation in the MI intervention. Semi-structured interviews were conducted with youth workers, peer educators and participants who received the intervention condition. Focus groups with peer educators captured their experience of participating in the MI intervention process. Participants who received the MI intervention participated in small group interviews, assessing the reach, implementation, and effectiveness of the MI intervention.

3.3.4 Contextual information of youth organisations

Participating youth organisations were situated in communities classified according to the Pobal deprivation index as disadvantaged or severely disadvantaged areas in Ireland (Maynooth University, 2016). These youth organisations provide services to young people living within their communities. The aim of these organisations is to discover and respond to global issues specific to the young person's needs and to understand how to support them within their community. Activities adopt a non-formal educational approach, which is based on the young persons' (client) interests and supports their skills development, values and leadership roles that are transferable into real world application. A range of programmes are provided for young services users including the youth arts, health, equality and intersectionality, global youth work, STEAM (science, technology, engineering, math) education, and international and digital youth work programmes (Youth Work Ireland, 2016). Service users vary in how they access youth organisation programmes. Although the youth organisations are open to young people daily and align closely with their school timetable, the youth organisations assign club evening to different groups of service users. Programme engagement is young person led and designed to achieve outcomes according to The Brighter Futures Better Outcomes (BFBO) aims and objectives across all services (DCYA, 2014).

3.3.5 Establishing standards of quality and rigour in qualitative research.

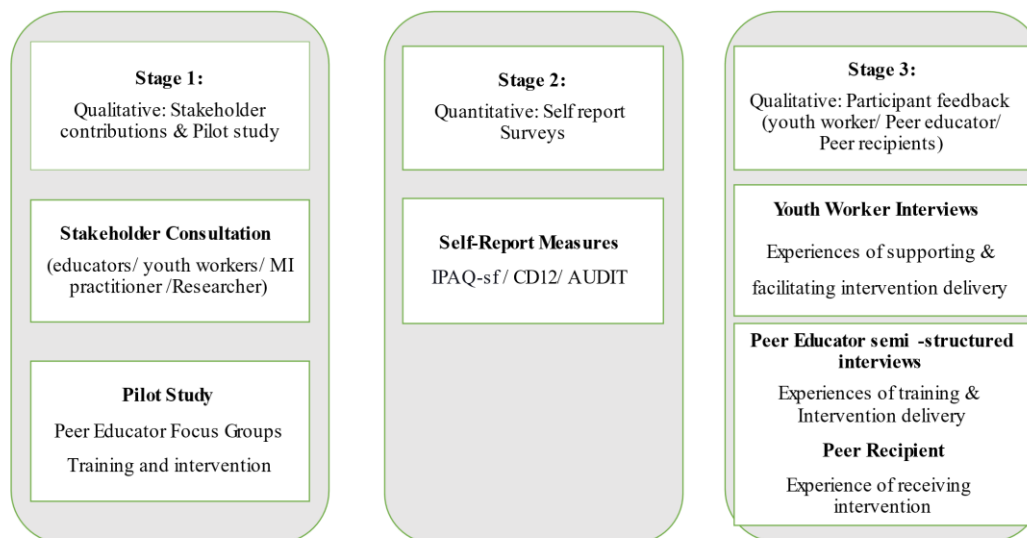
Reflexivity is an important way to uphold the rigour and quality of the qualitative research process. It considers important factors that describe the contextual relationship between the participant and the researcher, in addition to the positionality of the researcher in the research process (Dodgson, 2019). Explicitly describing the relationship between the participant and the researcher is considered to strengthen research findings (Berger, 2015). Including the researcher's position as an insider, whereby they share characteristics and experiences with the participants and as an outsider, whereby characteristics and experiences are absent and may contribute to power differentials during interactions. As such, these factors may influence research outcomes (Berger, 2015).

I am an Irish, mixed race (brown), single mother, educated, in my forties and I have previously worked as a support worker with families in low SES communities to promote health literacy and practical evidence-based solutions that support family health and well-being. Professionally I have been afforded the opportunity to work with marginalised groups. As a support worker in area-based childhood (ABC) sites, situated in severely disadvantaged areas, I gained insights and consideration for the challenges and barriers

encountered within communities to reduce risk factors for ill health. Furthermore, I had implemented evidence-based approaches and programmes (preparing for life, parents plus, strengthening families, community mothers) at a community level to support parents to provide accurate knowledge that supports their children's and family's health. Although, these skills supported an ease to establish confidence with participating youth organisations at the research at the recruitment stage of the process, I did not possess shared characteristics with the adolescent service users. Instead, a heavy reliance was placed on establishing and building trusted relationships with youth workers, who served as gatekeepers to access the service users. It was vitally important to establish trust, maintain buy-in to support the participation of service users throughout the research process.

Figure 3.2

Framework for development and evaluation of the adolescent peer led MI intervention.



Note: Peer educators - trained in and delivered the MI intervention. Peer recipients received the MI intervention from peer educators. Stakeholders – Irish DEIS secondary school home school completion officer, youth reach co-ordinator, MI trainer and facilitator, researcher in complex health behaviour change intervention, community youth workers.

3.4 Discussion

The focus of this thesis is to examine the effects of training adolescents (13-18 years) as peer educators in a proven method for behaviour change (MI). The peer led health behaviour change intervention condition is implemented to reduce smoking and alcohol consumption and to increase physical activity among adolescents in low SES communities. Three phases are defined in this intervention and guided by the MRC approach to developing and evaluating complex interventions (Craig et al., 2008; Craig & Petticrew, 2013). Peer-led health education, outlining their effectiveness as agents in promoting health behaviour and a review of the literature assessing the effectiveness of using MI as an evidence-based technique to elicit health behaviour change was discussed in Chapter 1. Proceeding chapters (4-8) evaluate the peer led health behaviour change intervention in a pilot study and feasibility trial. Chapter 4 provides insights from a stakeholder’s perspective on the acceptability, adoption and implementation of the MI peer led health intervention in youth organisations. The pilot study, presented in chapter 5, tested procedures in relation to their acceptability, explored strategies for recruitment and retention of both educators and recipients, and sought

insights from the peer educator's perspective on the efficacy of the implementation of the intervention. A qualitative approach provided themes, which informed the main intervention trial studies. This first stage of the process evaluation generated considerations for the main intervention and guided modifications to promote maintenance based on feedback for all stages.

Chapter 6 constituted the second stage of the MI intervention process evaluation and presents the investigation of findings on the effects of the intervention for the primary and secondary outcomes at the participant level. Stage three is presented in the chapters 7 and 8. The youth workers' experiences of supporting the implementation of the intervention, are presented in chapter 7. Chapter 8 presents the findings from the qualitative analysis for peer educators who trained in MI and delivered the intervention condition to their peers and the experiences of participants who received the MI intervention condition. The final chapter is a general discussion of the findings from these five studies, and how they contribute to the literature on conducting a process evaluation of the pilot study and feasibility trial, for the effectiveness of a peer-delivered MI intervention in low SES communities to adolescents with one or more behavioural risk factors.

Chapter 4. Stakeholders' perspective on the feasibility of conducting an adolescent peer led MI intervention in community youth organisations (Study 1).

4.1 Chapter Aims.

Chapter 4 adopts a qualitative approach to the analysis of interviews conducted with key stakeholders. Their views are explored with respect to the adolescent peer led MI behaviour change intervention. These interviews are the first of three stages to evaluate the intervention process of the MI study. The first stage incorporates two qualitative studies: 1) stakeholder interviews and 2) peer educator focus groups as outlined in the MI intervention pilot study. This stage underwent an iterative and cumulative process, influencing and informing the research process at each stage. This approach also afforded the ability to make adjustments based on evidence emerging throughout the intervention process. Stakeholder interviews explored the feasibility of the intervention and presented possible challenges that may be encountered during the implementation process. A review of existing literature is discussed, highlighting the impact that stakeholder contributions have on complex health behaviour change interventions.

4.2 Introduction.

Behaviour change interventions strive to improve the health of those who receive the intervention and to maintain behaviour change over time (Larsen et al., 2017). Several factors are considered when attempting to understand the dynamic processes involved in human behaviour. Examining these factors often include understanding the context in which behaviour occurs, how it is influenced by others and the environment in which it occurs. The UK National Institute for health and Clinical Excellence (NICE) public health guidance on behaviour change emphasises the importance of considering the context of the targeted group when planning a behaviour change intervention (Abraham & Michie, 2008). Stakeholder engagement is becoming increasingly crucial and linked to best practice when implementing health behaviour change interventions, as they contribute valuable insights on the targeted group (Brett et al., 2014; Shippee et al., 2015). Such engagement supports the evaluation of complex interventions (Concannon et al., 2019), and the benefits of adopting a participatory approach have been clearly outlined in health research (Sebire, Banfield, Jago, et al., 2019; Valdez et al., 2020; White et al., 2017).

The importance of a participatory role for those who receive an intervention has been highlighted in the literature as it can enhance their engagement during the intervention process (Byrne, 2019). Stakeholders who present as gatekeepers to vulnerable populations

can enhance the relevance, acceptability, and feasibility of an intervention to the targeted population (Staniszewska & Denegri, 2013). Health education and health promotion are recognised as effective ways to improve health and wellbeing (Tarquinio et al., 2015). Physical and environmental factors are important when trying to understand how to promote healthy behaviours. However, the variety of components involved in the promotion of healthy behaviours reflects the complexity at both the implementation and evaluation stages of health interventions (Craig & Petticrew, 2013). Behaviours, their parameters, the organisation of behaviour at various levels from individual to populations can all be considered as components in health behaviour interventions. Additionally, factors including environment and acceptance of the intervention, sample populations, and availability of resources all contribute to the complexity of evaluation. Examining the context of the intervention and its effects on the participating sample provides strength in the transferability of a behaviour change intervention to a larger population (Cambon et al., 2012). Striving to achieve transferability in pragmatic trials relies on producing real life-situations in the experimental condition. Supports and resources available to the individual, community and their application to real life conditions all constitute key components in the development and implementation of health behaviour change interventions (Thorpe et al., 2009). Similarly, adopting a flexible approach at the design and implementation stages of an intervention creates an opportunity to respond to and adjust components in the intervention according to the environment in which it is delivered. It also reinforces the intervention applicability to the needs of those intended individuals/communities participating in the health behaviour change intervention (Craig & Petticrew, 2013).

Working in collaboration with key stakeholders and across disciplines has increasingly progressed behaviour change interventions (Byrne, 2020). When behaviour change research applies social determinants approach it provides relevance to a population and the engagement of stakeholders at a community level is considered critically important (Byrne, 2019; Koh et al., 2010). Stakeholders can accurately identify important components for those who will receive the intervention (Staniszewska & Denegri, 2013). Additionally, gaining their insights and adopting a bottom-up approach during the development and design stage of an intervention can play an important role in the effectiveness of an intervention (Concannon et al., 2019). Stakeholder involvement explores the needs of those who receive the intervention and can foster a participatory approach throughout the research process. Importantly, such an approach can facilitate an understanding of the social environment in addition to the attitudes and perceptions of the proposed health promotion programme (Craig et al., 2008; Saunders et al., 2013). The process evaluation of “It’s Your Move! (IYM)”,

sought to understand the effectiveness of the implementation of an obesity prevention programme targeted towards Australian adolescents (Mathews et al., 2010; Schultz et al., 2007). The programme represented an Australian component of the obesity prevention programme called the Pacific Obesity Prevention in Communities (OPIC). Engagement and consultation with key stakeholder and community members at all stages during the research process occurred to determine the strategies most appropriate for their communities. This process evaluation provided a framework to evaluate subsequent OPIC interventions (Schultz et al., 2007). The evaluation captured key components including the reach, dose, fidelity, and adoption of the programme. IYM engaged stakeholders and defined methods to support the engagement of an Australian adolescent cohort. School staff provided clear objectives in support of intervention implementation alongside students who participated in workshops to evaluate the programme. Stakeholder commitment was recognised as an important factor in replicating the OPIC intervention for an Australian adolescent cohort (Mathews et al., 2010).

A meta-analysis reviewed the effectiveness of community engagement in public health interventions for disadvantaged populations. Stakeholders were found to improve the application of an intervention to meet the needs of the community. Their input at the design or planning stage improved intervention relevance for the intended community (O'Mara-Eves et al., 2015). The PLAN-A peer led physical activity intervention was successfully adapted from the ASSIST adolescent smoking cessation intervention and stakeholder contributions assisted and strengthened the intervention's methodology in the adaptation of this novel physical activity programme. Key stakeholders represented those who the intervention directly impacted: peer-supporters, non-peer supporter pupils, peer-supporter trainers, schoolteachers, and parents. In addition to contributing to the successful adaptation of the programme, stakeholders also provided insights into several positive outcomes through participant engagement. These positive outcomes extended beyond increased physical activity to the acquisition of skills such as increased confidence, improved communication, and interpersonal skills (Sebire, Banfield, Campbell, et al., 2019). Similarly, stakeholder contributions in a trauma-informed school prevention programme for urban youth provided vital understanding of the perceived barriers to intervention implementation. Thirty-two Baltimore city public schools participated in the RCT, recruiting eight grade participants ($n=800$). As part of the process evaluation, the pilot research phase suggested a co-facilitation approach with teachers and young adults from the community for intervention delivery. Increased buy-in from students was understood to be on the basis that young adults from the community provided a cultural and real-world context to the material delivered. The study's

evaluation supported the acceptability and sustainability of the intervention for future research (Mendelson et al., 2020).

Stakeholder consultation can also provide the context as to why an intervention is ineffective. Semi-structured interviews were conducted with twenty-three stakeholders to evaluate the transferability of a school-based health promotion intervention “PRomotion de l’ALIMentation et de l’Activité Physique” (PRALIMAP). The aim of the intervention was to reduce the prevalence of obesity amongst adolescent girls in twenty-four French high schools. The PRALIMAP trial recruited and retained a high number of adolescent girls ($n=3538$) at baseline for the two-year intervention. Findings suggested that the education and environment strategies used were no more effective than no intervention strategy (Bonsergent et al., 2013). An evaluation of the PRALIMAP trial assessed its transferability and characteristics through stakeholders’ semi-structured interviews. Their contributions highlighted the importance of stakeholder consultation to assess the methods of implementation and barriers experienced in the transfer of the trial to another group. They provided an understanding on the transfer and the modalities of the intervention stressing the importance of collaboration between participants and management (Trompette et al., 2014). The literature in health research recognises the valuable insight that stakeholders provide in the participatory process of the intervention delivery. Researchers who conduct stakeholder consultation gain insight into the implementation process, exploring the challenges and barriers encountered when delivering a health promotion intervention (Cambon et al., 2012; Campbell et al., 2008; Rockliffe et al., 2018).

Complex health behaviour change intervention can often experience “implementation failure” (Byrne, 2019). A RCT conducted amongst low-income African American adolescent girls in California was conducted to reduce their screen time and increase their physical activity, through their participation in culturally specific dance classes. Compared to the health education control group, the experimental group did not reduce their BMI following the health behaviour change intervention (Robinson et al., 2010). This study made efforts to engage with community members at the design stage of the intervention and recruited role models within the community to deliver the dance to classes adolescent participants. Two main challenges were encountered based on findings from stakeholder contributions. The first was access to the community centre due to dangerous incidents restricting access and the second was inability of participants to access or afford transport to the research site. These are recognised as common barriers when conducting research amongst hard-to-reach groups in low SES populations (Bonevski et al., 2014). However, this study not only highlights the importance of stakeholder involvement for relevance of intervention, but also underscores the

complexity of components to consider when working with hard-to-reach populations. Importantly, the relevance of programmes and potential reach explored during stakeholder engagement can highlight anticipated challenges. Additionally, their contributions can support experimental design changes at the exploratory stage of the intervention design. It has been argued that behaviour change interventions may be reduced in their efficacy due lack of stakeholder engagement (Concannon et al., 2019).

Engaging key stakeholders was important at the initial stages of the MI study. This exploratory stage sought to understand stakeholder views on the acceptability and feasibility of the adolescent peer led MI intervention. The focus was placed on exploring intervention strategies, anticipated barriers, challenges, and opinions of components that the behaviour change intervention would encounter. These included 1) strategies and techniques to deliver training to an adolescent cohort, 2) recruitment and retention of adolescent participants, 3) implementation of the MI intervention within the youth organisations, 4) anticipated barriers and challenges to the intervention process, and 5) attitudes and opinions on the acceptability of delivering an adolescent peer led MI approach for health risk behaviour change.

4.3 Methods.

4.3.1 Design.

Six stakeholders (4 Female; 2 Male) participated in the study through six semi-structured interviews. One informal meeting was conducted with three youth organisation stakeholders (2 Female; 1 Male) and notes were taken by the researcher, and as such direct quotes could not be used in the findings, however their contributions provided support of the views and opinions of interviewees in the captured in the findings (see Table 4.1). Participants representing youth organisations consisted of two managers (P1 & P4) and two youth workers (P2 & P3). Youth organisation representatives contributed to data collection on the basis that they had agreed to participate in the MI pilot study (chapter 5). Two local educators (P6 & P7) who worked in secondary schools attended by peer educators and recipients who would participate in the pilot study engaged with the researcher in separate interviews. A health researcher (P8) contributed through interview based on her experience of conducting research in youth peer led health interventions and based on her experience of two large health behaviour change interventions in the UK. A MI trainer and practitioner (P9) participated in an interview. He possessed skills and knowledge as a MI trainer and as a MI practitioner who works with vulnerable adolescents to change their health risk behaviour. All participants were invited to contribute their thoughts on the feasibility and acceptability of conducting an

adolescent peer led MI intervention in youth organisations. An invitation sent to stakeholders via email, containing information on the aims and objectives of the MI study.

Table 4.1

Stakeholder participant interviews.

Stakeholder	Gender	Role	Pilot study	Method of data collection
P1	Female	Manager	YO1	Informal meeting with notes taken
P2	Female	Youth worker	YO1	
P3	Male	Youth worker	YO1	
P4	Male	Manager	YO2	Semi-structured interview
P5	Female	Youth worker	No	
P6	Female	Youth reach co-ordinator	No	
P7	Female	School completion officer	No	
P8	Female	Health researcher	No	
P9	Male	MI trainer and practitioner	No	

4.3.2 Materials.

Stakeholder interviews were recorded using standard iPhone 6 and acer laptop. A computer assisted qualitative research methods software programme (MAXQDA 2018) was used to conduct the analysis of data. Questions were developed placing a focus on stakeholders' views of the feasibility on implementing the MI intervention and its process.

4.3.3 Procedure.

Following ethical approval from the School of Psychology Research Ethics Committee, Trinity College Dublin (TCD) see Appendix A, stakeholders were invited to participate. All stakeholders were issued with information leaflets and completed consent forms (see Appendix D) to participate in the interviews before interviews were conducted. Interviews were conducted in the workplace of stakeholders except for two which were conducted over the phone. One interview was conducted over the phone with the MI trainer who lived in a separate county to the researcher and the second with a health behaviour change researcher who was based in Wales. Stakeholders were asked comparable questions;

however, they varied slightly according to their professional position and specific area of work. The interviews were led by the primary researcher. Stakeholder contributions explored reach, dose, fidelity, and adoption of the MI intervention in youth organisations (see interview transcripts, Appendix H).

4.3.4 Data Analysis.

Interviews were transcribed verbatim by the primary researcher and Braun and Clarke's (2006) thematic analysis was used to analyse the data. This method was employed to identify, describe, analyse, and report the themes and patterns in the data (Braun & Clarke, 2006). An inductive coding framework was used, with a purpose of extracting core themes from the entire dataset with depth of analysis. Adhering to these guidelines and the six steps outlined in the process provide a strong analytic practice to thematic analysis. Themes were identified at a semantic level to support participant contributions in the interviews. Based on the semantic analysis, themes were organised into patterns and subsequently into broader meanings and implications. Stakeholders' thoughts on the feasibility and acceptability of the trial were explored (Braun & Clarke, 2014). Step 1 involved becoming familiar with the data through transcribing interviews, reading transcripts, and listening to the audio recordings several times. Step 2 involved generating the initial codes aided using the software package MAXQDA v18.2.3. This approach selected an essentialist/realist perspective to the interview content and supported the ability to explore the research objectives (e.g., feasibility of the intervention, anticipated barriers and challenges, acceptability of the intervention components for adolescent participants) from the perspective of key stakeholders. The semantic coding applied to the codes assumed a unidirectional relationship between the meaning and the experience captured in the interview transcripts. The third step grouped the codes together according to their category and sorted them into themes and sub themes. Exploring the codes in this way created the ability to merge themes together generating overarching themes through an inductive approach. The fourth step reviewed the themes and refinements were made on both the coded data sets and extracts, ensuring that both distinct and coherent themes were generated. Themes were reviewed by both the primary and secondary researcher to consider the context of research questions and the data corpus. Sub themes were developed and those which were considered irrelevant were omitted.

A second researcher reviewed the coded transcriptions and indicated her agreement or disagreement with each of the pre-existing codes and themes, in addition to recommending new codes and themes. This approach to thematic analysis whereby independent coders analyse the data is supported by the literature (Barbour, 2001; Campbell et al., 2013; Clark et

al., 2009). Recommendations for additional codes and themes were outlined by the independent researcher and intercoder agreement was established through discussion. Refinements were made for codes and themes with agreement on subthemes to be merged and others were removed from the thematic analysis. Both coders were knowledgeable on the interview matter, which reduced the instance of discrepancies on the coding. This is in line with recommendations for coding in depth semi-structured interviews (Campbell et al., 2013). However, the approach taken to generating codes and themes adopted a reflexive and thoughtful practice during their engagement with the analytic process. This collaborative and reflexive process occurred for code development (Braun & Clarke, 2021). Furthermore, it provided an opportunity for the researcher to consider the subjectivity and repetitive nature of the coding processes, whereby engagement with and reflection of the data occurred for theme generation.

Following coding of the interviews a process of selecting quotations occurred. Data extracts were considered by both researchers, in addition to the principal investigator of the study who discussed the relevance of the quotations. A process of consideration occurred for inclusion of quotes based on their appropriateness and the variety of extracts to ensure that they portray a wide range of conceptual ideas within each theme. The criteria for selecting quotations were based on the research questions (1) What is the culture of health of young people in the community? (2) What would support the adoption of the health behaviour change interventions in youth organisations, and (3) Was it an acceptable health behaviour change interventions to conduct in youth organisations? Researchers applied careful consideration for the process of knowledge construction and the influence that they had on the process (Levitt et al., 2018). A thematic map provided visual representations of patterns and links between the data. Each theme and sub theme were named supporting the ability to provide a description of each (Step 5). Themes also underwent a process of triangulation of agreement between all researchers to ensure that they were grounded, and that the dataset supported their inclusion. A review of the data considered the research aims to support all the data captured in the analysis. The final and sixth step described and contextualised the themes according to the relevant literature specific to conducting research on health behaviour change interventions. The final report generated a description of the themes which underwent an iterative and recursive approach as outlined in the aforementioned steps. This iterative process was completed once the themes had been clearly distinguished from each other.

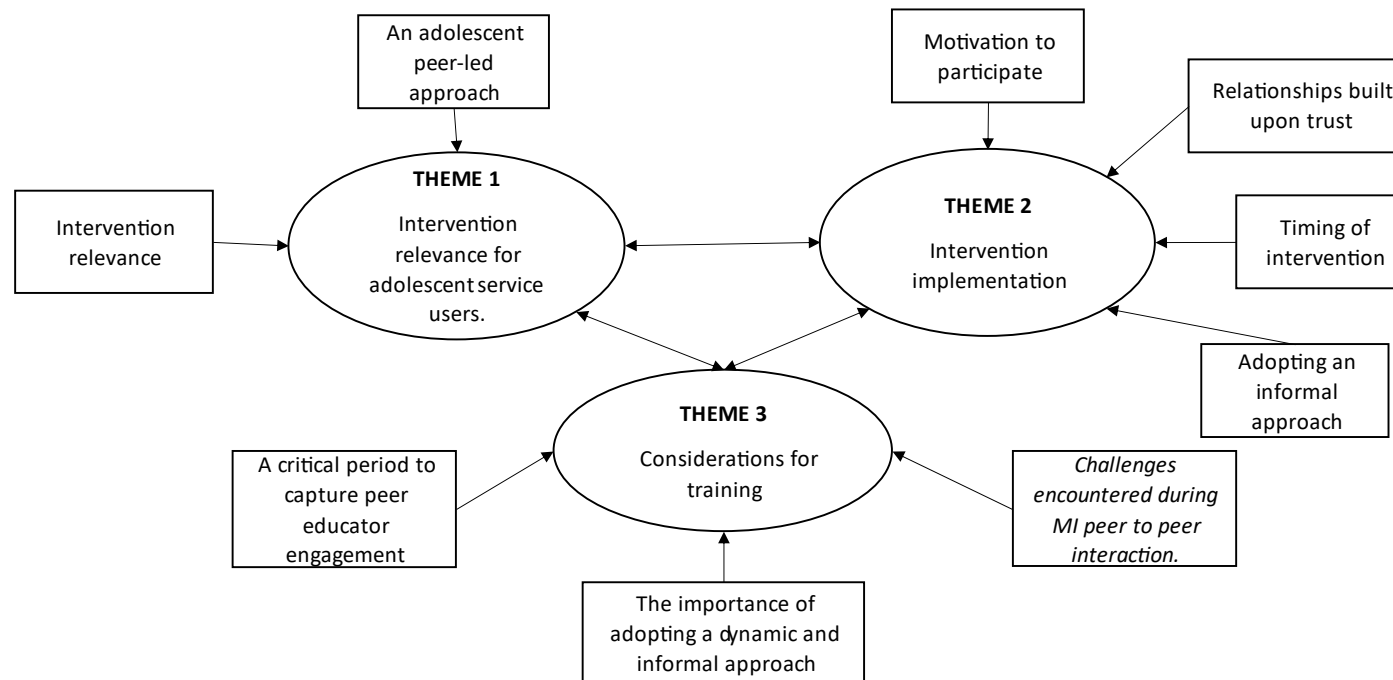
4.4 Results.

Stakeholders discussed the relevance of the health behaviour change programme for adolescents who accessed the youth services in low SES communities (Theme 1). Intervention relevance was explored in two main ways: (1) the chosen health risk behaviours (smoking, alcohol, and sedentary behaviour) and (2) feasibility of the peer led approach with

similar programmes that the youth organisations provided. Intervention efficacy was considered to rely upon effective recruitment strategies, accurate intervention timing and establishing trust amongst adolescent service users to support their buy-in to the intervention process (Theme 2). Training was discussed as a crucial time in the intervention. Engagement and participant experience at this stage would impact the overall effectiveness of the intervention process (Theme 3). Themes are visually presented in Figure 4.1.

Figure 4.1

Thematic Map Illustrating three main themes and subthemes- Stakeholder Interviews.



Note. Themes are presented in circles; subthemes are presented in rectangles. Arrows represent how themes/subthemes relate to each other.

4.4.1 Theme 1: Intervention relevance for adolescent service users.

Subtheme 1: Intervention relevance.

Community youth workers agreed that the targeted health risk behaviours were relevant for the adolescent population who accessed their services. Tobacco smoking behaviour was described as being increasingly prevalent amongst adolescent service users. This behaviour had replaced vaping behaviour, which adolescent service users had previously engaged in. Similarly, alcohol consumption was discussed as a regular social activity that adolescents engaged in during the weekends. This behaviour was considered to become more prevalent during summer months.

P5 "Amber leaf is the new way to afford to smoke and rollies.... there would be a lot of drinking culture going on in the summer."

Programme implementation was discussed as being driven by service user interests. One such interest was for service users to increase their health and fitness. In response to the need to address health, a youth worker completed a personal training course, providing him with skills to support service users to increase their physical activity.

P4 "eh, obviously smoking and alcohol is a huge and ongoing issue' " "The health and fitness side of things, I mean, a couple of years ago it was such an issue that I actually became a personal trainer" "a kind of in demand thing from the young people."

Harm reduction programmes had previously been delivered in the youth organisations and schools to highlight the health risks associated with smoking, alcohol, and drug use. These programmes were often delivered by health care professionals to adolescent service users. Programmes encouraged participant engagement in workshops to develop an awareness of the risks of both drug and alcohol use. One youth worker indicated that if there is a desire and a demand for a programme within the youth organisations young people provide feedback on what would be acceptable for them to participate in.

P5 "I had a paramedic, who comes on site, and he delivered a workshop, on a Wednesday afternoon on alcohol. Explaining what happens when you're in trouble and how to call 999. He's coming out again on a Wednesday to do a drug one, to

highlight the effects of drugs, you know. So even if you came and spoke to the group and asked them if they would like to participate in the study.”

Subtheme 2: Peer led approach.

Peer leadership programmes were endorsed by stakeholders in the community. Youths who attended youth organisations and schools engaged in these programmes to support both informal and formal education, respectively. Youth workers developed leadership programmes to encourage their service users to participate in informal education and on a voluntary basis. The programmes provide certification for peer leadership and encourage a structured approach for young person led engagement.

P4 “peer leadership training programme, which runs over a ten-week period, and then at the end of the ten-week period, they will take on a standalone project, that they are going to lead out themselves.”

These leadership programmes were also supported by the local schools. Stakeholders representing as educators discussed the effectiveness of student participation in these programmes. Adolescent involvement in the leadership programmes were described as a way to enhance the student’s personal development. One stakeholder noted that students who participated in her school were in transition year (15-16 years) and the programmes were extremely beneficial for them. This educator believed that the benefits for adolescents in engaging in the MI intervention were not limited to developing useful skills during training but created an opportunity for peer educators to apply these skills in a ‘meaningful’ way in their lives. The MI intervention presented the opportunity for peer educators to further consolidate their skills acquired in training through practice in MI sessions.

P6 “...I actually think one of the benefits of something like this would be it would give them a very real thing to be able to use those skills in... so, like we had a group for example who did peer leadership here last year through one of the youth services here in [community] and it was fantastic but I actually would have loved them to have something more to use their skills in.”

4.4.2 Theme 2: Intervention implementation.

Subtheme 1: An informal approach to recruitment.

Adopting an informal approach to the recruitment of peer educators, was considered to be the most effective way to gauge the interest and acceptance of the intervention amongst adolescent service users. An informal introduction to service users by youth workers on a club night, outlining the aims and objectives of the study, would afford service users time to reflect on whether they would like to participate in the MI intervention. It also supported their ability to ask questions with the youth worker before a more formal information session was held by the researcher during recruitment for the MI intervention. Providing time to ask questions, listening to concerns, and exploring service users' views would create a greater degree of 'buy in' from participants.

P4 "...normally, what we see is a need with a group of young people who could benefit by linking in with us and my personal approach to that is having a very honest and frank conversation with them."

This informal interaction would establish and support participant commitment to the MI intervention. Placing an emphasis on personal development achieved during training, would elicit a greater sense of pride in the peer educators' engagement. A key factor for adolescents to buy into the MI intervention was based on the relevance of the content and programme for the needs of the adolescent. For one youth worker it was important that any programme delivered within the youth organisation be "needs responsive and young person centred" (P4).

P6 "For us if we are ever looking to introduce something new, probably the best way to do it is in with consultation with the young people and for them to almost feel as though it's their idea."

Subtheme 2: Motivation to participate in the MI intervention.

Education-based interviewees (P6-7) highlighted the importance of incentivising adolescent participation. This would apply value and recognition for the work and contribution that the young people made through their participation in the intervention. A school setting would usually reward students with a day out incorporating fun activities or a trip away. Accreditation was also recognised as an important factor for participation and would evoke a positive response during the recruitment stage. Crucially, educators emphasised the importance of establishing 'buy in' to the intervention process from the youth leaders. Relationships based on trust existed between youth workers and their service users. Youth worker acceptance of the MI intervention would have a positive impact on service user

acceptance. It was believed that this would influence both the recruitment and retention of young people throughout the research process.

P7 " Em, sometimes what we do is, say we are doing mentor training, we'll give them [service users] a reward at the end of it. So, it's like, eh, it could be a trip or go to see something. So that they [service users] do feel that there is something in it for them [service users]. I think that really is the key thing is that they feel that they are getting something. Like, for example, they'll get their cert for MI, will they get something else?"

Successful recruitment and engagement of adolescent participants would rely heavily upon researchers drawing upon the strength of relationships that existed between youth workers and service users. Youth workers discussed the importance of the role of youth organisations within the community. The services were deeply embedded within the communities and many generations of the same families had used the service over time. It was recommended that researchers should draw upon these established relationships to support the implementation of the MI intervention.

P4 "...but obviously, new relationships [researchers] pose their own kind of barriers. So, I think a collaborative approach with youth workers or even the volunteers because they are again part of our kind of steppingstone and timeline here."

Adopting this approach would present participants with trusted representatives who were involved at the recruitment stage of the study. Youth workers' presentation of the study to their service users may eliminate any external pressure or obligation that service users may feel to participate in the study when presented by researchers. Consulting with the adolescents at the recruitment stage of the intervention process to establish the process of selection was considered important. It would support their ownership of the project and emphasise fairness in the selection process. Youth workers highlighted the importance of outlining the commitment required of the peer educators in their role at the start of the process. It would also support them to fully consider their capacity to take on the role if chosen.

P7 "...to kind of have a built-in escape clause. Once they [service users] see quiet early on in the process what actually is expected of them before they start, and if anybody feels that, including people in training, that they're not actually able to be

able to fulfil their role, well then, they need to know that it's [participation] not going to happen. That they're not going to just get to do it anyway."

Most stakeholders believed that adolescents would self-nominate to participate in the intervention. However, it was suggested that careful consideration be taken on the method of peer educator selection. It was important to foster voluntary participation and fairness in the selection process. As a finite number of places were available for participation as a peer educator, nomination may elicit a competitive environment and resentment may arise. Particularly if those who had expressed an interest to participate were not chosen as a peer educator. The fairest approach to peer educator selection was agreed to be a random selection of those service users who had expressed an interest to participate as a peer educator.

P6: "I think they [service users] will put themselves forward for nomination and that there will be an interest in participating.... I think because there will only be six [peer educator candidates] to deliver, what I would suggest is to let them self-nominate and then you are going to get more than six, and then just pull their names out of a hat. Unless the leaders were particularly concerned about one of them [service users] doing it."

Adopting a random selection approach for those who expressed an interest in becoming a peer educator would apply fairness to the selection process. Additionally, those selected during the self-nomination process would be motivated based on the fairness applied at the recruitment stage. Consideration needs to be taken for the time commitment for peer educators to participate in the MI intervention. This commitment would impact the time that they usually used to participate in the youth club night. Minimising the disruption to youth service activities that the adolescents engaged in would further support their willingness to participate in the intervention.

P7: "Ok so it's [intervention] not going to drag out from their [service users] point of view, where they feel that it's going to interfere with their club night. Yeah, so I think if you're doing it on the night that they are normally there, Em, that they've [service users] had, Em, that they know that that's happening as well, they won't turn up on the first night and go, eh, I'm not coming back next week cause of what happened [MI intervention] here. Em, and then I suppose the key thing is the delivery

of it [MI intervention]. If it's fun and interactive and they're getting something out of it [intervention]."

Subtheme 3: Timing of intervention

The duration of the programme was considered a key component to consider for the effective implementation of the intervention. It was suggested that the MI intervention adopt a similar timeline to programmes previously delivered in the youth organisation. The ideal duration of the MI intervention would be between six to ten weeks to sustain the interest of participants and reduce attrition due to intervention fatigue.

P4 "Like the programmes that we run here, they generally run on 6, 8, 10-week blocks. The reason they run like that is because, yes, I do think with young people there is a need to keep things fresh and engaging."

Initiation of the delivery of MI sessions was also believed to be important to increase peer educator engagement. It was recommended that the MI sessions be initiated as soon as possible post-training. Hosting MI sessions on a club night when the adolescents engaged with the youth service would be convenient for participants to engage in the programme and would support their retention in the study. To capture the attention of the participants, MI sessions should not exceed fifteen to twenty minutes. Timetables are developed in the youth organisations according to the school year and MI sessions would be most effectively adopted within the school term and without the interruption of school mid-term holidays. All youth organisation representatives agreed that the summer break from school was a particularly busy period for the youth organisations. Although a sizeable proportion of the young people attend the organisations over the summer months outdoor activities and youth service trips may interrupt the implementation of the programme.

P5 "So a lot of them [service users] were in here during the summer, but the only other problem was that there were a lot of them going away. So, they might be away for two weeks at a time."

Subtheme 4: Relationships built upon trust.

An emphasis was placed on the relationships that existed between the youth workers and their service users. These relationships were built upon trust and stakeholders suggested capitalising upon these relationships to encourage adolescent participation in the study.

Educator stakeholders suggested that youth workers would reinforce the trust and ‘buy in’ that adolescents required for participant engagement. Youth worker involvement would enhance the intervention process and support the recruitment and encourage retention of participants in the study. This was believed to be on the basis that youth workers could establish true motivation and desire for participant engagement if they believed that the intervention was of value to their service users.

P4 "... if it's seen that the eh, the youth workers are kind of a part of this [MI intervention] and Em, that young people recognise straight from the outset that it [MI intervention] will be of some value to them or it will be of some value to young people like them in the future. Then I think that they will buy in, but I think that there is a huge element of trust here in the youth project. If we as youth workers can say, we have seen this [MI intervention] and this is important, Em, they [service users] will go with it."

As gatekeepers, youth workers explore the opportunities that external services and programmes can provide them to address the needs of their service users. Adverse risks posed to young people because of their participation in a programme were discussed as factors that would induce resistance from youth organisations to participate in the study. Consultation with service users supports their ability to respond to their needs and allows them to explore opportunities to meet these needs.

P4 "Establishing a relationship that was open and honest was key to gaining participant views on the topic."

P4 "I said it to you at the outset. There were no flags, there were no red flags. Em, and obviously not telling young people what to do is the most important thing and I love the idea of you know, that it is peers that are delivering [MI intervention] of what you are trying to achieve."

4.4.3 Theme 3: Training.

Subtheme 1: Dynamic and informal.

Training was suggested to adopt an informal and dynamic approach to capture the attention of the adolescent peer educators. This approach was similar to youth organisations’ existing and previous informal learning programmes presented to their service users. Engaging with the peer educators before training was important to gain an understanding on how they learn and how training could accommodate this style of learning. This would

reinforce their buy in to the training process and increase their motivation to participate. Similarly, gaining feedback following training would provide clarity on their learning outcomes.

P4 “I would make no assumptions with young people and what will engage them. Eh, I would rather communicate with them first and get an idea of what would engage them.”

Training sessions should achieve an understanding of the underlying principles of MI while also pitching it to meet the learning capabilities of the peer educators. If peer educators felt that they were out of their depth, it would directly impact on their ability and commitment to effectively implement the MI intervention.

P6 “As long as it’s [MI intervention] something that they feel that they have ownership of and its [training] brought down to their level and I don’t want it to sound like a very negative thing, but when brought to their level I don’t think that they would have an issue.”

Stakeholders considered the peer led approach to be complex and expressed concern for the capacity of adolescent service users to develop a comprehensive understanding of MI and to apply MI principles during sessions with their peers. Establishing a professional role and applying it in a skilled way to their peers may it was thought present as a potential challenge.

P9 “...they [adolescents] really want to talk but the challenge would be trust, relationship and what is the dynamic between the young person engaging with the MI and the young person delivering the MI.”

The MI trainer suggested that adolescents may take a greater amount of time to grasp the concept of MI compared to professionals who typically trained with him in MI. The concerns focused on the ability of peer educators to generate concrete ideas and work through them during training. There was a requirement that trainees display empathy given certain MI concepts and the ability for peer educators to achieve this based on their age, lack of professional or life experiences was questioned.

P9 “A problem could be down to the adolescents' capacity for empathy and their developmental stage.”

One youth worker discussed his observations of empathy displayed by service users displayed through a peer leadership programme that was implemented in the youth organisation. Noting that the focus of some programmes often required that service users place themselves in the position of others for successful delivery of the programme.

P4: “I had a group here who were from sixth class and did an empathy programme ... they up-styled, Em, like converse runners, Em, but the programme was called 'walk in my shoes'. This was to kind of explore empathy and then the way they up styled the runners was with, kind of designs and statements and that were cemented in the idea of empathy. The idea being that, if you had a situation specific to your life that literally when you lace up your shoes in the morning, you could look at them and realise that there are people who have empathy for what you are going through. That was the idea behind it.”

This was supported by a researcher who discussed how adolescent participants displayed empathy for each other during a group-based MI study to reduce smoking behaviour conducted in Welsh schools.

P8 “It was a connection between students based on what they were saying. So, there were some really nice examples where students' kind of responded to what another student had said, Em, in quite an empathic way, which was really nice.”

Subtheme 2: Critical period to capture peer educator engagement.

Training was identified as a key stage of the intervention process where participants would decide the level of interest that they would apply to their participation in the study. To generate a high level of interest, the trainer would be required to be as creative as is possible to capture the attention of those young people attending. Attention should be applied to all the core aspects of MI to solidify the peer educators understanding of the principles that they would use during MI sessions. Concerns were expressed around the capacity of peer educators to fully grasp the underlying principles of MI over the two days of training. There was particular concern raised on the possibility that peer educators might miss the key concepts of MI.

P7 "...it's about using a combination of using active methodologies, but active methodologies don't necessarily always have to be about getting them up and doing thingsso, if there is information that needs to be gotten across, that it's done in short spurts. So, you've got 5-10 minutes of input and then you are doing something with them."

Numerous factors were identified as key to optimising the learning experience and comprehension of the course content delivered to peer educators. Care should be taken on the language used in the delivery of information to peer educators and gaining feedback throughout the training process to assess their learning outcomes. Delivering information on a specific concept should not exceed five to ten minutes and be followed by peer educators participating in a related activity or task to reinforce the concept presented. By applying meaning to the content delivered the trainer would enhance the learning experience for peer educators.

P9 "I don't know who is delivering the MI training for you, but it will be very important that they understand the importance of pitching the training in a tailored way to the adolescents. Coming from a school background you understand that they have the ability to sit and listen, it's capturing their attention to grasp the concept that will be the challenge."

Peer educators should have the capacity to gain and have the opportunity to contribute to the learning process. Importantly, educational professionals suggested that the trainer use language that makes sense to the peer educators. Encouraging participation through 'self-discovery' and to not taking things personally if their schedule is not going to plan were highlighted as key issues. It was considered important that the person who delivered training, establish a variety of methods to deliver the same content to adolescents to negate disengagement.

P7 "That you know, you've got a Plan B and that you're going to be ok with it [training method] might not work. I think that that is really the key to working with young people like this is not to, I suppose as I say as a facilitator, not to get disheartened when things don't work, as they often won't. It would just be 'ok so that didn't work. Let's try something else', 'No problem, let's just try something else!'"

To achieve this level of engagement it was recommended that the trainer should use role plays, encourage interaction, and incorporate the feedback from trainees on suggested methods and preferred choice of learning techniques to achieve maximum engagement. Although the group motivational interviewing study in Wales was teacher led and structured in its delivery, all students who participated provided feedback that informed each training session, and this was believed to motivate their participation. If peer leaders feel confident with the concept of MI, know what they are doing, and it makes sense to them, it was believed by those interviewed that they would display their commitment to the intervention.

P7 "...using language that makes sense to them [peer educators]. But it's never me just telling them [peer educators], it's always giving them [peer educators] the chance to try to discover.... you know, discovering for themselves."

Including youth workers at the stage of training was believed to be important for several reasons. It would provide them with an understanding of the role of peer educators and to understand the learning outcomes: both of which would provide them with the ability to support peer educators if they encountered challenges in the MI intervention process. Additionally, their presence in training would reinforce their support the intervention process and the participation of peer educators from the onset.

4.5 Discussion.

Stakeholder engagement in behaviour change interventions has been explored in the literature; however, this research is limited and underdeveloped (Brett et al., 2014; Domecq et al., 2014; Shippee et al., 2015). This study presents the views of the stakeholder on the feasibility of a peer led health behaviour change intervention in a low SES community. Stakeholder interviews explored the components and relevance of a peer led MI intervention for adolescents who accessed low SES community youth organisations. Their contributions during the initial stages of the study process, provided valuable insights on timing of the intervention, training, recruitment strategies and stressing the importance on relationship building with participants. These results corroborate the findings as outlined in public health and participatory led research, which emphasises the importance of applying relevant and appropriate interventions to the targeted population (Brett et al., 2014). Interviews facilitated a dynamic approach to the research process and supported continued evaluation and consideration for participant feedback throughout the intervention process.

Previous research has emphasized the value of adopting a flexible approach at the planning, design, and implementation stages of feasibility trials (Craig & Petticrew, 2013). The inclusion of key stakeholders has been found to reduce the costs of expensive health interventions and to improve their efficacy (Craig et al., 2008). This was observed in the PLAN-A study which sought to assess components of a health behaviour intervention for an adolescent cohort. The study stressed the important role that key stakeholder contributions played in strengthening the methodology of the intervention to reduce obesity amongst adolescent girls (Sebire, Banfield, Jago, et al., 2019).

Theme 1 explores health risk behaviour relevance and the appropriateness of implementing an adolescent MI peer led approach to change health risk behaviours. Research has consistently highlighted the risks associated with the initiation of unhealthy behaviours during adolescent years. These years are often defined by increased risk-taking and problematic behaviours including smoking, drug, alcohol use, sedentary behaviour amongst others which contribute to increased risk factors that affect adolescent health and well-being (Anthony, 2011). Stakeholder views are consistent with the reported frequency of adolescent engagement in health risk behaviours as outlined in national and international literature (Harrington et al. 2013; Ipsos, 2016; Keane et al., 2017). These behaviours were considered both problematic for service users and prominent within the adolescent social culture which is in line with the literature (Dooley et al., 2019; Dooley & Fitzgerald, 2012; Dale et al., 2019; Evans et al., 2019). Smoking behaviour was discussed as becoming increasingly ubiquitous amongst adolescent service users with affordable tobacco and rollies replacing vaping behaviour and alcohol consumption was more prevalent during the summer months. Youth workers also emphasised the desire for their service users to increase their physical activity and the response in efforts that were made to meet the needs of service users to facilitate these requests.

Stakeholders play an important role the development and implementation of peer led behaviour change interventions (Bogart et al., 2011; Goh et al., 2009; Sebire et al., 2016; White et al., 2017). Exploring the prevalence of risky behaviours targeted in the MI intervention was considered relevant for the service users. The previous experience of implementing peer leadership programmes within the youth organisations and schools garnered an appreciation for the peer led approach and appeared to influence youth workers in their decision to consider the peer led MI intervention. They applied value to the intervention on the basis that it created an opportunity for their service users to develop interpersonal skills. Implementing prevention programmes also supports the Irish governments targets to reduce health risk behaviours amongst young people and are in

accordance with the targeted outcomes for youth work in Ireland (DCYA, 2014; Lerner et al., 2005; Ord, 2016). These initiatives prioritise adolescence as a key life stage to target smoking, alcohol, and physical inactivity for change (Evans et al., 2019; Harrington et al. 2013; Treanor et al., 2019a). Peer-led health education strategies are recognised to be an effective method to promote healthy behaviours amongst young populations (Mellanby et al., 2000). They have successfully disseminated health risk information for smoking (Audrey et al., 2006; Bosi et al., 2013; Campbell et al., 2008; White et al., 2017), sedentary behaviour (Carlin et al., 2018; Ginis et al., 2013; Sebire, Banfield, Campbell, et al., 2019; Sebire, Banfield, Jago, et al., 2019; Shrewsbury et al., 2020; Vivian et al., 2013), alcohol and substance misuse (Botvin et al., 1990; Macarthur, Harrison, et al., 2016) amongst adolescent populations. The adolescent peer led MI intervention was believed by stakeholders to be an acceptable approach for adolescents to deliver a health message to their peers.

Peer educators would also have an opportunity to develop skills, both during training and in the delivery of the MI intervention. Skills considered important included communication such as oral and listening skills, knowledge developed on the risks associated with the health risk behaviours and building confidence. All of these were considered valuable to adolescent service users for their personal development and growth. Youth work promotes and seeks out opportunities for service users to engage in an autonomous way with activities and initiatives presented to them in their services (Treanor et al., 2019). Stakeholders outlined how the MI intervention objectives were similar to those present in previous peer-led programmes implemented in their youth organisations. These objectives were to provide opportunities to their service users to support their personal development and growth (DCYA, 2014). The literature on conducting a process evaluation of complex interventions emphasises the key role that stakeholders play at the design, implementation, and evaluation stages of a programme. Their contributions have been found to support intervention efficacy and apply its relevance to the targeted population (Tarquinio et al., 2015). Critical features such as content and processes of the intervention can be explored and refined based on stakeholder input. Stakeholders provide practical solutions to anticipated or encountered challenges and barriers, thus increasing the likelihood of replication.

Theme two expands upon the first theme's relevance of the health behaviour change intervention and explores the mechanisms of implementation for an adolescent cohort. Four subthemes were identified focusing on key mechanisms that would support the intervention delivery. Collaboration with stakeholders at this initial stage of the intervention informed

training, timing, and recruitment strategies for the intervention process. Anticipated barriers and challenges afforded the research process an opportunity to adapt and refine processes to meet the needs and interests of participants. Generating buy in at this early stage of the research process from stakeholders has been recognised in the literature as a way to support their engagement throughout the research process (Armstrong et al., 2013).

Recruitment and retention of hard-to-reach populations are common barriers in health and medical research. Problems often arise in reaching hard to reach groups and different techniques can contribute to increasing access to vulnerable populations. Techniques such as snowball/social network or respondent-driven recruitment have been identified as methods to enhance the recruitment process (Bonevski et al., 2014; Ellard-Gray et al., 2015). Stakeholders suggested that youth workers could informally approach service users the recruitment of adolescent peer educators. Researchers often experience mistrust amongst hard-to-reach population due to negative beliefs about the research process. For instance, outreach workers have been found to alleviate mistrust that participants may experience with respect to sensitivity attached to research topics. Gatekeepers are recognised as vitally important to researchers who seek to gain access to vulnerable populations at the recruitment and sensitive information gathering stages of the research process (Sullivan & Cain, 2004; Sutherland & Collins Fantasia, 2012). Stakeholders identified youth workers as holding a key role in promoting the acceptance of the MI intervention and in establishing 'buy in' from adolescents to participate as peer educators in the MI study.

Developing a rapport with youth workers and participants prior to recruitment can reduce the perceived harms that research may inflict on the participants (Dibartolo & McCrone, 2003). Youth workers were considered by stakeholders to be critical for the successful implementation and adoption of the MI intervention. Emphasising the opportunities that the research provided for service users, including developing skills and an increased awareness on the risks associated with the health compromising behaviours would be important. Facilitating the appropriation of a study design relevant for the target group and fostering participant ownership of the research data is an important part of community research (Corbie-smith et al., 2002). Participant engagement throughout the intervention process was believed to encourage a greater degree of ownership in the MI research process. Promoting this sense of ownership supports evidence in the literature on recruiting hard to reach populations, which recommends that they be actively involved in all parts of the research process (Sullivan & Cain, 2004).

Incentivising participation in research is another effective strategy that has been used in community research. In a systematic review of African American and American ethnic groups participation in community research, payment increased the recruitment and retention rates of participants (Yancey et al., 2006). Similarly, Festinger et al. (2008) found that incentivising continued participation of respondents in research through cash or card incentives increases follow up data collection (Festinger et al., 2008). Stakeholders in the MI intervention believed that paying peer educators in cash or card payments would motivate them to complete the intervention and assign value to them in their role and in the delivery of MI sessions to their peers. This is supported in the literature where participant payment for work or covering the costs of participation are associated with greater retention rates (Maticka-Tyndale & Barnett, 2010). In a review of the literature of adolescent peer led programmes, concerns were raised across all programmes in the ability to retain peer educators. Peer leaders are required to balance several priorities including relationships with friends, family and commitments to school and work amongst other activities. Some of the most commonly experienced barriers in low SES communities include the costs associated with participant engagement in research such as travel and use of telephone (Ellard-Gray et al., 2015). Alleviating these costs through payments and remuneration for peer educators' efforts have been found to reduce attrition and absenteeism rates in peer led health research (Bonevski et al., 2014).

Youth work seeks out opportunities to support young people to acquire skills that enhance their personal development, health, and wellbeing (Healy & Rodriguez, 2019; Treanor et al., 2019). These efforts are supported by youth work participation policies in Ireland, which promote the provision of opportunities for service users to upskill and entice participation in programmes (Ord, 2016). Stakeholders and young people contributions are increasingly sought on more participatory roles in community research. The Gaisce Awards programme for young people implements a "Positive Youth Development" approach in Ireland. It requires that services accessed by young people, organise opportunities for them to acquire skills and expertise that build upon their personal strengths and well-being (Clarke MacMahon & O'Reilly, 2015). Stakeholders agreed that the opportunities that the MI intervention sought to provide adolescent service users was in line with youth work practice and recommendations from statutory bodies and existing programmes (Clarke MacMahon & O'Reilly, 2015; DCYA, 2014; Treanor et al., 2019; Forde et al. 2009). The ability for peer educators to achieve accreditation was discussed as a motivator and would enhance the willingness for service users to participate in the MI study.

Relationships between the youth workers, young people and their families were discussed as being built upon trust. Any indication of adverse effects that the intervention may impose on the service users would negatively impact on the implementation of the research. Additionally, peers are recognised as having an influence on each other's behaviours through increased time spent with each other, shared activities and characteristics, norms established and modelling of habits (Harrison et al., 2011). They possess a level of trust within their peer group, encouraging open and honest discussions on topics which may not be as easily discussed with an older person (Abdi & Simbar, 2013). The strength in relationships between youth workers and adolescents was considered to be the way to enhance adolescent participation. Youth workers functioned as gatekeepers to the young people who attended the youth organisations. Their acceptance and endorsement of the MI intervention was believed to rely on the opportunities that the programme would provide and positively impact service users. Consequently, establishing their buy in to an activity or programme would extend to adolescents who accessed the services. Similar approaches have been used in research when accessing vulnerable populations. In the LIVITY study focusing on the black Caribbean community in the UK, trusted relationships that existed between doctors/nurses and an increasing number of HIV-1 patients were relied upon to recruit for the clinical research and to assist in survey completion (Anderson et al., 2009). Trust is developed by the willingness and capacity of key individuals who work with the population. This trust is recognised as a critical factor through gatekeepers' involvement in the research process. They are perceived by the targeted group to be reliable, honest and who hold the best interests of the individual they are working with at hand (Hussain-Gambles et al., 2004). As such, recruitment in health research is heavily reliant on gatekeepers' engagement and their acceptance of the research process can influence the effectiveness of an intervention (Rugkåsa & Canvin, 2011). Stakeholders expressed an enthusiasm to participate in the MI intervention as it appeared to present opportunities and benefits for the young people to develop skills and it complimented the principles and practice of youth work.

The selection process of peer educators and timing of the intervention were considered crucial factors for consideration for the implementation of the MI intervention. Adolescent peer educator selection approaches differ in health research. Literature on adolescent peer led behaviour change interventions recognises the selection of peer educators to be a critical factor for successful intervention implementation (Shrestha, 2002). Adult selection of adolescents relied on their perceived appropriateness for the role; however, this may reduce the reach of eligible and hard to reach participants (Mason-Jones

et al., 2011), and in a school setting selection is often influenced by the academic ability of the student (Borgia et al., 2005). It has been argued that the selection process should capitalise on the 'connectedness' that exists between adolescent social groups and the acceptance of peer educators would be greater through a peer nomination process (Kirby, 2001).

Methods of selection vary across peer led studies and this was highlighted in a review of 24 peer-led programs which sought to reduce HIV amongst youths (Maticka-Tyndale & Barnett, 2010). This review noted a substantial variation in methods used for the selection of peer educators. Some studies ($n=3$) did not report any information on the selection of peer educators, other studies ($n=6$) reported the criteria and selection approaches and five studies that adopted a peer selection reported the method for peer educator engagement (Mitchell et al., 2007; Muyinda et al., 2003). An evaluation of a school-based HIV prevention programme for Yemeni adolescents ($n= 2510$) across 27 high-schools, sought to include adolescents who displayed attributes that were considered appropriate to participate as peer leaders in a peer led health intervention. The desired skills included acceptance from peers, and that peer educators display good academic and communication skills (Al-Iryani et al., 2011). Another study's peer selection criteria in a school-based peer education programme that sought to deliver information associated with the risk reduction of HIV and alcohol, assigned peer educators roles based on their performance on surveys completed by students (Sensation Seeking Scale and Decision-Making Style Scale). However, findings also emphasised the importance of peer acceptance of peer educators and that they present as credible sources of information. Peer educators should also be highly motivated in their role to successfully implement the intervention (Ebreo et al., 2002). Stakeholders in the MI intervention indicated that the fairest approach of peer educator selection would be through the anonymous selection of those who expressed an interest to participate as a peer educator.

This approach to peer educator selection would capitalise on the 'connectedness' of the adolescents within their social groups as previously reported in peer led selection approaches (Kirby, 2001). Furthermore, it would foster a sense of fairness and reduce challenges that may arise during the selection process. Youth organisations were considered to be an acceptable and convenient location for adolescent participants to receive the health behaviour change intervention. These findings support the literature where peer education programmes are most often delivered while students are in school (Mellanby et al., 2000). Peer led programmes implemented in the school setting provide ease of access to participants and can be conducted informally during the school day (Audrey et al., 2006;

Story et al., 2002; White et al., 2017). Timing and length of the intervention were also key factors to consider when implementing the MI intervention. Stakeholders explained that activities and programmes lasted between 6-10 weeks in youth organisations. A similar timeframe applied to the MI intervention would sustain the attention of service users who participated as peer educators and recipients. Short timelines are considered most effective for health behaviour outcomes in community health interventions (O'Mara-Eves et al., 2015). Hosting MI sessions on a club evening was discussed as being both convenient and acceptable, however the intervention should have a minimal impact on service users' engagement in activities scheduled on the evening assigned to them to access the youth club. Applying flexibility can accommodate participant engagement in the research process, maximised the opportunity for post intervention data collection and enhance the recruitment and retention of participants as demonstrated in a study conducted with urban adolescents in a multi-centre community-based asthma self-management intervention (Grape et al., 2018). Meeting the needs of adolescent participant schedules is a key factor for consideration when conducting community-based research. Challenges and commitments such as family, work and school can lead to participant absenteeism. These challenges are understood to be imposed on adolescent participants through the rigidity of the research process and it is recommended that research should aim to meet the needs of the adolescent participants to accommodate their engagement and participation in research (LoIacono Merves et al., 2015).

The third theme focused on peer educator engagement in MI training. It was emphasised to be a crucial time in the intervention process to capture the interest and the motivation of adolescent participants in the MI intervention. Stakeholders advised that the content and delivery of training be adapted for the adolescent participants. The literature on complex health interventions suggests that adapting interventions according to the context in which they occur supports their successful implementation. Flexibility during the design and implementation of an intervention allows them to be tailored to specific targeted groups and communities (Craig & Petticrew, 2013). Tailoring health behaviour intervention to the needs of those who receive it, including cultural and literacy levels has been found to support intervention efficacy (Shiell et al., 2008). An adaptation of the ASSIST peer led smoking prevention, + FRANK drug prevention programme conducted in UK secondary schools found that a key factor in the success of the study was to apply flexibility to both the timing and the delivery method of training to engage students (White et al., 2017). A subsequent study evaluating the findings for participant involvement in both +FRANK and the ASSIST smoking prevention programme highlighted the key contributions made during

the process evaluation. Refinements on intervention content, delivery, timing, and training materials amongst other key components of the process supported the development of a prototype for conducting public health interventions. Training considerations were made based on consultation with students who participated in the training process (Hawkins et al., 2017). This is further supported by a systematic review of school-based interventions conducted in low- and middle-income countries highlighted the importance of collaboration with community members and findings emphasised the value of adopting such an approach for the successful implementation of an intervention (Aplasca et al., 1995; Chen et al., 2014).

Building confidence among peer educators was considered crucial for them to deliver the MI intervention to their peers following training. Their confidence and competency in MI skills would encourage their continued engagement in the intervention process. This would be achieved through practice on MI techniques during training. A study recognised this initial confidence in fifteen peer leaders following their training when they participated in a study to disseminate information around sexual health HIV/AIDS in a peer education programme. Consolidation of information was achieved through practice over a number of months following training (Ochieng, 2003). Similarly, a meta-analysis conducted to understand the effectiveness of community engagement in public health interventions with a focus on five intervention strategies, sought to evaluate effect of training in health interventions. The analysis found that health interventions were more effective if they supported skill development, training strategies, and or unforeseen incentives, when compared to educational strategies for health behaviour outcomes (O'Mara-Eves et al., 2015). This is echoed in public and patient involvement research, which relies heavily on contributions to the research process in health and social care research. In a systematic review of the literature, it was noted that when there is a lack of or ineffective training it can lead to negative attitudes towards the research process and can reduce the level of trust between participants and researchers. When training is successfully applied to the targeted population, it can increase their involvement and enhance their experiences in the research process, providing opportunities to discuss the intervention outcomes (Brett et al., 2014).

Crucially, peer educators should be supported in their ability to understand and deliver the content presented to them in training. Stakeholders suggested that youth workers' attendance in training would allow them to support peer educators in the role during the intervention in addition to providing clarity when there may be ambiguity on the content delivered in training. A peer led, clustered randomised control trial was conducted to promote health amongst youths in Goa, India (Balaji et al., 2011a). In the formative stage

of the research process, stakeholders explored training methods that they believed would be most appropriate for peer leaders who would deliver the health message. Interviews with peer leaders following their implementation of the intervention found that the training they received had been thorough and suggested improvements were captured from peer leaders on incorporating methods during training to their increase knowledge on self-esteem, attitudes and values, violence, and public speaking. Gaining insight on training both before and after the delivery of the intervention provided researchers with the ability to adapt training according to participant learning styles, in addition to assessing the effectiveness of training based on peer leader feedback (Balaji et al., 2011).

There is an increasing requirement for health research to understand “*what works, for whom, why, when and at what cost*” and community led research is considered the “gold standard”, particularly amongst disadvantaged populations (Nickel & von dem Knesebeck, 2020). Conducting process evaluations on trials and applying frameworks can support an increased and transparent understanding the various components that exist within complex health interventions (Armstrong et al., 2008; Waters et al., 2007). The stakeholder’s perspective can provide insight on what is acceptable and appropriate for the targeted population, affording researchers the opportunity to make refinements and create tailored training according to the needs of those who participate in the intervention. Accomplishing this can increase participant engagement, competency, and confidence to implement the intervention with their peers.

4.6 Limitations.

Stakeholders were interviewed by the primary researcher and potentially influenced their contributions in favour of the research. Participants varied in their level of knowledge specific to the research topic (MI, youth work, education) which may have influenced the direction or richness of the data provided in each interview. There is also a possibility that the community interviewees interacted with each other to discuss different aspects of the study before data collection, thus potentially impacting their views on the intervention.

4.7 Conclusions.

Stakeholder contributions provided valuable insights into the relevance of the programme for adolescents who may participate as peer educators or as recipients in the intervention. Approaches incorporating the ethos of the youth organisations and fostering the autonomy of adolescent participants were deemed important factors to consider during various stages of the intervention process. Interviews also highlighted potential risks and considerations for intervention delivery. Specifically, training was highlighted as a vital

stage within the process where participant motivation to engage in the intervention would either be established or lost. Incorporating certain training styles to capture and sustain the attention of peer educators would provide them with the confidence to deliver the MI intervention to their peers.

Chapter 5. A pilot study on the feasibility of conducting an adolescent peer led MI intervention in community youth organisations (Study 2).

5.1 Chapter Aims.

Chapter 5 adopts a qualitative approach to investigate the adolescent peer educators' experience of engaging in the MI intervention process. It outlines qualitative studies that have been conducted with adolescent populations to elicit health behaviour change. It explores the guidance for the evaluation of complex interventions as outlined in chapter 3. The methodology used in this study is described. Findings from the pilot study are discussed in relation to existing peer led health behaviour change intervention literature. Findings from peer educators in the pilot study informed refinements for the original intervention structure, before proceeding to an exploratory trial (Chapters 6 to 8).

5.2 Introduction.

Pilot studies can provide a way to evaluate and assess the effectiveness of intervention components for a larger trial (Saunders et al., 2005). Understanding the components of a programme can provide the opportunity to make refinements before the implementation of a confirmatory study (Arnold et al., 2009). Importantly, piloting a study can provide valuable insights and assist in the planning of larger studies including feasibility and RCTs (Arain et al., 2010). They can also provide justification in the accuracy of feasibility trials and the cost effectiveness of running such trials (Arnold et al., 2009). The purposes of conducting a pilot study vary from evaluating the effectiveness of the components in the intervention, looking at recruitment and retention rates of participants, evaluating training and making estimations on the variance of outcomes for the sample sizes who participate. A review of the literature on medical research pilot studies, defined pilot work as a process through which background information is collected to inform a future study. This work has its own objectives, hypothesis, and methodology independent of the main study or feasibility trial (Arnold et al., 2009). Recommendations for pilot studies are to uphold their independence from main studies as outlined in the literature for complex health behaviour change interventions (Arain et al., 2010). The MRC recognises the key role that pilot studies play when 'Developing and Evaluating Complex Interventions.' Understanding the context and conceptualising problems at this development stage can be achieved through the process evaluation of such complex interventions (Arain et al., 2010; Moore et al., 2015). According to the MRC framework, the

piloting phase following the design of an intervention may present as a vital stage in understanding its feasibility and effectiveness (Craig et al., 2008; Craig & Petticrew, 2013).

As mentioned in the literature review, peer education programmes and health interventions have successfully trained adolescents to become peer leaders or educators to deliver a health message to their peers (Parkin & McKeganey, 2000). Qualitative studies have emphasised the positive impact that adolescent peer led health programmes have on increasing participants' self-esteem and overall well-being during and after this stage of life (Bell et al., 2017; Carlin et al., 2018; Corder et al., 2020; Rose-Clarke et al., 2019; Story et al., 2002). Furthermore, the peer-led approach can be more cost effective than the professional delivery of health programmes (Medley et al., 2009) and can provide access to often hard to reach groups, including those from marginalised communities who may not traditionally engage in health programmes or initiatives (Bonevski et al., 2014; Medley et al., 2009; Yancey et al., 2006).

Training peer educators is a key factor for intervention effectiveness and can impact the sustainability of an intervention. It has been suggested that recruiting appropriate educators or mentors, training them to acquire the necessary skills to deliver the intervention, and providing ongoing training ensures that educators are supported in their role throughout the intervention process (Gorely et al., 2019). The successful implementation of peer support initiatives and programmes has been found to increase positive health behaviour change and to foster feelings of relatedness between peers (Niemic & Ryan, 2009). The literature has also noted when peer education fails in research (Walker & Avis, 1999). Furthermore, establishing confidence amongst peer educators in their role following training is extremely important and considered vital for effective intervention implementation. Previous pilot and feasibility studies evaluated training through the experiences of peer educators in their role. The results recommended adaptations to training including greater levels of interactivity and continued training throughout the intervention process (Melson et al., 2017; Sebire et al., 2016; Story et al., 2002).

Pilot studies have also investigated the effectiveness of training through qualitative methods, informing the implementation of larger studies. Sebire et al. (2019) conducted focus groups with peer educators to understand their experiences of participating in training. These results were also supported with the trainers' experience of training adolescents as peer educators. Findings informed refinements to training to enhance the peer educators experience and to adopt methods that increased participant focus. Suggestions included incorporating outdoor breaks to increase participant engagement, moving activities in the morning to sustain educator attention, teamwork exercises, adapting terminology to an

adolescent audience and a focus on the challenges that peer supporters experienced in their role (Sebire, Banfield, Campbell, et al., 2019). Another study that evaluated the educator's role and their experience of training in a smoking prevention programme was captured in focus groups, interviews, and activity diaries following training. Modifications to the larger trial included adjusting methods of peer educator selection and the process of recruitment. Furthermore, it was recommended that training incorporate a greater number of games, extend the length of training, and provide continued training support throughout the intervention (Melson et al., 2017). This also accords with our earlier studies evaluating youth peer led health interventions. Recommendations include adopting approaches that are autonomy-supportive, incorporate interactive activities, promote active learning and which are led through discussion with adolescent educators. This approach to training peer educators is believed to be the most acceptable and desirable approach to learning (Ochieng, 2003; Sebire, Banfield, Campbell, et al., 2019; Sebire et al., 2016; Su & Reeve, 2011).

Process evaluations investigate key components in complex health behaviour change interventions and have informed and adapted peer led interventions that have sought to change health risk behaviours. The ASSIST smoking prevention programme has been adapted based on its effective training model and implementation process (Campbell et al., 2008). It has also been adapted for programmes to prevent drug use (Hawkins et al., 2017) and obesity (Bell et al., 2017) where both interventions have drawn upon key insights from the evaluation of successful training and intervention implementation. The ASSIST smoking prevention programme sought to skill adolescents with communication techniques through incorporating a variety of activities such as role plays, games, small group work and group discussion during training (Campbell et al., 2008). Similarly, both the AHEAD and PLAN-A intervention incorporated training activities to practice their techniques, to increase their confidence and build their competency of skills in their role as educators (Bell et al., 2017; Sebire, Banfield, Campbell, et al., 2019).

Activities such as role plays and creating opportunities for interactive learning through shared experiences and open discussion are considered important in peer led training programmes. A qualitative study conducted by Frantz (2015) sought to understand peer educator experiences at the training stage so they could actively engage them in the evaluation process of the intervention. Both role plays and shared experiences were identified as crucial for participant engagement. These activities were considered to create opportunities to enhance skills learnt by educators and to facilitate confidence in their role (Frantz, 2015). Similarly, the GoActive programme captured the experiences of peer educators through focus groups in the pilot stage of the intervention. Suggested improvements included teacher

participation in training so that they could develop a greater understanding of the peer educator role, improvements to training and a greater level of support for educators by way of mentoring throughout the intervention process (Corder et al., 2016).

Process evaluations have also been conducted to evaluate adaptations on previously conducted trials (Bell et al., 2017; Campbell et al., 2008; White et al., 2017) and the pilot study can investigate key uncertainties that the intervention design may encounter in recruitment and retention rates of peer leaders. Health promotion interventions and initiatives often encounter challenges in the recruitment and retention of hard-to-reach populations (Bonevski et al., 2014; Yancey et al., 2006). A review of the literature exploring these challenges and barriers have highlighted the positive impact that peer support programmes can have on population health promotion. Peer-led approaches are an effective method as they can increase trust, respect, flexibility, user involvement and partnerships within communities (Sokol & Fisher, 2016). In the GoActive feasibility and pilot cluster RCT, recruitment and consent were evaluated during the implementation of the intervention. The study observed high student recruitment rates in the feasibility (78%) and pilot trial (77%) and in obtaining consent but encountered difficulty in recruiting peer mentors. It was suggested that continued engagement and communication between researchers and the teaching staff was required throughout the intervention process to support clarity on the research process (Corder et al., 2016).

Assessing the effectiveness of recruitment strategies is a commonly investigated component of behaviour change interventions particularly among hard-to-reach groups, or for those who seek to engage participants in sensitive intervention content such as that outlined in the HIV literature (Alvarez et al., 2006; Johnston & Sabin, 2010; Platt et al., 2006). Pilot study recruitment is often initially dependent on gatekeepers' acceptance and the relevance they apply to the programme for the intended group (Anderson et al., 2014). Recruitment approaches have adopted several different strategies to engage adolescent participants to deliver a health message to their peers. These strategies include self-nomination, peer nomination and teacher led peer educator nomination amongst others (Audrey et al., 2006; Mercken et al., 2012). A process evaluation conducted on the ASSIST trial found the peer nomination method of recruitment to be a strength of the study. Students completed a questionnaire identifying those peers who were most influential within their year (Year 8). Those nominated students were invited to attend training and deliver the health message informally to their peers (Audrey et al., 2006). The AHEAD programme, adapted from the ASSIST model, adopted a similar recruitment approach, and reported a high recruitment and retention rate of adolescent peer supporters (Bell et al., 2017). Adopting this

approach of recruiting influential students, nominated by their peers has been discussed in adolescent health behaviour change research to increase physical activity, drug prevention, and sex health programmes (Corder et al., 2016; Hawkins et al., 2017; Mitchell et al., 2020).

Evaluating methods of recruitment and assessing its acceptability at the exploratory stage can enhance recruitment efforts at larger scale trials. Improvements of peer mentors' recruitment were identified at the pilot phase of the GoActive study. A key component identified in the recruitment and retention of educators was to provide clarity on their role and the expectations of them during the intervention process (Corder et al., 2016). Evaluating recruitment methods during the pilot stage can also assess fidelity to the programme. Melson et al. (2017) outlined their peer supporter selection and recruitment process over two stages of the smoking prevention programme. Peer supporters were firstly nominated by their classmates and were also assessed on their willingness to participate as a peer supporter before progressing to training. The evaluation of this pilot study highlighted issues with recruitment fidelity as a teacher nomination approach was adopted instead in the intervention (Melson et al., 2017). Respondent driven sampling is also a method of recruitment that can yield high participation rates and representativeness of participants may be influenced by the demographic of the recruiter. This was found in a pilot study exploring alcohol use with religiosity among Muslim undergraduate U.S. college students, recruitment rates were good but the influence that educators had on recruitment led to participant sampling selection bias. Participants who reported low levels of alcohol use were believed to be more likely to align with peers who had similar attitudes and beliefs towards certain health behaviours (Arfken et al., 2013).

The GoActive pilot study assessed the acceptability, feasibility of recruitment, randomisation, and measurement of participants to increase their PA (Corder et al., 2016). While other studies such as the Sexually Transmitted Infections And Sexual Health (STASH) adolescent peer led study, assessed the feasibility and acceptability of the intervention through participant quantitative (questionnaire) and qualitative (focus groups) at the pilot stage of the intervention before the main trial. Training, retention, and attendance of participants through questionnaires, observations and interviews provided feedback on the intervention's feasibility and acceptance (Maheux et al., 2020). Conducting these exploratory trials provide insight into whether a programme is acceptable for a targeted group. One pilot study that provided a brief alcohol intervention evaluated its short-term effectiveness in four group-based alcohol intervention programmes. Piloting this brief intervention captured the motivation for highly ambivalent adolescents to change their behaviour and the readiness to change behaviour scores, were discussed as clinically important for the acceptance,

participation, and motivation for participants to change adolescent drinking behaviour. The youth organisations were found to promote a relaxed, safe place for discussion and to build participants' knowledge on their alcohol consumption behaviour (Bailey et al., 2004). While another study's' evaluation sought to understand the feasibility and acceptability of receiving a BI for alcohol consumption in a school setting (O'Neil et al., 2012).

The acceptability of a programme for a specific group can also be captured during evaluation. The Girls health Enrichment Multisite Studies (GEMS) study, piloted in Minnesota in an after-school obesity prevention programme assessed strategies used for recruitment, the effectiveness and acceptance of programme and maintenance of behaviour change at a 12 week follow up post intervention. Although there were no differences recorded in BMI between the control and intervention groups, high rates of participation in the programme demonstrated participant acceptance of the intervention (Story et al., 2002). This was also demonstrated in the Healthy Choices programme whereby the programme was not found to impact upon changes in PA but captured participants' increased motivation to engage in healthy eating (MacDonell et al., 2012). Assessing estimations on the variance of outcomes for the sample sizes who participate in pilot studies generate insights into the feasibility and acceptability of conducting larger scale studies and the effectiveness of a behaviour change intervention.

5.3 Methods.

5.3.1 Design.

Focus groups are described as guided discussions with a small group of people sharing a common characteristic on the topic of interest (Morgan, 1996; Morgan & Krueger, 1998). They can bring about unique insights into a research question and provide an understanding based on the shared experiences of a group (Heary & Hennessy, 2002). Establishing this line of enquiry into a topic can provide an understanding on the different perspectives held by participants, particularly amongst those who are marginalised. This is thought to be an acceptable approach among adolescents as it places a value on the young person's opinions and views (Campbell & MacPhail, 2002; Morgan, 1996). Focus groups can also provide ecologically valid insight into the participants' views and opinions. The design stage of a process evaluation is a crucial time to explore key uncertainties, to define intervention development content and to ensure its relevance to the targeted group. Engaging participants who represent the targeted group at this stage can lead to key refinements before a larger trial is conducted (Craig & Petticrew, 2013; Montgomery et al., 2008). Focus groups have been conducted at the piloting stage of a process evaluation using basic quantitative measures in

combination with in-depth qualitative data to generate an understanding on the acceptability, maintenance, uptake, and dose of an intervention (Moore et al., 2015).

Due to the collaborative nature that focus groups bring about, they were considered to be more useful than one-to-one interviews for the exploratory investigation of the pilot study (Heary & Hennessy, 2002; Horner, 2000). Adolescents who participate in focus groups engage in a supportive atmosphere and there is a reduced pressure for respondents to engage than in one-to-one conversation. It also supports an informal conversational style between the participant and the moderator (Vaughn et al., 1996). Furthermore, gathering the views and opinions of adolescents, presents them as experts in the research process and reduces the power differential between the researcher and participant (Loftin et al., 2009). Focus groups facilitated the investigation for the engagement of peer educators to implement the intervention among a larger population in the MI study. Furthermore, key components including fidelity, dose, and reach can be assessed during this part of the process evaluation where refinements can be made at piloting stage to reduce uncertainties and to understand the mechanisms under which they occur (Craig et al., 2008; Craig & Petticrew, 2013; Moore et al., 2015).

Guidelines vary on participant numbers that constitute a focus group (Then et al., 2014). Variations in sample sizes are often dependent on a number of factors including practical constraints, the study design, and the accessibility of the topic under discussion (Carlsen & Glenton, 2011; Morse, 2015). Conducting the focus group in a familiar setting can promote a sense of group confidence and contribute to discussion (Horner, 2000). Although this is difficult to define, as there is no empirical evidence to support the level of group choice, guidelines specify the inclusion of no less than two groups for each defining demographic characteristic. Alternatively, reaching “the point in data collection and analysis when new information produces little or no change to the codebook”, is considered the gold standard of data saturation. These guidelines recommend three to six focus groups to achieve saturation (Guest et al., 2017), while other recommendations suggest that engaging fewer participants improves the quality of data (Guest et al., 2017; Morse, 2015). Adopting a balance of the two approaches is suggested to provide both quality and quantity of data when conducting analysis (Carlsen & Glenton, 2011). The MI pilot study sought to understand the experiences of all peer educators who received training and their experience of implementing the MI intervention. The pilot stage provided a method to evaluate the MI intervention process before progressing to the larger exploratory study. Eight peer educators participated in MI training and six of those delivered the MI intervention to their peers. As such there was a limited number of participants who could contribute to the data collection. However, the exploratory

stage provided themes that were consistent across groups during data collection, and which supported participant contribution to the research process (Morse, 2015).

One focus group and three small group semi-structured interviews were conducted to explore the experiences of adolescent peer educators. Two stages of investigation were conducted to understand the peer educator's perspective of engaging in the MI pilot study process. The first stage sought peer educators' perspectives in an interactive group setting on the research topic of the effectiveness and acceptability of MI training received. At this data collection stage, it was anticipated that one large focus group be conducted; however, the study encountered difficulty in scheduling all participants from two youth organisations to attend one focus group. Instead, one focus group ($n=6$) and one small group semi-structured interview ($n=3$) were conducted with adolescent participants one week following their participation in MI training in their respective youth organisations (YO1 & 2). The second stage of the pilot data collection process explored participants' experiences of implementing the MI intervention with their peers in two small group based semi-structured interviews. Both stages sought to address the key uncertainties of the study's design during the pilot stage. These approaches to data collection during this exploratory stage of the intervention process supported the ability for participants to elaborate on their ideas and thoughts which were based on their collective experience of training together. Interview questions aimed to explore the experiences of peer educators and to understand; (1) their views on MI training, (2) acceptability of the training content; and (3) their perceived ability to deliver MI to their peers following training. The second phase sought to understand the peer educators' views and opinions during the MI intervention process in two small group based semi-structured interviews. These interviews were conducted one week following their delivery of the MI intervention to their peers. This data collection aimed to capture, (1) the experience of the peer-educator in their role; (2) strategies that they used to support their peers during MI sessions; and (3) challenges and successes that they encountered during the MI process. Opportunities were given to elaborate on any related themes or questions presented and the groups were audio recorded and transcribed before being coded.

5.3.2 Participants.

Nine peer educators who trained in MI participated in the first phase of data collection. One focus group ($n=6$) was conducted with peer educators from one youth organisation (YO2) composed of all male participants. A small group semi-structured interview was conducted with peer educators ($n=3$) in the second youth organisation (YO1) composed of female participants. Peer educators were aged between 15 to 17 years ($M=15.63$, $SD=1.32$). The focus group and semi-structured group-based interview were conducted one week

following the educator's attendance in one and a half days MI training. MI training was delivered by health service executive (HSE) professionals hosted in one of the youth organisations (YO1). The second stage of data collection was conducted with six peer educators aged ($M = 15.83$, $SD = 0.98$), three of whom were male and three female. Two small group based semi-structured interviews were conducted one week following the peer educators' delivery of 5 MI sessions to their peers. Participation in the study was on a voluntary basis.

The first stage of the data collection explored the peer educators' experiences of attending MI training and the second stage sought to understand their experiences of implementing the MI intervention. Qualitative data was collected over both stages. Data on ethnicity or socioeconomic status was not formally collected and all participants were Caucasian and Irish. Both youth organisations were situated in disadvantaged (YO1) or very disadvantaged areas (YO2) according to the Pobal deprivation index (Maynooth University, 2016). Although respondents answered all questions and provided key insights to understand design uncertainties, the answers were short and did not expand in detail on the topic investigated.

5.3.3 Intervention implementation

All peer educators participated in the intervention for the duration of the pilot study. Two peer educators (PE3 & 5) missed one week of MI sessions due to illness and three (PE2-4 & 6) delivered MI sessions to their peers over five weeks of sessions with some recipient absence. According to educators' self-reported length of MI sessions, the average time of MI sessions was 8 minutes with the longest session being twenty minutes and the shortest five minutes. Recipient choice of health risk behaviours included alcohol ($n=14$), smoking ($n=4$) and physical activity ($n=12$). Thirty peer recipients (15M; 15F) participated in MI sessions. Male peer educators (PE4-6) who delivered MI sessions in YO2 delivered the intervention to thirteen male and two female recipients. Female peer educators (PE1-3) from YO1, delivered MI sessions to thirteen female and two male recipients. Most peer educators recruited and delivered MI sessions to peers of the same gender. Table 5.1 provide details of MI participants, duration of MI session and choices of the health risk behaviours.

Table 5.1*Composition and Duration of Peer Led MI Intervention.*

PE	YO	MI sessions (n=)	Average Length of MI Session (min.)	Alcohol (n=14)	Smoking (n=4)	Physical Activity	PR
1	1	21	10	3	0	2	5
2		25	11.4	0	3	2	5
3		19	14.25	1	1	3	5
4	2	25	10.5	4	0	1	5
5		19	8	3	0	2	5
6		24	8.4	3	0	2	5

Note: Abbreviations –Peer recipient (PR), Peer educator (PE), Youth organisation (YO), Motivational Interviewing (MI).

5.3.4 Materials.

Focus group and small group semi-structured interviews were audio recorded using an iPhone 6 and qualitative analysis software, MAXQDA (Version 2018.1) was used to analyse the data. Audio files were transcribed verbatim and anonymised. Researchers are assisted in their ability to conduct thematic analysis using the MAXQDA software. This tool provides the ability to develop codes and for the codes to be reviewed and modified by the other researchers. The focus group and semi-structured interviews for both stages of the pilot study used interview schedules guided by six main questions for training and ten main questions for intervention implementation:

Stage 1: Training

1. How did you find the training that you did last week?
2. What did you feel was the best or worst aspect of the training?
3. Do you feel now that you know what MI is?
4. Do you now feel confident to deliver MI to your peers over the next 6 weeks?
5. What do you most remember from the training that you did?
6. What did you feel about the length of training?

Stage 2: Intervention implementation

1. What did you think of the programme?
2. Tell me about your experience in delivering MI to your peers.

3. What were the greatest challenges you encountered in participating in the study?
4. What were the positives you encountered in participating in the study?
5. Any suggestions for changes to be made to the programme?
6. Do you think that you had any impact on your peer's behaviour that they identified as wanting to change?
7. Do you have any views on Motivational Interviewing as a way through which young people can work with each other?
8. Do you feel that your confidence has grown now in delivering MI?
9. Is there anything that you feel could be done to make you better at MI?
10. Do you have any other comments that you would like to add about your experiences in being a part of this study?

5.3.5 Procedure.

The study received ethical approval from the School of Psychology Research Ethics Committee, Trinity College Dublin (Appendix A). Youth workers who participated in the stakeholder data collection (see chapter 4) were invited to participate in the pilot study. Youth workers presented the MI intervention to service users to assert their interest in participating in the pilot study. The researcher was invited to the youth organisation to present the research topic to the youth organisation service users formally. On agreement to participate, participants who expressed an interest to become peer educators were randomly selected to attend training and deliver the MI intervention to their peers. All peer educators completed consent forms and provided parental consent to participate in the pilot study and to contribute their experiences in the focus group or small group semi-structured interview. Focus group/interviews were conducted in youth organisations (YO1-2) on an evening when participants accessed the service to attend their scheduled club night. Participants were briefed on the aims of the data collection process, their rights as participants in the process and protection procedures for the use of data were provided both in writing and verbally (see Appendix D). Participants' right to withdraw from the study and measures taken to protect confidentiality were outlined at this stage. Written consent was obtained from participants and their parents before they participated in the audio recorded focus groups (see Appendix D). Discussion was guided by questions that sought to understand the peer educators experience of participating in the pilot study and to encourage open discussion between participants. The questions guided conversation and participants were encouraged to elaborate on points which emerged during discussion. All participants were provided with the opportunity to contribute, and quieter members of the group were encouraged to share their views on their experiences (Krueger & Casey, 2014). Focus groups and interviews lasted

between 11-35 minutes. Two stages of investigation were conducted to explore all parts of the intervention process, with an emphasis placed on what did and did not work well to identify key areas of the intervention process for potential refinement. It was originally anticipated that two focus groups would be conducted to evaluate: stage 1 training, and stage 2 the implementation of the intervention. However, the study encountered difficulty in merging all participants from the two youth organisations to facilitate this qualitative approach. Instead, the experiences of adolescent participants were discussed in one focus group and three small group interviews to gain feedback for each stage of the pilot study process. The first stage of data collection sought the peer educators' perspectives on the effectiveness and acceptability of MI training received. The second stage explored their experiences of participating in the process of implementing the MI intervention. The composition and duration of peer-to-peer MI intervention are outlined in Table 5.1.

5.3.6 Data analysis.

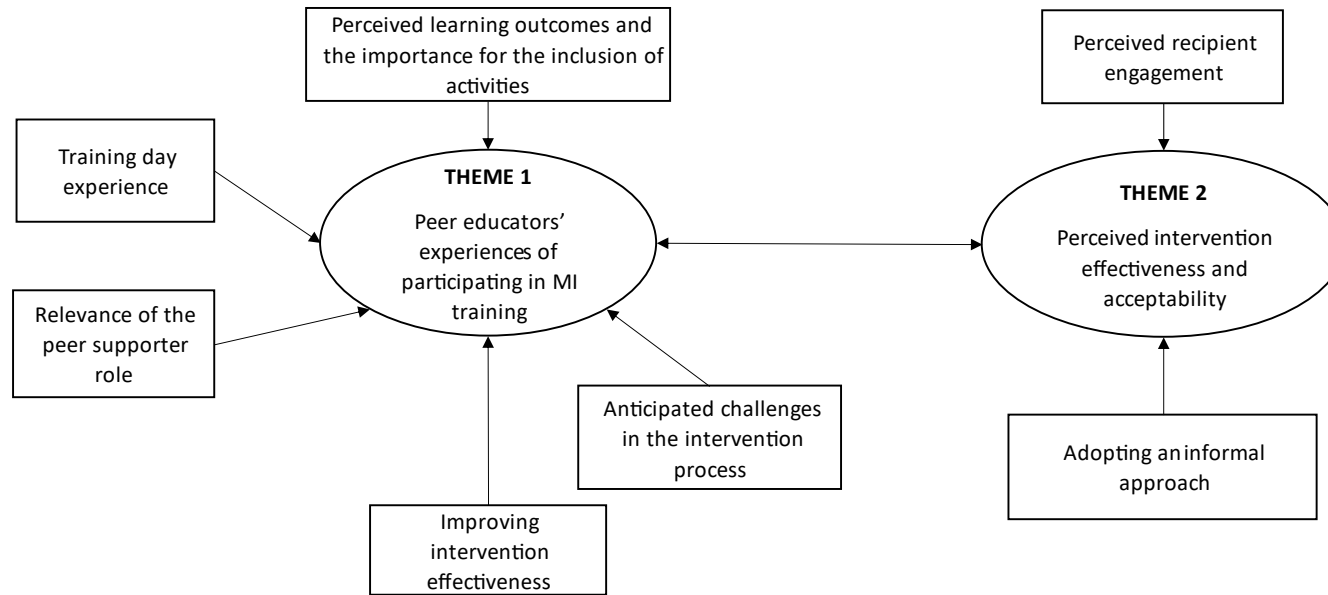
The focus group and small group semi-structured interviews were transcribed verbatim by the primary researcher. Data was analysed using Braun and Clarke's (2006) six phase procedure guide to data analysis, as outlined in the methods section of the stakeholder interviews (chapter 4). This was considered an appropriate method of analysis as it supported the ability to take an inductive approach to describe and organise the dataset in rich detail. Codes were developed according to two research questions, and which guided data extracts for inclusion. The two questions sought to understand; (1) What were the peer educators' experiences of participating in MI training and (2) What was their experience of delivering the MI intervention to their peers? Data extracts were considered by both researchers and the principal investigator reviewed the quotes according to their relevance to the research questions. Consideration for inclusion of quotes were based on how appropriate and range of extracts were in their portrayal of the conceptual ideas in each theme. Similar careful consideration was applied to the process of knowledge construction and influence that the researchers had during the data analysis process (Levitt et al., 2018).

5.4 Results.

The thematic map displayed in Figure 5.1, outlines the two themes that were identified through both deductive and inductive approaches. The intervention's acceptability, implementation and other key components were addressed through deductive codes. While inductive codes from the corpus data emerged based on expressions from peer educators on their experiences of delivering to their peers. The first theme described the effectiveness of training and peer educators' perceived ability to engage in the MI intervention based on training received. The second theme described the peer educator's participation in delivering the MI intervention to their peers.

Figure 5.1

Thematic Map illustrating two main themes and subthemes- Pilot Study.



Note. Themes are presented in circles; subthemes are presented in rectangles. Arrows represent how themes/subthemes relate to each other.

5.4.1 Theme 1: Stage 1 - Peer educators' experience of participating in MI training.

The feasibility and acceptability of training was examined from the perspectives of peer educators who participated in one and a half days of training. Training was evaluated based on the experiences of participants who discussed the length, content, and delivery of training before they implemented the MI pilot study with their peers.

Subtheme 1: The training day experience.

Some peer educators described training as a “fun” experience. However, educators recommended that training be more interactive and incorporate a greater number of activities to increase their skills and to support them in building confidence in their role as educators.

Interviewer: Do you have any other views or ideas about training?

PE5: “Just again a bit more active stuff and like so they [trainers] don't lose them [educators] or get bored or that type of thing. Like to make them want to do it [MI] more!”

PE4: “Educate them [educators] on the first day and like practice more on the second day.” [Group 2]

Subtheme 2: Perceived learning outcomes and the importance for the inclusion of activities.

Peer educators agreed that including more activities into training would provide them with a greater amount of time to develop MI skills and to practice these skills before they delivered the intervention to their peers. Some suggested that more activities were required, while others believed that the content and activities were sufficient. Creating more time to practice MI skills was discussed as an opportunity for peer educators to increase their confidence and proficiency in delivering MI sessions.

PE4: “Yeah, I thought it [training] would be better... [be]cause like we learnt a lot but we did do it [MI session practice] at the end for like 5-10 minutes, where we talked to each other, but I think we could have done more of that [MI session practice], [be]cause that's what we are actually going to be doing.” [Group 2]

PE2: “Emm, yeah [be]cause we did a lot of practice during the training. It helped us get a better understanding of motivational interviewing and the guidelines and questionnaires that we have to use.” [Group 1]

Peer educators were provided with information on the risks associated with engaging in the health risk behaviours targeted for change. This knowledge was considered useful and provided educators with accurate information on the risks associated with smoking, alcohol consumption and sedentary behaviour, which they believed would be useful to them in their role as an educator.

PE3: "I thought it very helpful learning all the tips on how to cut down on smoking and all the bad habits in addiction." [Group 1]

Learning outcomes included an increased awareness on the risks of engaging in the health risk behaviours, the main principles of MI and developing MI skills through their engagement in activities during training. Understanding the main MI concepts supported and guided peer educators in the role that they would have when interacting with peer recipients during MI sessions.

PE1: "I remember that like you can't change a person, you know, you just have to listen to them and encourage them to change, but you actually can't change them." [Group 1]

Activities incorporated into training captured participants' enthusiasm and attention. One such activity explored the educators' response to receiving and giving support through their participation in a role play. This activity highlighted limitations within their role as a peer educator to influence change in behaviour when interacting with their peers. It also reinforced the purpose of their role as an educator to support the participant in their decision-making process. Peer educators discussed the inclusion of activities as extremely important for them to practice their MI skills and to understand the MI concepts introduced to them during training. However, it was repeatedly cited that they required more of these opportunities during training.

PE3: "When we were doing the match sticks [activity], like. When people [PE] were kind of making you feel bad, like you just wanted to give up [interaction]. When they knocked down the matches. But when they [PE] were telling you positive things, like it makes you feel better."

5.4.2 Theme 2: Stage 2- Perceived intervention effectiveness and acceptability.

The intervention process required that peer educators recruit, collect consent, schedule MI sessions, administer self-report measures and deliver five MI sessions to recipients. Their experiences of implementing the MI intervention in their youth service was discussed.

Subtheme 1: Anticipated challenges in the intervention process.

The main concern for peer educators was their ability to recruit participants following training. Recruiting recipients relied heavily upon peer acceptance of the MI intervention and that the programme would be considered useful for recipients to engage in. Furthermore, the anticipated challenge of retaining peer recipients was discussed as reliant on recipients' continued interest throughout the MI process. If the interest of recipients was not sustained, retention would be difficult to achieve.

PE6: "Just hoping that people [participants] will come like that they show up. [Be]cause if you work hard to get those people [participants] and they just don't show up the next day, that will be hard." [Group 4]

Establishing a rapport with participants was discussed as something that was initially difficult, but which strengthened over time in the intervention. Peer educators described the recipient engagement as becoming less awkward as the MI process progressed.

PE3: "At first it [MI sessions] could be a bit awkward, but like, if we have five weeks to get like, more comfortable with the people [participants] we are talking to and get like, to know them more." [Group 3]

Subtheme 2: Relevance of the peer supporter role

Peer educators indicated that their confidence increased in the skills that they had learnt during training over successive MI sessions delivered to their peers. Training provided them with the knowledge and skills that they needed to engage with recipients. However, some expressed difficulty in sustaining conversation with recipients during MI sessions.

PE1: "[Be]cause when we were asking them [recipients] questions we [educators] were also educating them, like about the facts and stuff, that we've learnt, so it was helpful." [Group 3]

PE6: "There was em, bits [MI session] that were hard, like throughout it, like em, trying task ask different questions [to PR during MI sessions] and all that, throughout the program." [Group 4]

MI was considered a useful skill; however, some peer educators found it challenging to conduct the meetings over five MI sessions. There was a strong appreciation for the peer led approach, but they believed that they required further support to effectively deliver the intervention to their peers. They expressed difficulty in communicating with recipients and to sustain their attention for longer than ten minutes. Some recipients displayed a greater motivation to participate in MI sessions and peer educators discussed the difficulty in generating conversation.

PE4: "It's a really good idea [MI intervention] and, you know it has good meaning to it, but you do run out of things to talk about, you know every week." [Group 4]

One peer educator described the greatest challenge in delivering the MI intervention was encouraging continued engagement of some recipients in the programme.

PE1: "The biggest challenge was getting them to come every week I think." [Group 3]

Subtheme 3: Perceived recipient engagement.

Recipients were recruited following peer educators' delivery of an information session hosted in their youth organisations for service users outlining the purpose of the intervention. Educators believed that some participants volunteered because their friends did so and these participants were considered difficult to work with, as they displayed varying degrees of motivation to change behaviours.

PE4: "Some people [recipients] were good [committed to MI sessions], others weren't that good." [Group 4]

The recipients who displayed high levels of motivation to change their behaviour discussed their efforts to change their behaviour during their interaction with educators in MI sessions. educators recognised that others did not display the same interest or motivation to change their behaviour.

PE6: "It depends on the person really. Some [recipients] take it more seriously than others like. Some were actually, like what do I say, were dedicated to it. Some actually did dedicate themselves to like reducing their smoking a lot." [Group 4]

Peer educators noted that those recipients who participated to increase their physical activity displayed a desire to change their behaviour and this was reflected in discussion during MI sessions.

PE6: "they've [recipients] eh, gotten into basketball and all that, and one doing the gym and the other is doing basketball, and they're lifestyle is after increasing a lot" [Group 4]

Smoking tobacco was also targeted for change by one third of participants and peer educators indicated that some also reported to smoke cannabis. Those recipients who engaged for smoking cessation reduced their tobacco use and displayed their motivation do so during discussion in MI. However, peer educators also noted that others appeared disinterested in cessation.

PE5: "Some [recipients] actually did dedicate themselves to like reducing their smoking a lot."

PE6: "They're [recipients] saying they are trying to; they're smoking weed and they're smoking tobacco as well, but they're trying to get off the tobacco and then get off the weed." [Group 4]

The peer led approach was considered a good approach to working with this age group, when comparisons were made to previously engaged harm reduction programmes. They believed that adolescents did not engage with the same level of interest in adult led programmes. Additionally, the content previously delivered in the programmes did not provide enough details on the harms associated with engaging in these behaviours. Harm reduction programmes were believed to target early adolescent groups, which was considered to be the wrong time and consequently irrelevant. These programmes were considered ineffective as they were believed to scare young people and did not prevent them from engaging in health risk behaviours. Conversely it was believed that educating adolescents on the harms associated with tobacco use would be more effective.

PE3: "You do it [harm reduction] in first year and all but don't do it after that. you're more likely to start smoking, like not in first year, like older but they only do it in first year, like in my school they do."

PE1: "At least they [recipients] know the effects from talking to them [peer educator]."

PE2: "So at least they [recipients] actually know 100% everything, they know it's bad for you, but they don't actually know what it [health risk behaviour] actually does you know."

PE3: "It's like weed you know, everyone [peers] knows it's bad for you but we [adolescents] don't know what it actually does." [Group 3]

Some educators described the challenges of delivering MI to their peers. Recipients in these cases were considered to not take MI sessions seriously and educators described these MI sessions as distracting. Another youth organisation [YO1] delivered MI sessions to pairs of recipients. Peer educators who delivered MI sessions to recipients in pairs suggested that this approach was more beneficial than one-to-one. These sessions provided opportunity for the participants to engage more freely, and they believed were less intimidating for participants to engage in the MI sessions. Peer educators who shared a space in the youth organisation [YO2] expressed a desire to deliver the MI sessions to their peers in a private room, without distraction of others in the youth organisation.

PE6: "I think it [MI sessions] should be maybe one interviewer in with one person at a time, [be]cause some, a lot of them do mess with each other, and then they're not getting anything out of it." [Group 4]

Some peer educators expressed a desire to deliver MI sessions to recipients who they did not know as it was suggested this would foster a greater level of respect displayed for them in their role. It was believed that the familiarity in some instances between peers reduced the capacity for educators to be taken seriously. Furthermore, it was suggested that the reductions in some instances for the health risk behaviours that were discussed in MI sessions did not correspond with the behaviours observed by educators during their social engagements outside of the youth organisation.

PE4: “I’d rather do that, that we done [did] it with people [recipients] we don’t know. [Be]cause like we know a couple of them [recipients] and we know what they’re lifestyle [health risk behaviours] is like. I think that it’d be more interesting if we did not know the person [recipients] at all.... maybe, none of us [educators] would find it as awkward with others [participants] that we don’t know.” [Group 4]

Other peer educators believed that participants were more open based on the familiarity that existed between peers. However, this familiarity was discussed as being due to peers attending the same youth organisation and not through established friendships.

PE2: “and were more open, [be]cause they [recipients] actually knew us [educators] to see and that...” [Group 3]

Peer educators expressed a sense of pride in participating in the MI intervention and completing the intervention process. They enjoyed participating in the peer led programme as it provided a purpose of engagement and promoted health and well-being. One peer educator noted that she was different, because unlike her peer group she did not engage in smoking or drinking behaviours. The peer educators’ participation in the MI intervention presented an opportunity for her to participate in a positive initiative and presented her as a role model amongst her peers.

PE1: “What I enjoyed about it was ... like everybody else [adolescents], well people all our age smoke and all. Like at least like, we’re [peer educators] the ones who...we don’t smoke, ... I don’t feel left out. By me doing this programme [MI intervention] with other people [recipients] it makes me feel normal and happy about myself, if you understand.” [Group 3]

Subtheme 4: Improving intervention effectiveness.

Peer educators reflected on what they felt might further support in them in their role to effectively implement MI with their peers. Training was considered to be a critical time to practice MI skills. Increasing practice time would better equip peer educators with the skills required to deliver the intervention effectively.

PE3: “I think that the training day, I think we should have sat down and actually interviewed people...”

PE1: “Yeah ten minutes [MI session skills], and it was at the very end of what we were actually supposed to be doing for the six weeks.” [Group 3]

Creating opportunities to practice MI with their peers was not believed to have been adequately achieved during training. Although they agreed that they gained a lot of relevant information and knowledge around the risks of engaging in smoking, consuming alcohol and sedentary behaviour, this information could have been built upon through its application in MI practice. Placing an emphasis on developing MI skills in practice they believed would have been more beneficial for the intervention delivery.

PE4: “They [trainers] told us about, they told us like about smoking and everything and the harm it does and like really at the end of the day it’s good knowledge to know. But when we’re in here talking to someone, that’s all you can tell them is that it’s bad for you and this and that. But it doesn’t really help you with interviewing and all that I think.” [Group 4]

Most of the training had equipped educators with a knowledge base on the risks associated with the targeted health risk behaviours. This enhanced their credibility in their role amongst the participants for the information they delivered. However, they would have been further supported in their role through increased MI practice. Educators recommended that weekly prompts or the provision of supporting material to help with discussion with the participants’ behaviour choice would further assist them in guiding MI sessions. The inclusion of a variety of questions for peer educators to use during MI sessions would also support them in their session delivery.

PE6: “It’s quite hard to keep coming up with new stuff [MI session content].”

PE5: “Just the questions, it was quite hard to get, like to talk to people [recipients] for that long.... you’re only asking the same questions and you’re getting a bit bored and they’re getting a bit bored, and it just turns into sitting there and them talking.” [Group 4]

Peer educators also suggested that incentivising recipient participation with food and refreshments would create a positive experience. Hosting the MI sessions on the evenings that the participants usually attended their club night, would also be convenient and encourage greater participation in MI sessions.

PE4: “like that if they come, they’ll get food or something” [Group 4]

5.5 Discussion.

The aim of this pilot study was to understand the peer educators’ experiences of participating in the MI intervention process. Two main phases of the pilot study were examined from the peer educator’s perspective. The first phase sought to evaluate MI training attended by peer educators who participated in one focus group and one small group semi-structured interview. The second phase explored peer educator experiences in two small group semi-structured interviews, following their implementation of the MI intervention as peer educators. Thematic analysis revealed two underlying themes and several sub themes connected to the study’s objectives. The first theme discussed the peer educators’ engagement and acceptance of the MI training, while theme 2 described peer educators experiences of delivering MI to their peers. Qualitative data provided an insight into the MI intervention process including training and intervention implementation. Intervention components including recruitment and retention of participants, challenges encountered in intervention implementation, the appropriateness of a peer led approach for behaviour change and recommendations for changes were provided during this stage of data collection and contributed to intervention refinements in the larger exploratory study (Chapter 6-8).

Theme 1 describes the peer educators experience of participating in MI training adapted for an adolescent population. The emphasis placed on becoming proficient in skills required for intervention delivery during training has been outlined in previous research. The literature on training peer supporters/educators emphasises training as a critical time for intervention effectiveness and which can impact the sustainability of an intervention (Campbell et al., 2008; Corder et al., 2020; Mitchell et al., 2020; White et al., 2017). Participant and trainer focus groups contributions have also recommended that adolescent peer supporter training can be enhanced by incorporating more activities and frequent breaks throughout the day (Sebire, Banfield, Campbell, et al., 2019). These findings are similar to those captured in the qualitative analysis as described by peer educators in the MI study. Peer educators stressed the importance of providing greater opportunities during training for them to develop key communication skills and to practice MI techniques. Providing role play and more opportunities for interactive learning through shared experiences and open discussion have been effective in peer led training programmes. Frantz (2015) sought peer educator views through focus groups gaining feedback on training which highlighted the importance

of providing peer educators with the opportunity to contribute and actively engage in the training process. Role plays and shared experiences reinforced familiarity with the training content in addition to creating opportunities to practice skills learnt and to become more confident in their role (Frantz, 2015).

Follow up training sessions can also provide peer educators with the opportunity to further consolidate their knowledge and to present them with a chance to practice their communication skills and interaction with recipients (Bell et al., 2017; Campbell et al., 2008; Sebire, Banfield, Campbell, et al., 2019). Additional training has been recognised as a key factor to support educators in their role in peer led health behaviour change interventions. The PLAN-A peer led health intervention provided two days training and a follow up training session to peer mentors, to support their continued skills development and implementation of the peer led study (Sebire, Banfield, Jago, et al., 2019). Similarly, training in the Talk to FRANK peer led drug prevention programme emphasised the importance of peer educators participating in follow up training as captured in their focus groups. Additional training provided peer supporters with the chance to enhance their communication skills which then interacted with their peers (White et al., 2017).

Conducting an evaluation of training can provide the research process with the peer educator perspective on training effectiveness (Mellanby et al., 2000; Mitchell et al., 2007; Story et al., 2002; White et al., 2017). In the current MI pilot study peer educators expressed mixed experiences following training. Some described training as fun while others thought it was too long and boring. Similar reports were observed in the TEENS study, which highlighted training as a crucial time for the successful implementation of the behaviour change intervention. Following a comprehensive day of training most adolescents (80%) reported to be confident in their role; however, almost half of them agreed that additional training would be beneficial to them, and some of the participants reported that the training day was too long (Story et al., 2002). Conducting a process evaluation of a peer led intervention can highlight the efficacy of different components including key insights captured during training. This provides researchers with the ability to apply flexibility and to make refinements to trials for larger participant groups.

Peer educators reported to struggle to initiate conversations with some recipients during their delivery of MI sessions. Similar challenges were reported by peer supporters during focus groups carried out in the ASSIST and PLAN-A interventions which sought to understand the peer supporter's perspective (Campbell et al., 2008; Sebire, Banfield, Jago, et al., 2019). Tailoring training to increase the number of role plays, opportunities to engage in discussion-led and active learning have been reported across studies to enhance the adolescent

peer leader experience. Follow up training has been reported to support the adolescent in their role as educator when interacting with their peers (Melson et al., 2017; White et al., 2017). Additionally, peer supporters in the FRANK+ friends drugs prevention programme found that conversation initiation was aided through peer supporters' possession of useful and memorable facts to share with their peers (Hawkins et al., 2017).

The second theme explored the peer educators' experiences of implementing the pilot study in their youth organisation following training. Peer educators discussed their initial anticipation on the challenges of recruiting peer recipients which was reliant on the acceptance of the MI intervention among their peer groups. Similarly, peer educators discussed their ability to deliver the health message to their peers effectively based on the training received. Discussion on the implementation of the intervention with their peers in the youth organisation highlighted varying components which both supported and hindered them in their role. Finally, peer educators generated feedback on the challenges and barriers encountered through their participation in the pilot study.

MI peer educators' views on the peer led approach reflect those outlined in previous research in peer promotion. The literature suggests that peers communicate better with adolescents than older adults and are perceived to be a more credible source of information when doing so (Turner, 1999). Establishing the credibility within their role as educators can provide access to hard-to-reach groups, including those from marginalised communities and adolescent populations who may not engage in health programmes or initiatives (Bonevski et al., 2014; Medley et al., 2009). Consistent with the literature there were initial concerns expressed for the recruitment and retention of recipients. Qualitative findings in peer led studies have reported the fears of young people who have trained as educators in their expectation of potential adverse reactions from their peers (Sebire, Banfield, Campbell, et al., 2019). However, in most studies this does not appear to impact the desire for peer educators or supporters to participate in a leading role for peer health promotion. Numerous studies have conducted process evaluations on piloting and feasibility trials noting the strength in peer supporter/educators' recruitment outcomes through self-nomination and peer nomination methods (Audrey et al., 2006; Mercken et al., 2012). Similarly, high rates of participation in peer led programmes have emphasised the acceptance of implementing such approaches amongst both peer educators and participants who receive the intervention (Story et al., 2002). Challenges have also been reported in recruiting peer educators in the literature. An evaluation of the GoActive intervention found that there was low recruitment of mentors' when there was ambiguity on the study's aims at recruitment stage. However, once clarity was provided on the aims and objectives, mentor recruitment and engagement in the process

was high (Corder et al., 2016). One key component to support educator participation emphasised in the literature is to assist them during the training stage so they can effectively implement an intervention. Providing them with knowledge and resources, increases their confidence in their role during the intervention process (Frantz, 2015).

The positive impact of evaluating the skills acquired by peer supporters is demonstrated in the ASSIST smoking prevention programme and subsequent adaptations. Peer supporter training sought to equip adolescents with some key communication skills to effectively deliver the health message to their peers (Audrey et al., 2006; Corder et al., 2016; Mitchell et al., 2020; White et al., 2017). Peer educators reported a range of perceived positive outcomes based on their participation in the MI intervention which are echoed in previous peer led programmes (Campbell et al., 2008; Corder et al., 2020; Sebire et al., 2016). Increased knowledge on the risks associated with the health behaviours, interpersonal skills and confidence were reported by peer educators as they progressed in their delivery of MI sessions to their peers. These findings are similar to previous studies where adolescents who have participated as peer educators reported increased confidence and proficiency in skills as the intervention progresses (Bell et al., 2017; Sebire, Banfield, Campbell, et al., 2019; White et al., 2017). These findings build upon previous research emphasising the positive effects of young person participation in peer education and peer led health promotion (Komro et al., 1996; Turner, 1999). However, educators also reported difficulty in sustaining conversation during MI sessions, particularly when recipient behaviour was challenging (disruptive or lack of motivation to change behaviour). Peer educators and supporters have previously reported such difficulties during peer conversations, when receiving a health message in HIV/AIDS education (Shuguang & Van de Ven, 2003), to increase physical activity (Sebire et al., 2016) and in informal conversation for drug and smoking prevention programmes (Audrey et al., 2006; White et al., 2017).

Assessing the barriers presented to facilitators provides an understanding as to the effectiveness of the intervention implementation (Bell et al., 2017; Campbell et al., 2008; Mitchell et al., 2020; White et al., 2017). Studies have incorporated motivation strategies into training to support peer educators in their delivery of the health message (Sebire, Banfield, Campbell, et al., 2019). Similarly, key gatekeepers including teaching staff and community representatives who endorse a programme have been found to increase the motivation of both educators and recipients to engage in the process (Corder et al., 2016) and to adversely affect the retention of participants if the intervention is not embraced (Merakou & Kourea-Kremastinou, 2006). Different approaches have been adopted by studies to identify motivators for school participation based on upskilling students and meeting goals for

national health and wellbeing targets (Barr-Anderson et al., 2014; Mitchell et al., 2020). Establishing buy in at the organisational level is key; however, promoting continued engagement of participants is also important. Peer educators noted the differing levels of motivation amongst recipients in the MI intervention. Lack of motivation amongst peer supporters, mentors and recipients can present as a barrier to intervention acceptance, particularly when the intervention objectives are unclear, when training has not equipped educators with the relevant skills or when the intervention is too complex for peer led delivery (Corder et al., 2016; Story et al., 2002; Walker & Avis, 1999).

Applying flexibility for peers who deliver a health message on key intervention components including, scheduling meetings, and providing activities or advice with their peers has been found to support adolescent autonomy in the intervention delivery (Audrey et al., 2006; Corder et al., 2016; White et al., 2017). Furthermore, the literature has highlighted its effectiveness as an approach for peer support amongst hard-to-reach populations and to accommodate varying contexts, such as participants, health problems, and setting in which the intervention is delivered (Sokol & Fisher, 2016). Qualitative studies that focus on health programmes delivered to those considered hard to reach emphasise the importance of empowering community members, establishing trust and respect, applying flexibility, and supporting community involvement (Flanagan & Hancock, 2010). Peer led studies in schools often apply flexibility to meet the institutions differing schedules (Corder et al., 2016; Mitchell et al., 2020). Additionally, the evaluation of pilot studies and feasibility trials have recommended affording peer supporters to assume levels of control in scheduling or informing their peers of the delivery of the health promotion and to decide on when and what content it will be delivered (Mitchell et al., 2020). MRC guidelines on intervention complexity recognise that some flexibility is applied to interventions and adjusting the intervention according to the needs of the targeted group (Craig et al., 2008). The different intervention implementation approaches adopted in the two youth organisations during the MI pilot study presented different outcomes. Initiating sensitive conversations around peer recipients' engagement in health risk behaviours varied according to the peer led approach. Peer leaders who delivered MI sessions to two recipients believed that the power differential was reduced between the educator and the recipients, encouraging a greater level of dialogue on the health risk behaviour. Where MI sessions were conducted in the same room as other peer educators and recipients, interruption was experienced. Peer educators indicated that peer recipients who participated in the intervention, but who were less motivated to change their behaviour were the cause of this disruption. These findings have been echoed in previous school-based health promotion studies where disruptive behaviour has presented as

challenging to the peer supporter in their role (Audrey et al., 2006; Sebire, Banfield, Campbell, et al., 2019).

5.6 Recommendations for future intervention refinements.

Peer educators agreed that the peer led approach was more acceptable than previously attended health promotion programmes, supporting the acceptability of a peer led approach for health promotion (Medley et al., 2009). The appropriateness of a peer-to-peer approach supported shared characteristics between peers and an understanding for the challenges encountered by their peers in changing their behaviour (Cruz et al., 2012; Wolf & Bond, 2002). However, it was suggested by some educators that working with peers who they did not know may increase their credibility in their role. Qualitative studies that evaluated training recommended incorporating a greater amount of role plays and activities to increase their skills and confidence in delivering MI sessions to their peers (Bell et al., 2017; Campbell et al., 2008; Sebire, Banfield, Jago, et al., 2019). Providing additional supporting materials to assist educators in the delivery of the MI sessions to their peers was described as important to support them in their role as a peer educator. Continued support and follow up training have been identified in adolescent peer led interventions as an important component of the intervention design to increase peer supporters' confidence and proficiency in their role, while also providing opportunities to assess intervention fidelity (Melson et al., 2017; Sebire et al., 2016; Story et al., 2002a). Finally, it was believed that incentivising recipient participation would reduce fatigue and encourage continued engagement in the MI intervention. Incentivising participation, particularly amongst those hard-to-reach participants can enhance their experience of the research process and promote continued engagement (Barr-Anderson et al., 2014; Bell et al., 2017; Sebire, Banfield, Campbell, et al., 2019). Strategies including gift cards and pizza parties recommended by peer educators in this study, are recognised as motivational incentives for continued participation in the recruitment and retention of adolescent participants in community-based studies (Grape et al., 2018).

5.7 Limitations

The pilot study sought to conduct two focus groups with all participants who trained in MI and with peer educators who delivered MI to their peers. The criteria of at least four members to meet the minimum number to conduct a focus group was not achieved. Instead, three small group semi-structured interviews and one focus group was conducted. The primary researcher conducted the interview and focus groups which may have influenced participants to provide socially desirable answers, and a reluctance for participants to

discuss challenges and barriers experienced during the intervention process. Participants also participated in interviews/ focus groups on their scheduled club night, which may have influenced the amount of time that they contributed during interview /focus groups. Each cohort of adolescents attend a club night assigned to them, one evening a week in the youth organisation and time taken to participate in an interview was taken from scheduled activities. As such the duration of interviews and the focus group were short, reducing the level of information and contributions to evaluate the intervention process. Those peer educators who participated in the study self-nominated to become a peer educator. As such they may have displayed increased motivation to provide desirable. As a consequence, qualitative findings may have been subject to a biased sample, influencing the ability to generalise the results presented for this demographic.

5.8 Conclusion

Findings outlined in this pilot study provide key insights into the experiences of the peer educator in participating in the peer led MI intervention process. Their reflections on participating in MI training and the implementation of the MI intervention provided an opportunity to evaluate key uncertainties in the study's design before conducting a larger scale exploratory study. Based on recommended feedback, refinements were made to MI training, through incorporating a greater number of opportunities for peer educators to practice MI skills. Additionally, the inclusion of a MI booster training session for peer educators following their delivery of at least two MI sessions to their peers was introduced in the larger study. Additionally, peer educator materials including a MI manual and MI workbook were developed as a supporting material for use for peer educators in their role during MI sessions. These materials were introduced to MI peer educators at the training stage of the larger MI exploratory trial (see Appendix E).

Chapter 6. Implementation and evaluation of an adolescent peer to peer MI intervention on health behaviour change for three health risk behaviours (smoking, alcohol, and sedentary behaviour) (Study 3).

6.1 Chapter aims.

Chapter 6 presents the quantitative results from the adolescent peer-led MI intervention to change three health risk behaviours (smoking, alcohol, and physical inactivity). It examines the intervention efficacy for adolescent recipients who received MI sessions from their peers who were trained in the MI technique. The comparison group

received a health behaviour talk from a peer (HBT) and continued in a self-directed manner to support their health behaviour change. The primary outcomes were changes in health risk behaviours and the secondary outcome was intervention efficacy as assessed by self-reported importance and motivation to change behaviour. Quantitative results built upon qualitative findings as outlined in previous chapters by adopting a mixed methods approach. These previous chapters provide detail on the experiences of those who delivered, received, and supported the implementation of the health behaviour change intervention. This approach allowed for the triangulation of results in the process evaluation of the feasibility trial.

6.2 Study aims/objectives.

To address the research question of “how efficacious are peer-led health behaviour change interventions at addressing health risk behaviours at the participant level?” this study sought to investigate the following, in a sample of adolescents from low SES communities:

1. The MI intervention efficacy for reducing primary outcomes of smoking, alcohol consumption and sedentary behaviours.
2. The maintenance of behaviour changes across at follow up timepoints (week 6- and 3-months post-MI baseline data).
3. MI intervention effects on secondary outcomes such as self-reported motivation to change scores, or confidence to change.

It was hypothesised that:

- a) MI participants were expected to decrease their alcohol consumption with statistical significance when compared to those who chose to reduce their alcohol consumption in the comparison group.
- b) MI participants were expected to decrease their cigarette smoking with statistical significance compared to those who chose to reduce their cigarette smoking in the comparison group.
- c) MI participants were expected to increase their levels of PA with statistical significance compared to those who chose to increase their PA in the comparison group.
- d) MI participants were expected to self-report a statistically significant increase in their confidence and motivation to change their health risk behaviour scores compared to the comparison group.

- e) Compared to the comparison group, the MI group were expected to demonstrate a statistically significant increase in their confidence and motivation to change their health risk behaviour scores.

6.3 Method.

6.3.1 Design.

A quasi-experimental control design evaluated the primary and secondary outcomes of the peer-led MI health behaviour change intervention group, compared to the comparison group who received a health behaviour talk. Participants in the MI and comparison condition completed questionnaires at pre, post and follow up timepoints. Follow up data provided an understanding of the maintenance of recipient behaviour change. A mixed methods approach process evaluation was conducted over three phases (see Chapter 3) to generate an understanding of the study's implementation process. Intervention efficacy was ascertained by administering standardised questionnaires to assess the primary outcomes (smoking, alcohol consumption and physical exercise) at baseline, 6 weeks, and 3-months post baseline. Secondary outcomes were assessed by self-reported motivation to change scores, or confidence to change. Ethical approval (Appendix A) from TCD was obtained prior to the study's commencement.

6.3.2 Participants.

Eligible participants included males and females aged 11 to 19 years. Their eligibility depended on their membership in a youth organisation ($n=10$) or their attendance at one of the Irish second level schools ($n=3$) recruited to participate in the study. Both study conditions recruited from areas classified by the Pobal HP Deprivation Index (2016) as disadvantaged or extremely disadvantaged. Although the initial recruitment strategy for participants focused on recruitment from youth organisations situated in areas of low SES, high attrition rates in the comparison condition in follow up data resulted in the recruitment of three second level schools to increase participant numbers. Those who did not speak English, or who were under 11 years or over 19 years of age were excluded from participation in the study.

All participants were informed that they could opt out of the study at any stage of the study. It was emphasised to both peer educators and recipients that their engagement in the study was on a voluntary basis. The youth organisations and the schools appointed a youth worker and teacher respectively and assumed a lead role to support the implementation of each condition in their organisations. These representatives provided a point of contact for participants and communicated closely with the research team if any

issues arose during the study. Confidentiality was stressed to all participants, in addition to adhering to the safe storage and use of personal data; the data rights were outlined to all participants. Information sessions with participants, teachers, youth workers and parents in addition to ongoing access to the researchers provided the scope to ask questions and clarify any emerging concerns that they may have with respect to the participation in the study.

An a priori sample calculation using G-power analysis was conducted for a small effect size Cohen's $f = .20$ for a repeated measures ANOVA. This calculation indicated that a total sample size of sixty-six was required. As previous adolescent peer-led behaviour changes interventions including the FRANK + friends drugs prevention programme and the PLAN-A physical activity programmes did not calculate powered effect sizes (Hawkins et al., 2017; Sebire et al., 2019), a conservative, small effect size was assumed. However, the statistical power to detect changes is considered less important in the exploratory trial, when compared to the insights gained during the process evaluation (Hallingberg et al., 2018).

6.3.3 Recruitment.

6.3.3.1 Organisation recruitment.

Youth organisations and schools were contacted to participate in the study via email accompanied with information detailing the study's aims and objectives (Appendix B). The schools/youth organisations who expressed an interest to participate in the study met with the researcher to discuss the study's timeline, implementation process and to explore their recruitment strategies for peer educators and recipients. All schools who agreed to participate were assigned to the comparison condition by the researcher. Youth organisations that were recruited were assigned to either the intervention or comparison condition. Youth organisations were assigned to the intervention condition based on their ability to host MI sessions for the six-week period and to accommodate training for peer educators over one and a half days. Those youth organisations who could not facilitate MI sessions in their youth organisations were assigned to the comparison condition. School and youth work representatives were informed of the condition assigned to them at the recruitment stage of the study.

6.3.3.2 Peer educator recruitment.

Adolescents who attended the recruited youth organisations and second level schools were provided with details of the study by the lead youth workers and teachers respectively for participation as a peer educator in the study. Organisations adopted different approaches to peer educator recruitment. Some organisations presented their adolescent service users/students with details of the peer educator role to those who had

previously demonstrated skills (commitment, leadership, trust, reliability). These skills were observed by the lead teachers/youth workers in previous youth organisation programmes/schools who were suggesting to the teacher/ youth worker that the adolescent could fulfil peer educator role duties. Another approach adopted by the teacher/ youth worker was to provide all service users/students between the eligible ages with the option to become a peer educator.

Expressions of interest were received from adolescent service users/students attending the Youth organisations/schools to become a peer educator, whereby adolescents self-nominated to participate in both conditions. Peer educators' names were drawn randomly from a hat before training to identify those who would deliver the HBT or MI sessions to their peers in each organisation/school. The comparison condition sought to recruit three educators from each organisation to deliver the HBT to their peers. The MI intervention condition sought to recruit five peer educators from each youth organisation to deliver six MI sessions to their peers. Where there were a greater number of self-nominated participants, the first five names drawn in the MI condition and the first three in the HBT condition represented the recruited peer educators. All self-nominated peer educators, including those not randomly chosen, but who had expressed an interest to participate as a peer educator were invited to attend training in both conditions. Peer educators who trained in both conditions but who were not selected to deliver the HBT or MI sessions to recipients provided standby peer educators for those peer educators' who opted out of their role ($n=5$).

6.3.3.3 Comparison condition recruitment.

The comparison condition recruited youth organisations ($n=5$) comprising recipients ($n=57$) who participated in the first iteration of the HBT. Due to challenges encountered in collecting follow up data, a second recruitment drive was conducted. This second recruitment drive targeted Irish secondary schools to increase recipient numbers in the comparison condition. Three Irish secondary schools recruited recipients ($n=70$) to participate in the study. Students ($n=6$) who expressed an interest to participate as peer educators in two schools (school 2 & 3) trained in and delivered the HBT in their school. Peer educators who had previously trained in and delivered a HBT in their youth organisation, delivered two further HBTs in their school (School 1).

All peer educators ($n=26$) participated in a half-day training workshop about health behaviour education. Seven separate group training sessions were conducted with peer educators in their youth organisations and schools. Peer educators received information on

the risks associated with tobacco smoking, alcohol misuse and sedentary behaviour. They designed posters to present to their peers on the risks that they deemed most important from the information they received during training. The posters provided aides for peer educators to deliver the health risk information to their peers during their HBT. All HBTs were delivered by peer educators ($n=19$) to recipients in school and during school hours or to youth organisation adolescent service users on their club night.

Three Irish second level schools participated in the comparison condition¹. The first school to deliver a HBT was a DEIS school, where peer educators who were students at the school had previously attended training and delivered the HBT to recipients in their youth organisation. The youth organisation HBT sessions experienced low recipient ($n=8$) participation rates. Recipients ($n=41$) in the second level school provided a greater sample size of two separate groups of students who attended two HBTs. The second school to participate was a youth reach senior cycle school. Recipients ($n=5$) attended the HBT during school hours but follow up data points following baseline data collection were not achieved for this group. The third participating school was a Gaelscoil (Irish speaking). Student recipients ($n=24$) received the HBT from peer educators ($n=3$) in their school during school hours. See Appendix G (Table 6.8 and Table 6.9), respectively for the intervention and comparison group implementation process.

Peer recipients who provided their consent and parental consent, and who expressed a desire to change 1 to 3 of the health risk behaviours attended the peer led HBT. Researchers supported the peer educators in collecting the self-report questionnaires from recipients directly after the HBT. Youth work/teachers who were appointed as a supporting role in the study collected follow up surveys from recipients at the post talk follow up time points (6 weeks, 3 months). Recipients completed hardcopy surveys and were provided with a choice of completing 1-3 surveys for the health risk behaviours they would like to change following their attendance of the HBT.

6.3.3.4 Intervention group recruitment.

Youth organisations ($n=5$) representing four communities were recruited to participate in the study. Recruitment strategies of peer educators differed across youth

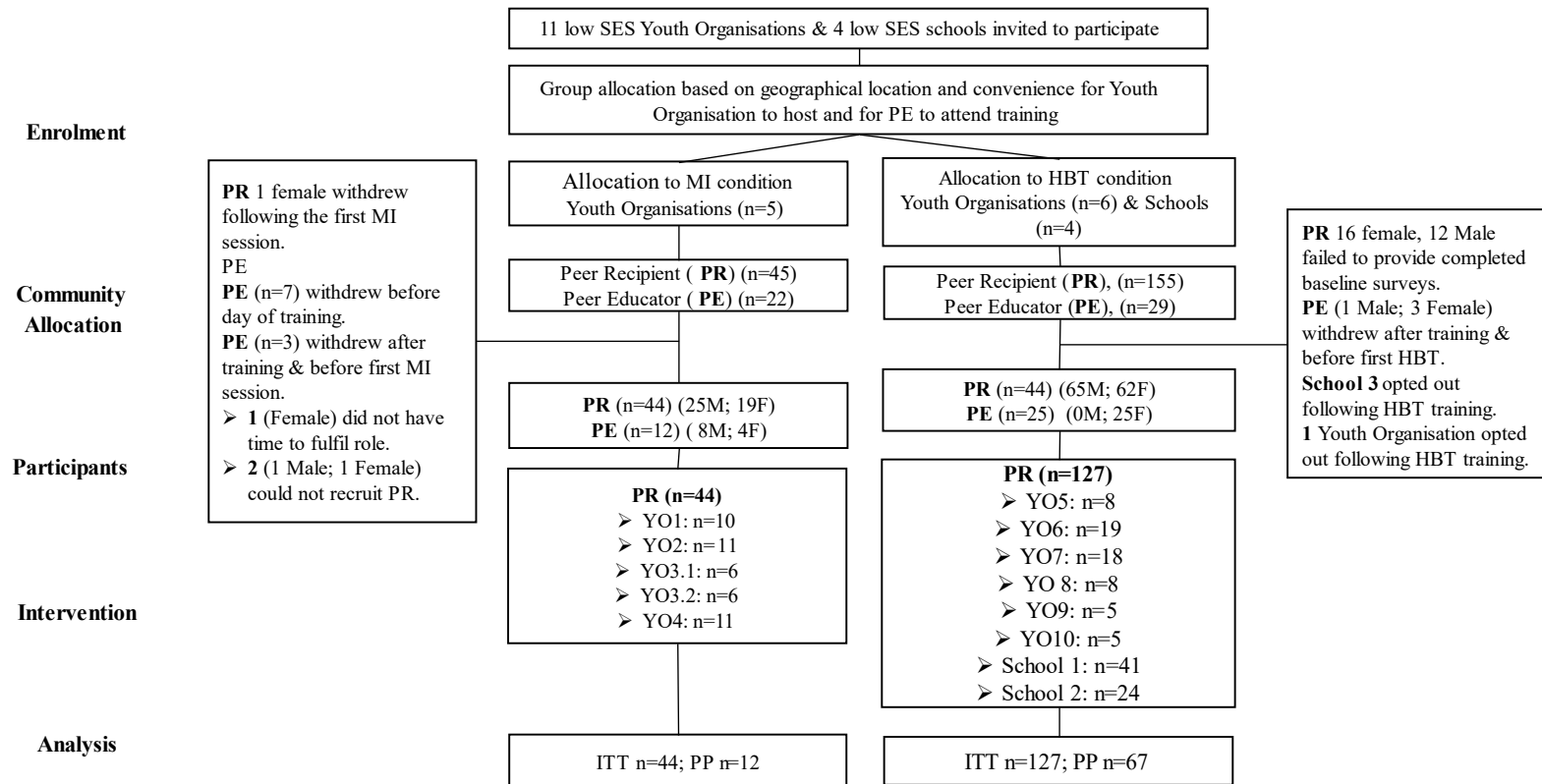
¹ Deis (Delivering Equality of Opportunity in Schools) have a large number of students who reside in socioeconomically disadvantaged areas. As such these schools receive governmental support to provide additional resources for students who attend Deis schools. Gaelscoils are Irish language speaking schools. This senior cycle school is also governed by the ETB. Youth reach senior cycle schools provides a programme of basic education and training for early school leavers aged between 15 to 20 years and is governed by the Irish Education and Training Boards (ETBs)

organisations. Some youth leaders ($n=2$) opted to provide the details of the peer educator role to service users who were considered most likely to commit to the programme, while others ($n=5$) provided details of the study to all service users. Those adolescent service users who met the eligibility criteria and who expressed an interest to participate as a peer educator were recruited. Participants' assent and parental consent was obtained prior to their participation in the study process. Twenty-two peer educators were recruited across the five youth organisations to participate in the study. MI peer educators ($n=15$) and youth workers ($n=4$) attended one and a half days of training following their recruitment. Two youth organisations representing one community did not have youth worker ($n=3$) representation at training, due to lack of resources in staffing.

All peer educators recruited participants within their youth organisation to receive the MI intervention. Recipients ($n=44$) engaged in the intervention condition over a six-week period in the youth organisation. Recipient consent (participant and parental) was obtained before peer educators conducted their first MI session. Peer educators administered and collected the majority of recipient self-report questionnaires at pre, and post intervention follow up timepoints (week 6, 3 months). Where peer educators had trouble in collecting follow up data, the lead youth worker collected recipient surveys. MI recipient baseline questionnaire surveys were completed as the first step in the MI workbook by peer recipients and administered by peer educators (see Table 6.1). In total twelve peer educators delivered MI sessions to their peers and nine attended a MI booster training session.

Figure 6.1

Flow chart outlining participant recruitment, allocation of condition, intervention, assessment, and data analysis.



Note: Abbreviations - Intention to Treat (ITT), Per Protocol (PP), Youth Organisation (YO), Peer Educator (PE), Peer Recipient (PR), intervention group (MI), comparison group (HBT), Socio-Economic Status (SES).

6.3.4 Incentives to participate.

Study participants, including peer educators, comparison group recipients, youth workers and teachers received incentives for their participation in the study. ‘One for All’ vouchers were gifted to participants according to the duties or engagement provided during the research process. Incentivising participation has been found to increase participant engagement, increase survey response rates at follow up time points and to recognise the efforts of participants throughout the research process (Bonevski et al., 2014; Yancey et al., 2006). Incentivising research participation is supported by the guidelines outlined by the National Institute for Health Research (NIHR) to promote inclusive opportunities for participants who engage in research (Hayes et al., 2021). Peer educators received a payment for MI sessions that they conducted with each of their peer recipients (€15 per session). Recipients in the MI condition did not receive an incentive for their participation on the basis that their participation in MI sessions provided them with an opportunity to change their health risk behaviour. Commensurate with the compensation received by peer educators in the MI condition, peer educators who delivered the HBT to their peers received one fifty euro ‘One for All’ gift voucher. Peer recipients who completed self-report measures at the follow up time points were entered into a draw at each time point. One recipient was randomly chosen at the end of survey completion and received a twenty-euro gift voucher at time 2 and 3. Youth workers and teachers who assumed the lead in the implementation of both the intervention and comparison conditions received a fifty-euro voucher to thank them for their continued efforts in facilitating the delivery of the intervention and the collection of follow up data.

6.3.5 Materials.

6.3.5.1 Assessment of primary outcomes.

Peer recipients in the study, who indicated a desire to change their smoking behaviour, completed the Cigarette Dependence Scale-12 (CDS-12) at each of the three time-points. This questionnaire is a validated 12-item measure of tobacco dependence and use. It assesses respondents' self-reported dependence on smoking behaviour, on twelve items, given five choices per question on a five-point Likert scale. The age range of targeted respondents for use of this scale is between the ages of 12-74 years. The reliability of the scale for use by adolescents (12-19 years, $n = 298$) was high (Cronbach's alpha $> .84$) with good test-retest reliability (18-day interval, $r > .77$) (Etter et al., 2003). The total score for each participant was aggregated by summing all twelve items on the CDS-12. This indicates

the level of tobacco dependency, 12 (lowest) to 60 (highest) for those who completed the measure.

Peer recipients who participated in the study to reduce their alcohol consumption completed the Alcohol Use Disorder Identification Test (AUDIT) (Saunders et al., 1993). This self-report questionnaire contains ten items and has been validated for use with adolescents (Knight et al., 2003). The AUDIT questionnaire was scored according to five possible responses (0,1,3,4) for the first eight questions and questions nine and ten were scored according to three possible responses (0,2,4). The lowest score on the AUDIT is a zero, indicating abstinence from alcohol or someone who has reported to have never had any problems with alcohol consumption. According to standardised cut-offs, low risk drinking is indicated by scores between 1-7, hazardous or harmful alcohol by scores between 8-14 and alcohol dependence (moderate-severe alcohol use disorder) by scores 15 or above (up to 40). The W.H.O guidelines on the use of the AUDIT support the use of this measure, supported through research across many countries (Babor et al., 2001), and indicating a high internal consistency for the ten-item response questionnaire ($\alpha = .86$).

All peer recipients who participated to increase their physical activity completed the International Physical Activity Questionnaire- short form (IPAQ-*sf*) (Craig et al., 2003) questionnaire at each time-point. This is a widely used and validated questionnaire that assesses activity at four intensity levels: 1) vigorous-intensity activity such as aerobics, 2) moderate-intensity activity such as leisure cycling, 3) walking, and 4) sitting. The "last 7-day recall" version of the IPAQ-*sf* was used to reduce participant burden. Scoring the IPAQ-*sf* requires that all the activity be converted into minutes before calculating metabolic equivalent of task (MET) minutes. As recommended, activity bouts recorded as greater than 3 hours (180 minutes) were truncated, and no activity was longer than this period of time. Consequently, for each category of activity there is a maximum of 21 hours permitted per week (3 hours X 7 days). To calculate the MET minutes a week, the MET value given (walking = 3.3, moderate activity = 4, vigorous activity = 8) is multiplied by the minutes for the activity that was carried out by the number of days that that activity was undertaken. Calculating the MET minutes is achieved by adding in each category (walking, moderate activity, and vigorous activity) providing a total MET minute of physical activity a week. As such, all continuous scores are expressed as MET/minutes per week. The last item (item 7) on the IPAQ-*sf* asks about duration of "sitting" is an additional indicator variable of sedentary behaviour and is not included as part of any summary score of physical activity.

The IPAQ-*sf* and IPAQ (long form) have been shown to be consistent in demonstrating high test-retest reliability (range 0.66 - 0.88) and validity of data through

accelerometers from twelve countries (Brown et al., 2004; Craig et al., 2003). Although designed for use for respondents aged 15-65 years, the IPAQ-*sf* and LF is validated for 18 years and older (Lee et al., 2011).

6.3.5.2 Assessment of secondary outcomes.

The Readiness Ruler (RR) was developed by Stephen Rollnick and is based on Prochaska and DiClemente's stages of change model, to assess an individual's readiness or willingness to change a behaviour (Heather et al., 1993; Prochaska et al., 1993). The RR assessed secondary outcomes for recipients' motivation or readiness to change their health risk behaviour (*see Appendix F*). Confidence and importance to change a behaviour, measures a participant's readiness to change and has previously demonstrated validity in predicting behaviour change (Hesse, 2006). Recipients were asked "On a scale of 1-10, where 1 is not confident at all, and 10 is extremely confident, how confident are you to change your health risk behaviour?" Recipients were then asked to rate the importance that they placed on changing their behaviour in a similar approach. The importance and confidence of recipients to changing their health risk behaviours was assessed at baseline and post baseline (6 weeks, 3 months).

6.3.5.3 Training materials.

Peer educators in the intervention condition participated in one and a half-days of training delivered by a MI trainer, who was a member of the Motivational Interviewing Network of Trainers (MINT) association. Participants learned MI techniques and developed approaches to conducting conversations that sought to strengthen clients' motivation and commitment to changing their health risk behaviour. Information on the three health risk behaviours was provided and the MI workbook and manual were introduced to participants as a resource to guide them through MI sessions held with their peers. These supporting materials [MI manual and workbook] were designed by the researcher in response to peer educator requests at the pilot stage (see chapter 5) for supporting materials to assist peer educators in their delivery of MI sessions to their peers. Peer educator contributions informed the design of MI supporting materials and they reviewed the MI supporting materials to assess their usefulness and to provide recommended improvements/changes, before the final version was designed for use in this main study (Appendix E). During training phases peer educators were provided with direction on the content and use of the MI manual and workbook. Peer educators were also provided with brief training on the administration of the three self-report measures to be completed with peer recipients. Table 6.1 outlines the step-by-step process that peer educators followed for MI sessions.

Week one included additional steps such as an informal contract between peers (“What you can expect from me” and “What I can expect from you”) and administration of self-report questionnaires to assess primary and secondary outcome variables. The MI manual guided peer educators in MI techniques acquired during the training phase. Techniques included reflective listening, communicating respect, and using open-ended questions to explore behaviour and focus on clients’ strengths to support behaviour change. Three fact sheets on the three health risk behaviours were provided at the back of the manual. The smoking cessation information provided a brief outline on chemicals found in cigarettes, key facts on the associated risks for engaging in smoking behaviour and benefits associated with smoking cessation (Jennings, 2019). An alcohol fact sheet provided information about the standard unit sizes of alcohol and facts associated with the risks of alcohol consumption (Healthy promotion strategy for Ireland, 2018). The physical activity fact sheet outlined the guidelines for physical activity for children and young people in Ireland (Healthy Ireland). Examples of physical activity that met the vigorous and moderate activity levels were provided in this information².

A reflections page was completed at the end of each MI session and provided an opportunity for the peer educators to consider and note ‘what went well’ and what difficulties they encountered during each MI session and seek feedback on further training needs on MI techniques. A three-hour MI booster training session was provided to peer educators following their delivery of at least two MI sessions to their peers. The booster session was delivered by the trainer who delivered initial MI training. Booster training content was directed by the peer educators’ feedback provided in the MI workbook on the reflections page. All peer educators MI workbooks were collected by the researcher and their reflections were collated before the booster training session. The information was provided to the MI trainer to inform and direct the booster training session. This training session also provided peer educators with an opportunity to discuss challenges that they may have encountered in the peer-to-peer MI sessions.

² Information for smoking, alcohol and physical activity fact sheets were obtained from the Health Service Executive website, Health promotion Strategy for Ireland and Health Ireland websites respectively.

Table 6.1*Peer educator supporting materials used (MI workbook & manual) for MI sessions.*

Steps	Detail	MI Workbook	Supporting MI manual	Week	Participant
1	Complete self-report measure for chosen health risk behaviour (CD-12; AUDIT; IPAQ- <i>sf</i>)	Questionnaires	Questionnaires Key fact sheet on health risk behaviours.	Week 1 baseline data Week 6 – time 2 data MI 6	Peer recipient Baseline questionnaire completed Time 2 : questionnaire completed
2	Peer educator & recipient contract.	Exercise 1		1	Peer recipient and educator sign contract: Agreement between peers on expectations of participation in the MI intervention.
3	Decision Balance Exercise	Exercise 2	Page 3 Decision Balance	1 - 6	Peer recipient: Pros and cons attributed to achieving behaviour change.
4	Readiness Ruler	Exercise 3	Page 4 Scaling/Confidence ruler	1 - 6	Peer recipient: Rating confidence and importance to change health risk behaviour
5	Planning, goal, reflection	Exercise 4	Page 5 Setting goals	1 - 6	Peer recipient: Setting goals and planning how to achieve them. Reflecting on previous weeks goal setting.
6	Challenges to behaviour change.	Exercise 5	Page 6 Head, heart, hope.	1 - 6	Peer recipient: Anticipated barriers and challenges to meet goals.

7	Plan/Goal for next week	Exercise 6	Page 7 Action	1 - 6	Peer recipient: Setting goals to achieve before next MI session.
8	Length of MI session	Exercise 7		1 - 6	Peer educator: record length of session (min)
9	Reflections: OARS what went well, what was difficult.	Exercise 8	Page 9-15 Core MI techniques.	1 - 6	Peer educator: reflect on use of MI skills and how the MI sessions went.

6.4 Procedure.

On receiving informed consent from youth organisations and schools, youth workers and teachers were assigned a lead role by their organisation to consult with the researcher to support the implementation of the study. Youth workers and teachers (see Table 6.7, Appendix G) who assumed lead roles were provided with detailed information on the study and its implementation within their organisation. Details included the study's aims and objectives, the intervention process including, recruitment strategies, training details, and consent forms. The researcher discussed the organisations' capacity to host HBT and MI training. As part of the process evaluation participants (youth workers, teachers, peer educators and recipients) were invited to participate in interviews and focus groups to discuss their experiences of engaging in the research process. Youth workers and teachers provided informed consent prior to study commencement.

All participants (peer educators & peer recipients) were required to provide informed consent before their participation in the study. A detailed information sheet outlining details of the study to prospective participants accompanied each consent form (see Appendix D). Details of the study included peer educator duties and recipients' receipt of the intervention to change their chosen health risk behaviour. Youth workers, teachers and or the researchers provided details of the intervention's aims and objectives to adolescent service users. An information sheet accompanying all consent forms completed by participants and their parents also contained the details of the study. Parental consent was obtained for participants aged 17 years or younger prior to study commencements.

MI peer educators were informed of their role in the intervention process including the requirement to complete MI training, to recruit peers within their organisation and to deliver MI sessions once a week over a six-week period to support recipient behaviour change. Peer educators' use of the MI workbook was advised, and self-report questionnaires were administered with recipients on a one-to-one basis at baseline and follow up timepoints. Peer educators were also invited to participate in audio-recorded focus groups following their delivery of the intervention.

A number of ethical considerations were put in place for peer educators in case of sensitive disclosures during their interaction with peer recipients in MI sessions. These protections included that all MI sessions occurred when a youth worker was in the youth organisation and were available to meet with peer educators where disclosures were made. The first week of the MI sheet, step 2, included a discussion point between the peer educator and peer recipients on child protection and welfare (see Appendix E). Peer

educators were guided through the use of the workbooks during MI training where child protection and welfare issues were outlined. If an instance of a sensitive disclosure arose, peer educators were instructed to meet with the lead youth worker to provide them with the information. All youth workers are mandated and legally obliged to report any concerns of harm that a child might disclose. Where possible disclosures may occur the research team were also ethically obliged to report concerns to the Irish governed child and family agency, Tusla.

The HBT peer educators' role in the intervention process required their attendance in half a day's training where they would receive information on the risks associated with the three health risk behaviours. During training peer educators developed posters for each health risk behaviour to use as a visual aid for recipients and to support them in their delivery of the health behaviour talk. Peer educators distributed and collected self-report questionnaires at baseline and at post intervention time points. These self-report questionnaires were completed by recipients in a group setting. Researchers and peer educators were available to answer any questions that arose for recipients when filling out the self-report questionnaires following their receipt of the HBT.

6.5 Quantitative analyses data analyses plan.

6.5.1 Inclusion/exclusion.

Participants were excluded from analysis if they failed to provide baseline scores ($n = 28$) and one MI participant withdrew from the study following the first MI session. No participants in comparison conditions were excluded as they all provided baseline data before attending the HBT. Lastly, those participants whose responses contained $>20\%$ missing data ($n = 14$), were also excluded from analyses, to reduce inaccurate data estimations (Osborne, 2014).

6.5.2 Missing data

Missing data was assessed using Little's statistic, which was non-significant ($p = .751$) indicating that missing data was completely at random (MCAR).

6.5.3 Intention to Treat and Per Protocol.

The primary analyses used intention to treat (ITT) while secondary analyses used per protocol (PP) "supportive" analysis (Gupta, 2011). In the primary analyses which used ITT, all participants assigned to the intervention condition were included in the analysis, despite their noncompliance or deviation from protocol, or if they withdrew their participation (Gupta, 2011). PP analysis included only participants who completed all assessments fully

at all time points. PP can provide a more accurate account of treatment differences when participants who did not complete the trial are removed. PP as a result can be useful as a secondary analysis to understand potential treatment differences. By including only full completers, PP analyses can lead to reduced sample sizes and biased evaluations in the study (Streiner & Geddes, 2001).

To provide an unbiased estimation of treatment effects, maintain sample sizes and statistical power, reduce Type 1 errors, and more accurately reflect the data, ITT analyses are recommended (Heritier et al., 2003; Wertz, 1995). ITT analyses can reduce the effects of attrition rates observed in clinical, community research and intervention trials (Moher et al., 2001). ITT is more conservative and prone to Type 2 error (Hollis & Campbell, 1999), and is subsequently less likely to state that a treatment is effective or overestimate the effects of a treatment. Negating this overestimation reduces the chance of making inferences from a subset of participants (Wertz, 1995). These considerations are important when seeking to understand the effectiveness of an exploratory trial such as this one (Craig et al., 2008; Grant et al., 2013). The technique of “last observation carried forward” (LOCF) was used, whereby the last data point provided by participants was used to fill in subsequent missing data points (Streiner & Geddes, 2001). Although this is a convenient method for dealing with missing data, caution should be applied when interpreting results, as it assumes that missing data occurs completely at random (MCAR) and as such may introduce bias into the analysis. This may lead to a bias of the estimates and not truly represent the trajectory of the missing variable. There is also the risk of inflating the effects of the treatment, whereby the treatment may appear to be more effective than it is. The LOCF also assumes that the observed value remains stable over time and that those respondents who did not complete a measure continue as before or it may also be sensitive to outliers particularly if the last observation was extreme.

ITT has been argued to potentially dilute the treatment differences, assuming that both those who complete and do not complete a treatment are similar (D’Agostino et al., 2003). In the PP analysis we analysed complete responses for those participants who provided full data. PP analyses for intervention and comparison conditions were conducted to determine intervention effects for both conditions of the study. As ITT was the primary data analysis approach, outcomes presented in this chapter reflect ITT analyses, unless otherwise stated. See Table 6.3 for participants’ choice of health risk behaviour for change in ITT and PP analysis.

6.5.4 Data Analysis Plan.

Mixed level ANOVAs were conducted to examine the effects of the intervention on primary and secondary outcomes. Given the statistically significant differences at baseline between conditions, time one measures were used as a covariate for ANCOVA analysis for primary outcomes. ANCOVAs were conducted and statistical significance is set at .05. The study sought to compare results for recipient health behaviours in the MI intervention evaluated at pre-intervention (baseline) and post intervention (6 weeks post baseline and at three months follow up) to the comparison HBT group at (baseline) and post intervention (6 weeks following HBT and 3 months). A (2) group x (2) time mixed factorial ANCOVA analysed main effects and interactions to identify whether primary outcomes differed by group and across time. Bonferroni and Tukey HSD post-hoc analyses evaluated the differences between groups across time points.

Secondary outcomes are evaluated for readiness to change scores over time. Recipient self-report responses for motivations towards changing smoking, alcohol consumption, and physical activity behaviours, in addition to their reported confidence and importance to change are assessed using repeated measures factorial ANOVA.

Descriptive statistics and assumptions of inferential statistics were calculated independently for both the ITT and PP analyses. Distributions were explored through visual inspection of q-q plots, histograms, and boxplots. Where extreme outliers were observed (> 3 times the interquartile range) on boxplots they were investigated to assess their influence on the distribution of data. Kolmogorov-Smirnov tests of normality and Levene's test for the assumption of homogeneity of variance were conducted. Internal consistency between scale items was assessed through Cronbach's alpha (desired threshold of > .07) for each measurement and participant response was assessed for the reliability of participant responses to each measure (see section 6.6.2, Table 6.3).

6.6 Results.

6.6.1 Descriptive statistics.

The study recruited participants who participated as peer educators or recipients in the comparison or intervention group. Participants' details including age and gender for peer educators and recipients for both conditions are presented in Table 6.2.

Table 6.2*Age, Gender, and Percentage of Participants in the MI intervention.*

	Comparison Group		Intervention Group	
	ITT	PP	ITT	PP
	n (%)	n (%)	n (%)	n (%)
<i>Gender</i>				
<i>Male PR</i>	65 (51.2%)	28 (41.8%)	25 (57.8%)	17 (66.7%)
<i>Male PE</i>	0		8 (66.7)	
<i>Female PR</i>	62 (48.8%)	39 (58.2%)	19 (42.2%)	15 (33.3%)
<i>Female PE</i>	25 (100%)		4 (33.3%)	
<i>Age</i>				
<i>PR (M; SD)</i>	(15.5; 1.68)	15.19 (1.50)	15.53 (1.49)	15.71 (1.28)
<i>PE (M; SD)</i>	(16.4; 1.68)		15.64 (1.69)	

Note: Abbreviations –Peer recipient (PR), Peer educator (PE), Intention to Treat (ITT), Per Protocol (PP)

Peer recipients' choice of health risk behaviours for change in the comparison group and intervention group are presented in Table 6.3. Behaviour change choices are represented as primary the outcomes measures [alcohol, smoking, and physical activity] where ITT and PP analysis was conducted. The comparison ($n=127$) provided a greater sample of participants compared to those recipients who participated in the intervention group ($n=44$). Health risk behaviour choices included cigarette smoking, alcohol consumption and physical inactivity. Peer recipients in the intervention condition chose one of the three health risk behaviours for change. Peer recipients in the comparison group had a choice to change one or more health risk behaviours. Comparison group recipients' health behaviour choices included Physical Activity (PA), Smoking (SMK), Alcohol (ALC), PA & SMK, PA & ALC or PA, SMK & ALC.

Table 6.3*Participant Choice of Health Risk Behaviours for Change.*

	Comparison Group		Intervention Group	
	ITT (n=127)	PP (n=58)	ITT (n=44)	PP (n=32)
	n (%)	n (%)	n (%)	n (%)
PA	36 (28.3%)	28 (48.3%)	29 (65.9%)	21 (65.6%)
SMK	-	-	7 (15.9%)	6 (18.8%)
ALC	7 (5.5%)	10 (17.2%)	8 (18.2%)	5 (15.6%)
PA & SMK	5 (3.9%)	-	-	-
PA & ALC	43 (33.9%)	20 (34.5%)	-	-
SMK, ALC & PA	36 (28.3%)	-	-	-
<u>Total HRB</u>				
PA	115 (90.5%)	48 (82.8%)	29 (65.9%)	21 (65.6%)
SMK	48 (37.8%)	-	7 (15.9%)	6 (18.8%)
ALC	86 (67.7%)	30 (51.7%)	8 (18.2%)	5 (15.6%)

Note: Abbreviations – Health risk behaviour (HRB), Mean (M), Standard Deviation (SD), Intention to Treat (ITT), Per Protocol (PP), Physical Activity (PA), Smoking (SMK), Alcohol (ALC).

AUDIT categories for participants in the comparison condition and the intervention condition are presented in Table 6.5. Participants in the intervention condition scored higher for levels of dependence for cigarettes than the comparison condition at baseline.

Recipients' PA scores in the MI intervention condition were below the recommended values for vigorous and moderate physical activity score scores. Conversely, at baseline, the mean scores for vigorous PA in the comparison condition met the criteria for engaging in high physical activity. Recipients' self-reported measures scores [IPAQ-*sf*, AUDIT, CDS-12] indicated that the comparison groups exhibited lower levels of cigarette smoking, problematic alcohol consumption and higher levels of PA when compared to the intervention group at baseline. Therefore, it is important that baseline scores are controlled for in further analyses.

Table 6.4*Means and Standard Deviations and two-way ANCOVA for primary outcomes (AUDIT, CDS-12, IPAQ-sf)*

<i>Measures</i>	<i>Comparison</i>		<i>Intervention</i>		<i>Comparison</i>		<i>Intervention</i>	
	<i>Group T1</i>		<i>Group T1</i>		<i>Group T2</i>		<i>Group T2</i>	
	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>
AUDIT T1	84	6.13 (5.22)	8	15.25 (6.69)	84	6.19 (5.79)	8	12.13 (6.13)
CDS-12 T1	20	24.35 (11.13)	7	31.14 (8.65)	20	20.90 (12.37)	7	26.71 (9.32)
IPAQ- <i>sf</i>	115		29		115		29	
MET min/week		1164.34 (744.06)		1256.21 (741.98)		1183.91 (839.41)		1237.59 (626.10)
Total min/week		2096.36 (1284.23)		2163.45 (1299.87)		1194.2 (835.70)		1237.59 (626.10)
Vigorous min/week		250.41 (307.96)		254.51 (312.90)		254.51 (312.90)		233.79 (287.62)
Moderate min/week		254.62 (313.87)		335.52 (363.12)		299.66 (345.27)		341.55 (309.32)
Walk activity min/week		695.32 (466.13)		571.72 (387.40)		329.74 (464.24)		622.24 (362.91)

Note. Significant effects are highlighted in bold. M= Mean; SD= Standard deviation, Low activity indicates <599 MET min/week; Moderate activity indicates >600 MET min/week in moderate or vigorous PA; High activity indicates >3000 MET min/week

6.6.2 Internal consistency.

The CDS-12 and AUDIT Cronbach's alpha values fell within the desired threshold ($\alpha > .70$). However, the IPAQ-sf questionnaire's reliability ($\alpha > .32$) for the study's participants was very low. Further exploratory analysis indicated that the comparison group responses ($\alpha > .27$) were low, while the responses for those in the MI intervention group ($\alpha > .67$) were in the lower range of reliability. Cronbach's alpha values for the primary outcomes are presented below in Table 6.5.

Table 6.5

Internal consistency (Cronbach's Alpha) for Health Risk Behaviour Self-Report Questionnaires (IPAQ-sf, CDS-12, AUDIT).

Variable	Items	N	Cronbach's Alpha Baseline
AUDIT	10	92	.83
CDS-12	12	27	.90
IPAQ-sf	6	84	.32*
MI - IPAQ-sf	6	11	.67
HBT - IPAQ-sf	6	73	.27*

*Note: Cronbach's alpha below desired threshold of $> .07$ indicated in bold, * α below measure threshold*

6.7 ANCOVA

Repeated measure ANCOVAs were conducted to determine if there were statistically significant differences between conditions on the three primary outcome measures, while controlling for baseline scores as a covariate. The assumptions of ANCOVA were met for independent variables. Homogeneity of variance was nonsignificant for Levene's test. Normality indicators implied the assumption of normality was not violated. Covariates were linearly related to the dependent variable at each level of the independent variable as displayed through scatterplots. Means and Standard Deviations and two-way ANCOVA for primary outcomes (AUDIT, CDS-12, IPAQ-sf) are presented in table 6.5 below.

6.7.1 Alcohol dependence scale

The results reported mean differences in AUDIT scores between groups that were statistically significant. The MI intervention group reported higher levels of alcohol dependency than participants in the comparison group across both time points. The comparison group suggests low-risk alcohol consumption according to the World Health Organization (W.H.O.) guidelines at time 1 ($M=5.44$, $SD= 5.13$) and time 2 ($M=4.48$, $SD= 4.05$). The MI intervention group scored significantly higher than the lower AUDIT threshold of 8 to 14 for hazardous or harmful alcohol consumption. Mean AUDIT categories for participants in the intervention condition at time 1 ($M=17.60$, $SD= 5.45$) met the criteria for the likelihood of alcohol dependency where the threshold score is set at 15 or more. These scores dropped to a threshold for harmful alcohol consumption 8-14, at time 2 ($M=12.60$, $SD= 5.89$). AUDIT questionnaire scores (0-40) for participants in the comparison and intervention condition are presented below in Table 6.6. The classification for categories for alcohol consumption include no risk, low risk, hazardous alcohol consumption and moderate-severe alcohol use disorder.

Table 6.6

% of MI and Comparison group participants scores in each AUDIT category.

ITT Analysis	No Risk <1	Low Risk Alcohol consumption 1-7	Hazardous Alcohol consumption 8-14	Moderate-severe alcohol use disorder 15+
<i>Comparison Group (n=80)</i>	(n=; %)	(n=; %)	(n=; %)	(n=; %)
AUDIT 1	n=12; 13%	n=40; 43.5%	n=28; 28.3%	n=43; 48.3%
AUDIT 2	n=14; 15.6%	n=44; 36.6%	n=21; 22.2%	n=27; 24.7%
AUDIT 3	n=12; 13.5%	n=43; 48.3%	n=11; 10%	n=7; 6.7%
<i>MI Group (n=5)</i>				
AUDIT 1	-	-	n=1; 20%	n=4; 80%
AUDIT 2	-	-	n=2; 40%	n=3; 60%

AUDIT 3

-

-

n=3; 60%

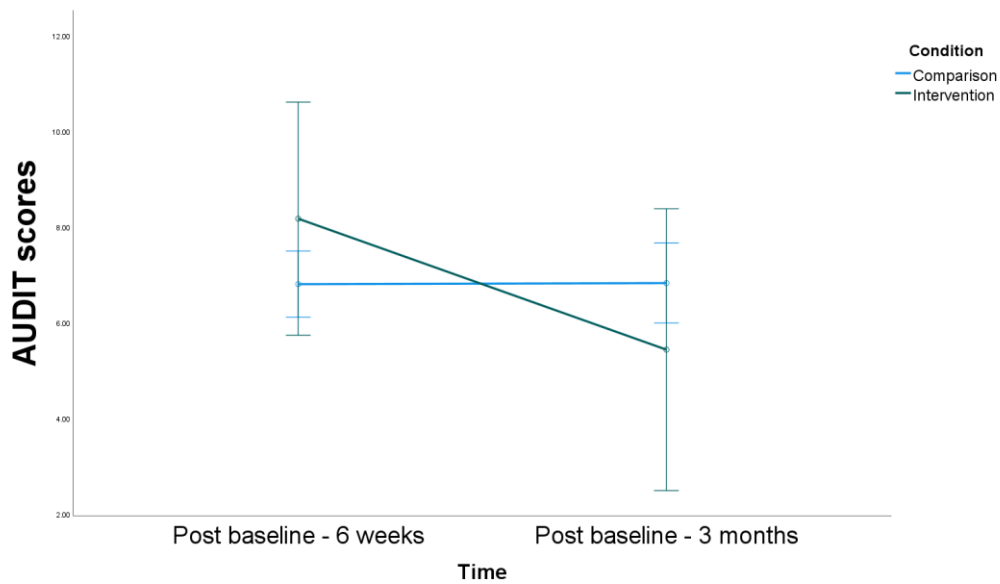
n=2; 40%

ITT analysis indicated that a non-significant main effect for time $F(1,88) = .608$ ($p=.437$) $\eta_p^2=.007$ and no significant interaction was indicated for time and condition $F(1,88) = 1.032$ ($p=.312$) $\eta_p^2=.012$. Figure 6.2 provides a graphical depiction in AUDIT score differences for ITT analyses.

PP analysis indicated a close to statistical significance main effect for time $F(1,30) = 3.899$ ($p=.058$) $\eta_p^2=.155$ and report a significant interaction for time and condition $F(1,30) = 4.257$ ($p=.048$) $\eta_p^2=.124$, with a small effect size. Post hoc testing indicated a significant difference between groups post intervention, $t(32) = -4.851$, $p<.001$, $\eta_p^2=.424$, with a large effect size. The MI intervention condition scored significantly higher in alcohol dependency ($M = 17.6$, $SD = 5.45$) when compared to the comparison condition ($M = 5.45$, $SD = 5.13$). AUDIT scores at time 2 also indicated a significant difference in mean scores between the MI intervention ($M = 12.60$, $SD = 5.90$) and the comparison group ($M = 4.48$, $SD = 4.05$), $t(32) = -3.876$, $p<.001$, $\eta_p^2=.398$ with a moderate effect size. The greatest reduction in alcohol consumption for study participants occurred in the intervention group from time 2 ($M = 15.25$, $SD = 6.69$) to time 3 ($M = 12.13$, $SD = 6.13$), while the comparison group did not report any significant change in their alcohol consumption between time 2 ($M = 6.13$, $SD = 5.52$) and time 3 ($M = 6.19$, $SD = 5.79$). See Figure 6.2, for intervention and comparison group mean AUDIT scores.

Figure 6.2

M (SD) Participant Scores on AUDIT in MI Intervention and Comparison Groups Post-Intervention ANCOVA in ITT Analysis.



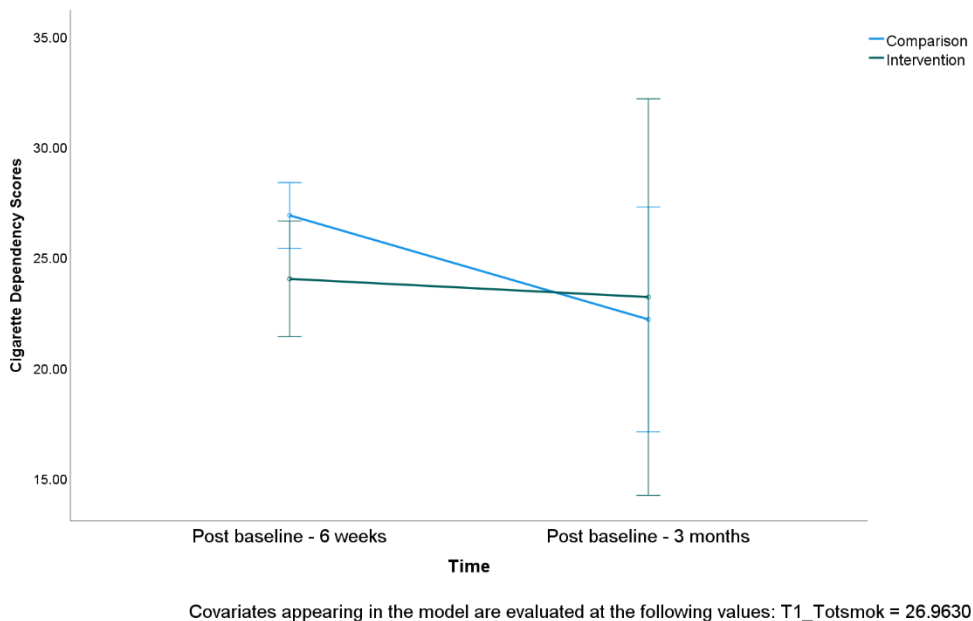
Covariates appearing in the model are evaluated at the following values: T1 total AUDIT = 7.4348

6.7.2 CDS-12

ITT analysis for smoking indicated no significant interaction between time and condition $F(1,23) = .007$ ($p = .935$) $\eta^2 p = .000$ or for the effect of time $F(1,23) = .730$ ($p = .402$) $\eta^2 = .031$. PP analysis was not conducted for smoking measures due to incomplete measures post baseline in the comparative condition. Mean scores for the CDS-12 questionnaire in the intervention and comparison for ITT analysis are presented in Figure 6.3.

Figure 6.3

M (SD) Participant Scores on CDS-12 in MI Intervention and Comparison Groups Post-Intervention ANCOVA in ITT Analysis.



6.7.3 IPAQ-sf

6.7.3.1 Total MET minutes/week

ITT analysis indicated no significant interaction between time and condition for total MET minutes per week $F(1,141) = .258$ ($p=.612$) $\eta_p^2=.002$, or for the main effect of time $F(1,141) = 2.663$ ($p=.105$) $\eta_p^2=.019$. PP analysis also observed a non-significant main effect for time $F(1,65) = 2.422$ ($p=.124$) $\eta_p^2=.036$ and a non-significant interaction for time and condition $F(1,64) = .522$ ($p=.460$) $\eta_p^2=.008$. Mean scores comparing groups for the total MET minutes are presented in Figure 6.4.

6.7.3.2 Total PA minutes/week

No statistically significant differences were reported in the interaction between condition and time in total PA minutes for ITT analysis $F(1,141) = 1.219$ ($p=.271$) $\eta_p^2=.009$ or for the main effect of time $F(1,141) = 3.320$ ($p=.071$) $\eta_p^2=.023$. PP analysis indicated a non-significant interaction between time and condition $F(1,65) = 1.884$ ($p=.175$) $\eta_p^2=.028$ and a non-significant main effect for time $F(1,65) = 1.766$ ($p=.189$) $\eta_p^2=.026$. Mean scores comparing groups for the total minutes are presented in Figure 6.5.

6.7.3.3 Total Vigorous PA minutes/week

ITT analysis indicated no significant interaction between time and condition $F(1,142) = 1.709$ ($p=.194$) $\eta_p^2=.019$, or main effect for time $F(1,142) = .710$ ($p=.402$) $\eta_p^2=.031$. PP analysis indicated no significant effect for the interaction of time and condition $F(1,64) = .546$ ($p=.463$) $\eta_p^2=.008$, or for the main effect of time $F(1,64) = .952$ ($p=.333$) $\eta_p^2=.015$. Mean scores comparing groups for the total vigorous minutes are presented in Figure 6.6.

6.7.3.4 Total Moderate PA minutes/week

ITT analysis for moderate PA indicated a non-significant interaction for time and condition $F(1,142) = 1.892$ ($p=.171$) $\eta_p^2=.013$ or for the main effect of time $F(1,142) = .316$ ($p=.575$) $\eta_p^2=.002$. PP analysis also indicated nonsignificant differences for the interaction of time and condition $F(1,64) = .001$ ($p=.694$) $\eta_p^2=.000$, and for the main effect of time $F(1,64) = .156$ ($p=.969$) $\eta_p^2=.002$. Mean scores comparing groups for the total moderate minutes are presented in Figure 6.7.

6.7.3.5 Total Walk PA minutes/week

ITT analysis indicated no significant interaction for time and condition in the total walk minutes $F(1,141) = .402$ ($p=.527$) $\eta_p^2=.003$ or for the main effect of time $F(1,141) = 3.907$ ($p=.081$) $\eta_p^2=.021$. PP analysis indicated a close to statistically significant difference for the interaction of time and condition $F(1,64) = 3.525$ ($p=.065$) $\eta_p^2=.052$, but not for the main effect of time $F(1,64) = 2.608$ ($p=.111$) $\eta_p^2=.039$. Mean scores comparing groups for the total moderate minutes are presented in Figure 6.8.

Figure 6.4

M (SD) Participant Scores on IPAQ-sf for Total PA MET minutes per week in MI Intervention and Comparison Groups Post-Intervention ANCOVA in ITT Analysis.

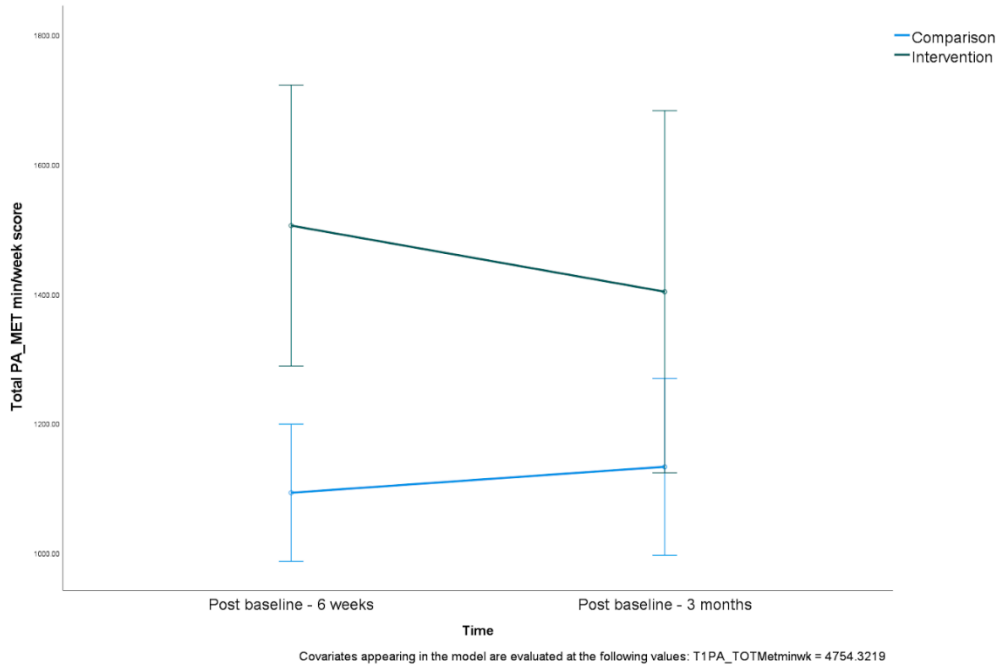


Figure 6.5

M (SD) Participant Scores on IPAQ-sf for Total PA minutes per week in MI Intervention and Comparison Groups Post-Intervention ANCOVA in ITT Analysis.

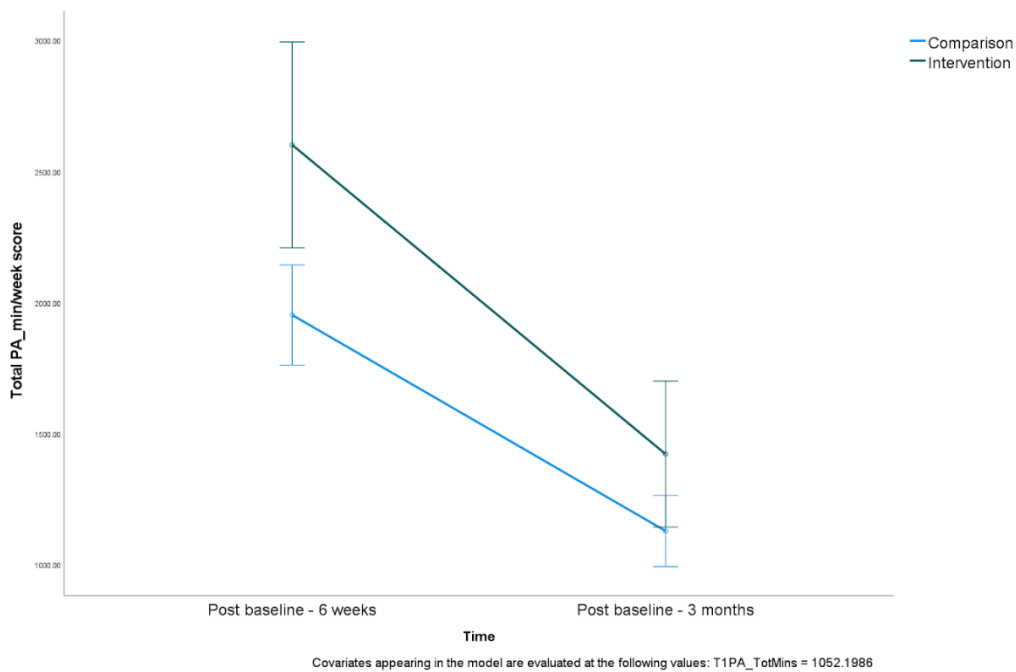


Figure 6.6

M (SD) Participant Scores on IPAQ-sf for Total Vigorous PA minutes per week in MI Intervention and Comparison Groups Post-Intervention ANCOVA in ITT Analysis.

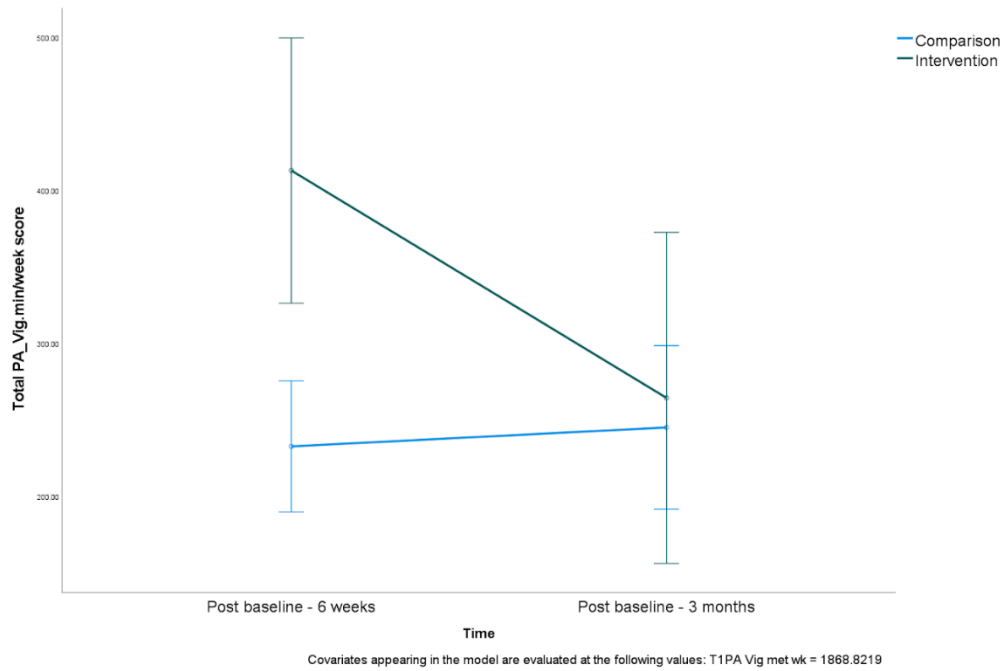


Figure 6.7

M (SD) Participant Scores on IPAQ-sf for Total Moderate PA minutes per week in MI Intervention and Comparison Groups Post-Intervention ANCOVA in ITT Analysis.

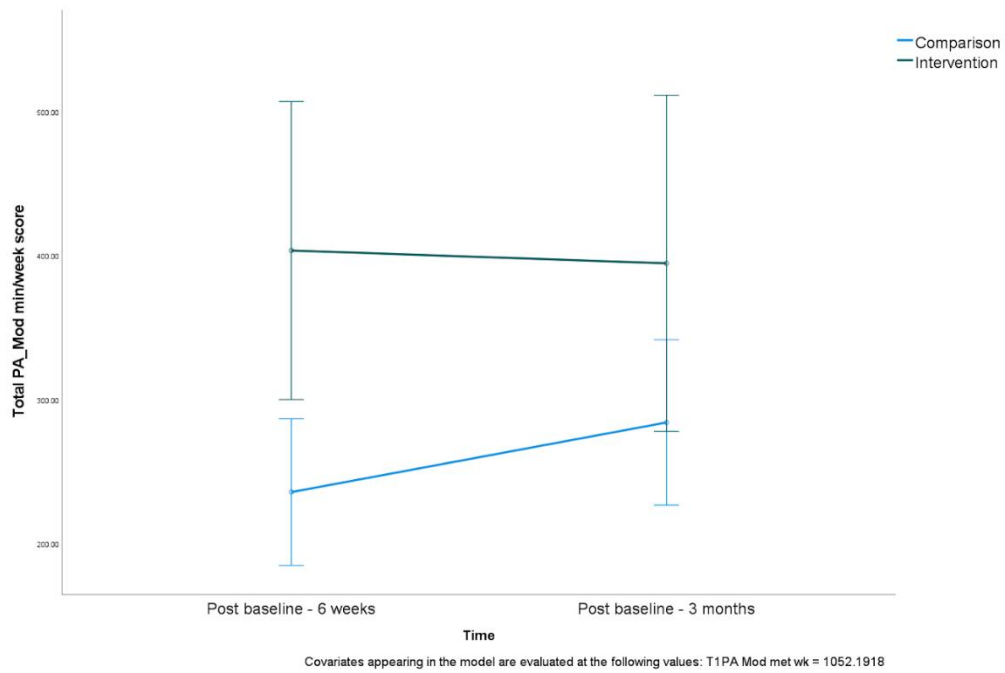
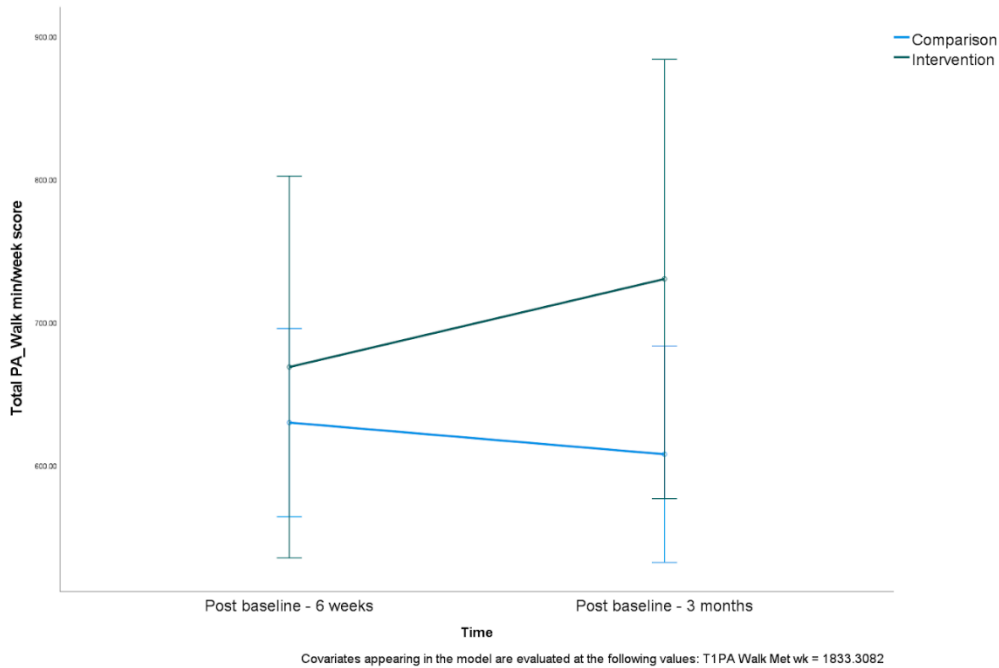


Figure 6.8

M (SD) Participant Scores on IPAQ-sf for Total Walk minutes in MI Intervention and Comparison Groups Post-Intervention ANCOVA in ITT Analysis.



6.7.4 Mixed factorial ANOVA: Intention to treat analysis.

6.7.4.1 Readiness Ruler (RR) - Confidence to Change Health Risk Behaviour

ITT analysis assessing confidence scores indicated non-significant results for the interaction of condition and time, *Wilks' Lambda* = .97, $F(2,77) = 0.899$, $p = .411$, $\eta_p^2 = .023$, and for the main effect for time *Wilks' Lambda* = .93, $F(2,77) = 3.303$, $p = .054$, $\eta_p^2 = .073$. The plot of means (Figure 6.9) displays differences in group confidence scores across the three timepoints. PP analysis also indicated a non-significant interaction for time and condition $F(2,77) = 0.899$ ($p = .411$) $\eta_p^2 = .023$ and for a non-significant main effect for time $F(2,77) = 3.030$ ($p = .054$) $\eta_p^2 = .073$.

6.7.4.2 Readiness Ruler (RR) - Importance to Change Health Risk Behaviour

ITT analysis indicated a statistically significant main effect for time *Wilks' Lambda* = .92, $F(2,77) = 3.324$, $p = .041$, $\eta_p^2 = .079$ and a significant interaction for time and condition *Wilks' Lambda* = .97, $F(2,77) = 1.301$, $p = .027$, $\eta_p^2 = .033$ for importance scores. Mean differences between time 1-2 for the MI group were statistically significant $t(33) = -3.504$, $p = .004$, $\eta_p^2 = .228$, with a large effect size. The comparison condition reported no significant differences in importance scores for behaviour change. Statistically significant differences were also reported between groups at time 1 $t(106) = -3.894$, $p < .001$, time 2 $t(98) = -5.872$, $p < .001$, and time 3 $t(145) = -6.021$, $p < .001$. Figure 6.10 provides a graphical

depiction of the mean scores. PP analysis for importance scores indicated a significant main effect for time $F(2,77) = 3.324, (p=.041) \eta_p^2 = .079$, but not for the interaction of time and condition $F(2,77) = 1.301, (p=.278) \eta_p^2 = .033$.

Figure 6.9

M (SD) Participant Scores on Confidence to change a Health Risk behaviour in MI Intervention and Comparison Groups from Pre to Post-Intervention in ITT Analysis.

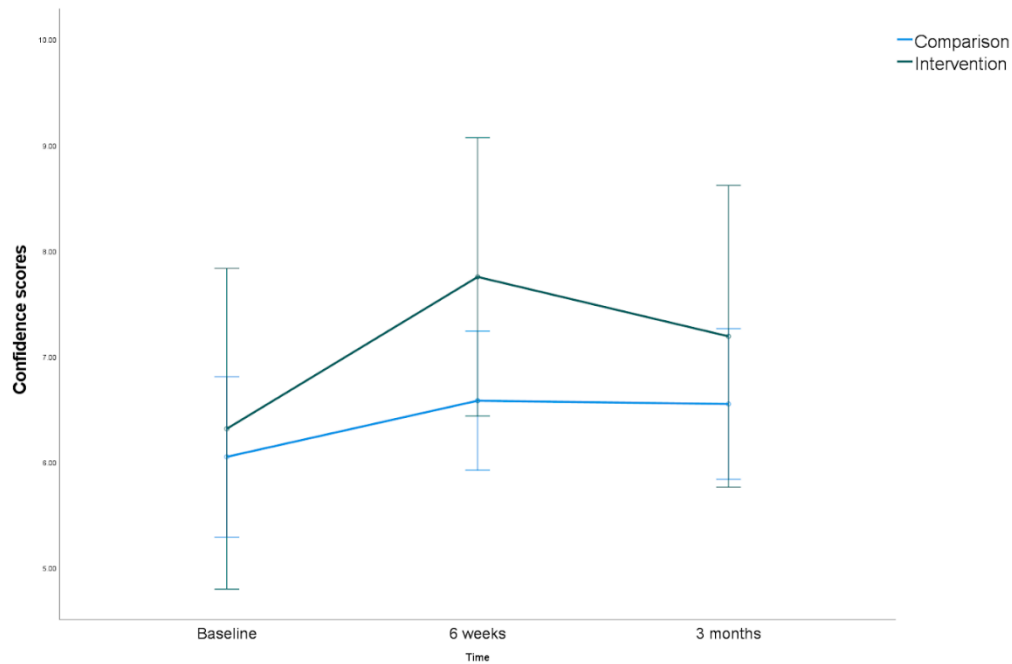
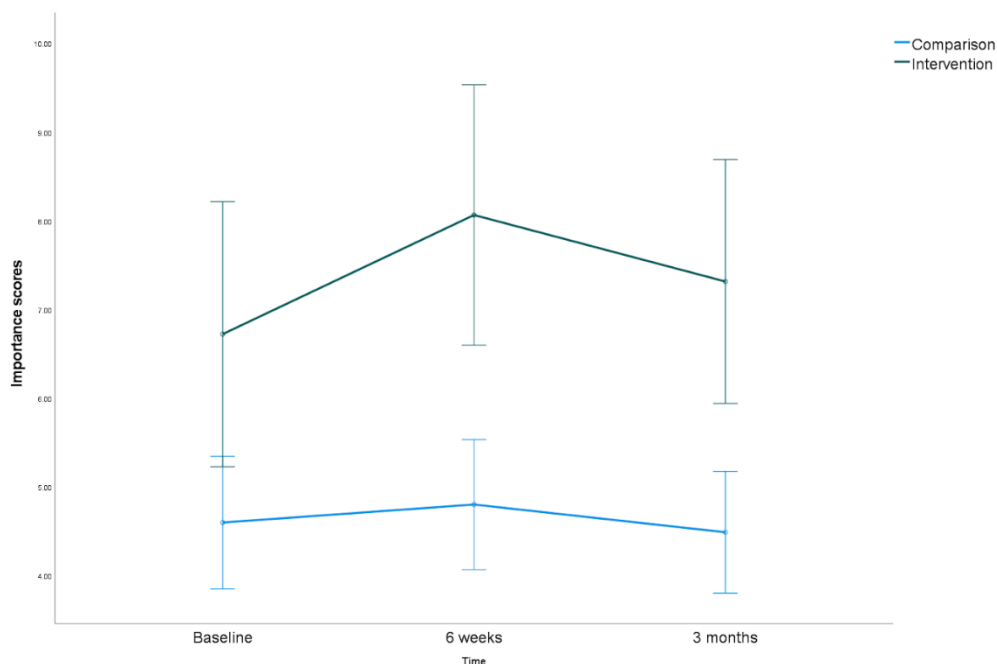


Figure 6.10

M (SD) Participant Scores on Importance to change a Health Risk behaviour in MI Intervention and Comparison Groups from Pre to Post-Intervention in ITT Analysis.



6.8 Additional Exploratory Paired sample t-tests – IPAQ-sf

No significant interactions were reported in ITT or PP analysis for the repeated measure ANCOVAs assessing PA. These results suggest that the intervention was not successful in increasing physical activity in the intervention group. However, Cronbach's alpha reported a low internal consistency ($\alpha=.32$) for respondents who completed the IPAQ-sf self-report questionnaires in both conditions (see Table 6.4). Further analysis determined that the IPAQ-sf questionnaire completed by MI recipients exhibited a higher and acceptable Cronbach's alpha ($\alpha=.67$) when compared to respondents in the comparison condition where a low alpha level ($\alpha=.27$) was reported. Consequently, exploratory analyses used paired sample t-tests to evaluate the impact of the MI intervention on five categories of physical activity including total MET minutes/week, total minutes/week, total vigorous minutes/week, total moderate minutes/week, and total walk minutes/week across three timepoints for respondents in the MI condition. Table 6.6 provides details of ITT analysis dependent t-test results for MI participants who chose to increase their PA and Table 6.11 (Appendix G) provides PP analysis results for t-tests.

6.8.1.1 Total MET PA minutes/week

ITT analysis indicated a statistically significant increase in total MET minutes between time 1 ($M=2576.00$, $SD=1557.08$) and time 2 ($M=5936.83$, $SD=3934.54$), $t(28) =$

-5.215, $p < .001$ two-tailed. Statistically significant differences were also reported between time 1-3 ($M=5819.59$, $SD=3820.16$), $t(28) = -4.234$, $p < .001$, two-tailed. However, there were no statistically significant differences were indicated between time 2-3 ($p=.891$). PP analysis reported statistically significant differences in total MET minutes between time 1 ($M=709.67$, $SD=479.98$) and time 2 ($M=1290.45$, $SD=57$), $t(20) = -4.87$, $p < .001$ two-tailed. Statistically significant increases in MET PA were also observed between time 1-3 ($M=1150.45$, $SD=600.07$), $t(20) = -3.11$, $p=.006$, two-tailed. No statistically significant differences were reported between time 2-3 ($p=.505$).

6.8.1.2 Total PA minutes/week

ITT analysis reported a statistically significant increase in total minutes in PA between time 1 ($M=590.07$, $SD=388.36$) and time 2 ($M=1232.07$, $SD=775.68$), $t(28) = -4.836$, $p < .001$ two-tailed, and between time 1-3 ($M=1318.45$, $SD=722.30$), $t(28) = -4.621$, $p < .001$ two-tailed. Although there was an increase in total PA minutes between time it was not statistically significant ($p=.631$). PP analysis also reported statistically significant increases in total minutes in PA between time 1 ($M=145.00$, $SD=82.37$) and time 2 ($M=252.43$, $SD=149.27$), $t(20) = -4.36$, $p < .001$, two-tailed and between time 1-3 ($M=243.57$, $SD=107.56$), $t(20) = -3.75$, $p=.001$, two-tailed. Although there was an increase in total PA minutes between time 2-3 it was non-significant ($p=.848$).

6.8.1.3 Total Vigorous PA minutes/week

ITT analysis reported a statistically significant increase in total vigorous minutes in PA between time 1 ($M=942.07$, $SD=1104.15$) and time 2 ($M=2979.24$, $SD=2668.43$), $t(28) = -2.550$, $p < .001$ two-tailed, and between time 1-3 ($M=2074.48$, $SD=2500.65$), $t(28) = -2.550$, $p=.017$ two-tailed. Although there was a decrease vigorous PA between time 2-3 $t(28) = 1.442$, $p=.161$ two-tailed statistically, it was not statistically significant. PP analysis also indicated statistically significant increases in vigorous PA minutes between time 1 ($M=360.00$, $SD=425.31$) and time 2 ($M=685.71$, $SD=492.233$), $t(20) = -3.37$, $p=.003$ two-tailed. However, these statistically significant differences were not observed at other time points, including a decrease between time 2-3 ($p=.191$) and increase between time 1-3 ($p=.207$).

6.8.1.4 Total Moderate PA minutes.

ITT analysis observed a statistically significant increase in total moderate PA minutes between time 1 ($M=430.34$, $SD=514.44$) and time 2 ($M=1300.69$, $SD=1473.56$), $t(28) = -3.258$, $p=.003$, two-tailed and between time 1-3 ($M=1428.28$, $SD=1273.28$), $t(28) = -3.258$, $p=.003$ two-tailed. No significant differences were indicated in moderate PA

between time 2-3 $t(28) = -.425, p = .674$, two-tailed. PP analysis also indicated a statistically significant increases in moderate PA between times 1 ($M = 112.38, SD = 155.73$) and 2 ($M = 331.43, SD = 250.80$), $t(20) = 3.222, p = .004$, two-tailed and between time 1-3 ($M = 280.00, SD = 208.53$), $t(20) = -4.005, p > .001$, two-tailed. However moderate PA between time 2-3 was non-significant ($p = .517$).

Table 6.6

ITT analysis M (SD) IPAQ-sf questionnaire scores across three timepoints for MI participants.

	Time 1	Time 2	Time 3	
PA Total min.	M (SD)	M (SD)	M (SD)	Cohens d (T1-2)
MET	2576.00 (1557.08)	5936.83 (3934.54)	5819.59 (3820.16)	1.12
Total	590.07 (388.36)	1232.07 (775.68)	1318.45 (722.30)	1.05
Vigorous	942.07 (1104.15)	2979.24 (2668.43)	2074.48 (2500.65)	.99
Moderate	430.34 (514.44)	1300.69 (1473.56)	1428.28 (1273.28)	.79
Walk	1203.59 (1373.31)	1838.89 (1322.94)	2316.83 (1308.40)	.47

Note. ITT analysis MI respondents (N = 29), Total Mean Minutes across Five Categories of PA times 1-3 and Cohen's d, dependent t-tests between time 1-2.

6.8.1.5 Total Walk minutes.

ITT analysis indicated statistically significant increases in total walk PA minutes between time 1 ($M = 1203.59, SD = 1373.31$) and 2 ($M = 1838.89, SD = 1322.94$), $t(20) = -3.470, p = .002$ two-tailed, in addition to between time 1-3 ($M = 2316.83, SD = 1308.40$), $t(28) = -2.44, p = .022$, two-tailed. Although there was an increase in walk PA between time 2-3, this increase was not statistically significant ($p = .148$). PP analysis indicated statistically significant increase in total walk minutes between time 1 ($M = 237.29, SD = 208.81$) and time 3 ($M = 363.79; SD = 182.13$) $t(20) = -2.365, p = .028$ two-tailed. Although walk PA minutes increased between time 1 and time 2 ($M = 273.43, SD = 206.91$),

the increase was not statistically significant ($p=.400$). Similarly, an increase in walk PA minutes was reported between time 2-3, but this increase was also not statistically significant increased between time 1 and time 2 ($M=273.43$, $SD=206.91$), the increase was not statistically significant ($p=.400$). Similarly, an increase in walk PA minutes was reported between time 2-3, but this increase was also not statistically significant ($p=.094$).

6.9 Summary of results.

The results from this study indicate statistically significant decreases in total alcohol dependency scores at post MI intervention time points. These changes in behaviours were not reported in the intervention for reducing recipient cigarette smoking. Secondary outcomes, assessing the importance to change a health risk behaviour provided statistically significant results in the MI group. Confidence to change a health risk behaviour trended towards significance for the intervention group between baseline and time two. Exploratory analysis for PA indicated that MI participants increased their PA scores with statistical significance for the majority of categories in ITT and PP analysis between time 1-2. These significant increases were with the exception of vigorous PA at time 2 in PP analysis. ITT analysis indicated maintenance of increased PA for all categories between time 1-3 where statistically significant increases were reported. Similarly, PP analysis reported statistically significant increases in PA between time 1-2 and between time 1-3 across all PA categories. These increases in PA across all categories between time 1-3 suggest maintenance of increased PA for MI participants at the 3 month follow up time point.

6.10 Discussion.

The current study evaluated the efficacy of a peer-led MI intervention to reduce health risk behaviours. Primary outcomes (smoking, alcohol consumption, and physical activity) and secondary outcomes (confidence and importance for behaviour change) were assessed at baseline, at 6 weeks, and 3 months post baseline. The effectiveness of the intervention is determined by the proportion of those participants who report significant decreases at follow-up time assessment for their smoking and alcohol behaviour and significant increases in their physical activity. Tentative indications of maintenance in behaviour change are examined through the extent to which individual behaviour change effects lasted at the three-month follow-up data assessment.

6.10.1 Alcohol Consumption.

Although the ITT analyses indicated no significant effects, PP analysis reported a significant interaction for the main effect of time and condition ($p=.048$), with a small effect size. MI participants reported higher levels of alcohol dependency when compared to the

comparison group at post-intervention time points ($p < .001$). However, due to the COVID-19 outbreak, the ability to collect follow-up data at 6- and 10-months post-intervention was restricted, which may have provided greater statistical power and increased the ability to detect significant effects between groups and to assess maintenance of behaviour change over a longer period. All adolescents who participated in the intervention and the comparison group who completed the AUDIT were included in the study. Self-report measures indicated that MI condition scores met the category for the likelihood of alcohol dependency at time 1 ($M=17.60$, $SD= 5.45$) decreasing to harmful alcohol consumption at time 2 ($M=12.60$, $SD= 5.89$).

These significant interactions were not observed in ITT analysis, which is a more stringent analysis, and has greater difficulty in obtaining statistically significant results than that for PP analyses (Brittain & Lin, 2005). Descriptive statistics outlining group participant numbers for ITT ($n=15$) and PP ($n=15$) analysis, indicate a small sample of participants who chose to reduce their alcohol consumption in the study, limiting inferences that can be made from the findings and making generalisations to larger adolescent cohorts. The significant differences observed in alcohol consumption between groups indicated that the intervention group scored on average in the severe range for Alcohol Use Disorder (AUD). This contrasts with the comparison group which indicated mild AUD (DSM-5, 2013).

MI recipient's self-reported alcohol consumption behaviour is in line with recent findings in the Irish National Drugs and Alcohol Survey (NDAS) which assessed drinking behaviour amongst Irish adolescents (Mongan et al., 2021). The My World Survey (MWS-2) also highlighted the potential AUD for 3% of adolescent respondents (12 - 19 years) who scored high on the AUDIT. Although alcohol drinking initiation for Irish young people is below the European average (79%), reported drunkenness in the last month (16%) is above the average (13%), underscoring the prevalence of hazardous drinking behaviour amongst some young people (15 - 24 years) who consume alcohol in Ireland (Mongan et al., 2021). The findings in the current study suggest that the intervention was effective in improving outcomes on reducing hazardous drinking. MI recipients reduced their level of drinking from hazardous to harmful on the AUD at the 3-month follow-up timepoint, however, the effect size in the intervention group was small.

These findings are consistent with the literature assessing the effectiveness of MI in reducing alcohol consumption among young people (aged 13–25 years). A meta-analysis and systematic review of the literature suggest that MI is more efficacious than other BIs for young people to reduce their alcohol use (Kohler & Hofmann, 2015). Six trials in the meta-analysis and review indicated reductions, with two reporting significant decreases in alcohol

consumption and one trial reporting that the most effective reductions ($p < 0.05$) were amongst those who engaged in high levels of alcohol consumption (Kohler & Hofmann, 2015; Monti et al., 2007; Spirito et al., 2004). Comparisons between MI groups and control groups using standardized mean differences (SMDs), indicated that MI was most beneficial in cohorts in the USA for reductions in alcohol frequency (SMD = -0.21, $p < .01$) and in the quantity of alcohol consumed (SMD = -0.12, $p = .04$). The literature also indicated that MI had greater success in reducing alcohol-related consequences when compared to the control group across four of the seven studies (Bernstein et al., 2010; Cunningham et al., 2009; Monti et al., 1999, 2007).

The findings in the current study that reported statistically significant reductions in hazardous drinking to harmful drinking appear to be in line with research that has been conducted with adolescent populations. Beckham (2007) incorporated MI as a method to reduce hazardous drinking behaviour amongst participants recruited from community health care centres. Statistically significant differences were reported between the intervention (MI) and the control groups for the number of alcoholic drinks consumed per day. Additionally, the study reported a statistically significant reduction in alcohol consumption for the intervention group, where their glycoprotein levels measured at time 1 ($GGT = 66.25$) reduced with statistical significance to time 2 ($GGT = 34.81$), compared to non-significant reductions in alcohol use for participants in the control condition (Beckham, 2007). These results reflect research from a harm reduction perspective that recognises the use of MI as an effective method to decrease alcohol consumption (Marlatt, Baer, Kivlahan, Dimeff, Larimer, Quigley, et al., 1998). The literature suggests that MI is effective in reducing alcohol consumption amongst adolescent populations, with the greatest impact of the use of MI amongst those who engage in problematic alcohol consumption behaviour. This study supports such evidence finding that MI recipients who reported the most problematic alcohol consumption behaviour reported the most significant reductions in their alcohol use when compared to the comparison group.

Although the literature supports the use of MI to reduce alcohol consumption among adolescents and young people statistically significant reductions are not always achieved. Variations are observed in both the treatment and the quality of how MI was delivered in previous studies (Kohler & Hofmann, 2015). Findings in a study that provided an office-based MI session (15 minutes) to participants indicated non-significant reductions in their alcohol consumption behaviour and low levels of satisfaction with the intervention received. The study suggested that careful consideration is applied to the needs and preferences of those who receive the intervention, as MI participants reported lower

satisfaction with the treatment received when compared to those who received the information brochure (Boekeloo et al., 2004). In contrast, college students who participated in an MI intervention (BASICS) reported high engagement and satisfaction, and although non-significant decreases were reported in drinking behaviour, lower levels of alcohol consumption and binge drinking were reported in the MI group compared to the control group at the nine months follow up. MI was also considered to be more beneficial than no treatment to reduce problematic drinking behaviour and was effective in increasing participants' readiness to change their drinking behaviour (Murphy et al., 2001). Furthermore, the MI approach was considered more effective than receiving an education session in reducing alcohol consumption amongst college students (Borsari & Carey, 2005), and demonstrated some effectiveness for changes in adolescent cognitive determinants for drinking behaviour, but no significant reductions were indicated between groups in the levels of their alcohol consumption (Thush et al., 2007).

6.10.2 Physical Activity.

ITT and PP analysis indicated no significant interactions in physical activity between the comparison and intervention groups. However, PP analysis indicated an increase in PA that trended towards statistical significance ($p=.065$) for the category of the total minutes walked. The effect size of this interaction was small. Exploratory analysis for the intervention group to assess the reliability of the scale for PA (IPAQ-*sf*) indicated different Cronbach's alpha scores between groups. The internal consistency for the IPAQ-*sf* as completed by respondents in the MI group ($\alpha=.67$) is considered acceptable. However, the Cronbach's alpha coefficient for the comparison group was low ($\alpha=.27$) and the reliability of the survey items in the IPAQ-*sf* was not considered consistent across those respondents.

There is limited evidence on assessing the effectiveness of the IPAQ-*sf* among adolescent cohorts and where research has sought to do so, it has incorporated objective measures to validate its use (Lachat et al., 2008; Rääsk et al., 2017). The literature has also sought to understand the context under which the IPAQ-*sf* is completed by adolescent cohorts to assess the validity and reliability of the scale. One such study, conducted by Aibar et al. (2016) sought to evaluate the context in which Spanish adolescents completed the IPAQ-*sf*. The first cohort of adolescents ($n=270$) received instructions on how to complete the IPAQ-*sf* and completed the questionnaire in groups of 25. A researcher was available for questions that arose in relation to the questionnaire during this study. Respondents were then asked if they encountered any problems in completing the questionnaire. Difficulties included respondents' ability to recall the previous weeks' PA

levels, differentiating intensity levels (vigorous and moderate), and estimating minutes spent in PA. The second study sought to reduce the errors of recall based on the feedback collated from study one. Modifications included reducing the size of the group ($n=5$) when completing the questionnaire, and students recalled and recorded their PA from the previous week in a diary before completing the IPAQ-*sf* (Aibar et al., 2016). In the present study peer recipients completed the baseline IPAQ-*sf* at the beginning of the first MI session and at follow on time points (6 weeks and 3 months post-baseline) with their peer educator. The individual session may have provided them the opportunity to clarify questions in the IPAQ-*sf* that recipients in the comparison condition were not afforded due to the group dynamic in which they completed the questionnaires. Aibar et al. (2016) also provided recommendations incorporating the use of a recall diary to improve adolescents' accuracy on their recall of their PA before completing the IPAQ-*sf* and providing clarity on questions in the questionnaire. Similar findings are presented in a study that sought to establish efforts to improve the accuracy of the respondent answers in the IPAQ-*sf*. The IPAQ-*sf* was administered to adolescents ($n= 652$) in groups (20-30 respondents) between the ages of 12-17 years in a second-level school. Recommendations included the provision of written and verbal guidelines on how to complete the measure, a duration of 25 minutes to complete the questionnaire in a room that accommodated 350 people, and no communication between participants during their completion of the questionnaire (Fernández-Bustos et al., 2019).

The current study encountered problems with the reliability of scale when the IPAQ-*sf* was completed in a group setting. This may be due to the various levels of support that participants received during the administration of the questionnaire for each group. MI peer educators administered the IPAQ-*sf* individually with recipients, while those in the comparison condition completed the IPAQ-*sf* as a group. Researchers present during the HBT noted that respondents sought clarity with respect to interpreting questions on the IPAQ-*sf*. Although brief details were provided before each HBT on how to complete the questionnaire, this instruction appeared not to be sufficient. As such, comparisons between groups on the levels of PA could not be established accurately during analysis. This is despite its frequency of use to assess physical activity levels in large-scale population-based studies (Sjöström et al., 2006) and based on its high reliability and validity which is widely accepted among adult populations (Craig et al., 2003). The IPAQ-*sf* has demonstrated greater reliability when compared to other PA measurements; however, the age of participants, gender differences, overestimation and underestimation of self-reported PA have been discussed as influencing factors on the accuracy of IPAQ-*sf* (Rangul et al., 2008).

Although, self-nominating recipients who engaged in MI sessions to increase their PA are assumed ready to make changes, often ambivalence or resistance is encountered when changing a behaviour such as increasing PA. MI recipients who chose to increase their PA indicated statistically significant increases across all categories in ITT and PP analysis. The effect size of these increases in ITT analysis was large for vigorous ($d=1.05$) and moderate ($d=.99$), and medium for walk ($d=.47$) PA categories. These changes in PA were not confirmed through objective data and as such results from the self-report measures could not be verified. This may be an important consideration, as previous research has emphasised the necessity of using objective in addition to self-reported measures to improve the accuracy of measuring PA (Cliff et al., 2010). The focus of the current study was to understand the acceptability and feasibility of recipients receiving MI sessions from peer educators. The attrition rates of MI recipients (see Figure 6.1) and the number of MI sessions that recipients engaged in, may have been a more important factor to consider.

Exploratory ITT analysis for participants in the intervention group sought to determine differences across time in scores for five PA categories. Statistically significant increases were reported between times 1-2 across all five categories of PA; MET, total minutes, vigorous, moderate, and walk minutes per week. Furthermore, statistically significant increases in all five categories of physical activity between time 1-3 suggested maintenance of behaviour change for MI participants at three months; MET, total minutes, vigorous, moderate, and walk minutes per week. The most significant increases in PA were reported between baseline and time two, with the maintenance of increased physical activity indicated at the three-month follow-up timepoint. However, statistically significant differences were not reported for PA between times 2-3. Four [MET, Total Minutes, Moderate, walk] of the five PA categories continued to increase; however, these were non-significant increases and vigorous physical activity reported a non-significant decrease in PA minutes between time 2-3.

PP analysis reported similar statistically significant increases in PA between times 1-2 in four of the five PA categories including MET minutes, total minutes, vigorous minutes, and moderate minutes. Walk minutes increased between time 1-2 but these increases in activity were not statistically significant. Walk minutes increased with statistical significance between times 1-3, a small decrease in vigorous PA was reported between times 1-3, and an insignificant increase in vigorous PA between times 2-3. PP analysis results were like ITT analysis, in that none of the categories for PA increased with statistical significance between times 2-3.

Findings in the current study appear to broadly support previous research that has sought to assess the effectiveness of delivering MI to increase PA amongst adolescent cohorts (Davis et al., 2011; Flattum et al., 2011; Gourlan et al., 2013; Resnicow et al., 2006). The peer-led MI study indicated low attrition and high participant engagement with recipients. Similarly, high participant ($n=41$) engagement was reported in “The New Moves” school programme, where MI techniques were used to engage physically inactive high school female students (16 -18 years) in the intervention. This study reported that the intervention had a positive impact on increasing PA, eating patterns, and self-image among participants (Flattum et al., 2011; Neumark-Sztainer et al., 2008). Similarly, results in a follow-on study with adolescent girls (14 -17 years) indicated a statistically significant ($p=.05$) decrease in sedentary behaviour (Neumark-Sztainer et al., 2010). Furthermore, a study that evaluated the effectiveness of MI as a component in an intervention that sought to increase PA among obese Latino adolescents ($n =38$) reported that MI participants significantly increased their PA fitness when compared to the comparison group ($n=14$) (Davis et al., 2011). The approach is often used as a component alongside other methods to increase PA and enhance physical activity programmes received by adolescents (Gourlan et al., 2013) and has been recognised as an acceptable way to work with paediatric cohorts to reduce obesity (Resnicow et al., 2006). Positive reductions in BMI were established in The Health Initiatives Program [HIP]; however, changes were not long-lasting and had moderate effect sizes (Ball et al., 2011). The “Adolescents Committed to Improvement of Nutrition and Physical Activity” (ACTION) study recruited overweight and obese adolescent participants ($n=51$) aged between 13 to 16 years. Results indicated significant improvements in participants’ BMI and waist circumference, and these results supported the possibility of the intervention reducing adolescent susceptibility to developing health risk complications including diabetes and obesity into adulthood (Kong et al., 2013).

6.10.3 Smoking.

The third primary outcome sought to assess the effectiveness of MI to reduce cigarette smoking behaviour among adolescents. ITT analysis conducted for smoking behaviour did not indicate a statistically significant interaction in this study. PP analysis could not be conducted due to missing data in the comparison group. A greater number of participants ($n=41$) chose to reduce their smoking behaviour in the comparison condition compared to participants in the intervention condition ($n=7$). There was a slight and non-significant reduction in smoking behaviour for MI recipients between times 2-3 in the intervention condition.

Findings indicated that the intervention was not effective as it did not have a significant impact on reducing smoking behaviour. This contrasts with the expectations of the study as the literature supports an MI approach and there is a potential to capitalise on peer influences in the delivery of a health message from the peer educator's perspective to support adolescents who smoke and to reduce the impact of the behaviour. The literature demonstrates the effectiveness of using MI as an approach to prevent adolescent smoking behaviour (Audrain-McGovern et al., 2011), and to increase their motivation to achieve abstinence in this behaviour (Dalum et al., 2012; Kealey et al., 2009).

MI has been used on its own or in combination with other therapeutic approaches to elicit smoking cessation among adolescent populations. There is evidence that programmes based on MI strategies are effective in reducing smoking behaviour although these reductions have not been found to be maintained at 6- and 12-month follow-up time points (Grimshaw & Stanton, 2013). Audrain-McGovern and colleagues (2011) demonstrated the efficacy of this approach in a RCT with U.S. adolescents (aged 14-18 years), who received one of two treatments. The intervention group ($n=177$) received 5 MI sessions, compared to the control group ($n=178$) who received brief advice (BA) to support them in reducing their smoking behaviour. The findings from this study reported no significant difference between groups at the end of the intervention. Adolescents who received MI sessions nonetheless reported greater reductions in cigarette use when compared to the group who received BA.

Adolescents' motivation to stop smoking is important for behaviour change outcomes. Peterson et al. (2009) reported significant decreases in smoking behaviour for adolescents ($n= 1058$) who received up to 9 sessions of MI over the phone when compared to a control group ($n=1093$) who received no MI sessions. Motivated participants engaged in an initial 5-minute counselling session to reduce smoking behaviour. Three subsequent telephone MI sessions were received, and those who continued or who demonstrated a motivation to change smoking behaviour received an additional 6 MI sessions. Results indicated that adolescents who received MI sessions and who were motivated to stop smoking (receiving additional MI sessions) when compared to the control group had significantly higher self-reported abstinence rates in smoking behaviour post-intervention (1 and 6 months) (Kealey et al., 2009). These findings are also supported by a more recent study conducted in Denmark with adolescents ($n=642$) who received MI sessions to support smoking cessation. When compared to waitlist control ($n=505$) adolescent daily smokers in the intervention condition self-reported abstinence at 1 but not at 12 months follow up (Dalum et al., 2012).

The small number of participants who chose to reduce their cigarette smoking behaviour appears to be consistent with reported national and international reductions in smoking behaviour amongst this cohort. A decrease in the prevalence of smoking amongst Irish teenagers was reported in all the European School Survey Project on Alcohol and other Drugs (ESPAD) survey waves from 1995 until 2015. These trends of decreased smoking behaviour have suggested the possibility of achieving the target 5% smoking rates amongst the Irish population by 2025 and support a core element of tobacco control policy in Ireland, to reduce the initiation of smoking behaviour in adolescent years (Healthy, 2013; Li et al., 2018). However, more recently ESPAD has reported increases in smoking behaviour among Irish and European adolescents. Smoking behaviour reported by Irish adolescents has significantly increased from 13.1% in 2015 to 14.4% in 2019 (Sunday et al., 2021). Furthermore, between these years (2015–2019), smoking amongst 15–16-year-olds in Ireland was associated with e-cigarette use, and those who were at greatest risk included boys and adolescents from single-parent families. Findings in this recent report suggested that consideration for both gender and family type be considered for smoking intervention and prevention programmes (Sunday et al., 2021). The literature also emphasises the influence of peers on smoking behaviour and associated risks with initiation of smoking behaviour for children and adolescents (10 -19 years). Peer group influences were recognised as a key factor for smoking initiation and were identified as key in the prevention of smoking behaviour amongst this cohort (Hanafin & Clancy, 2019). Adopting a MI peer-led approach, where adolescents deliver accurate knowledge of the risks associated with cigarette use may provide a feasible approach to responding to the increased use of tobacco products amongst this age group in the future.

6.10.4 Secondary outcomes - Importance and confidence to change behaviours.

Participant motivational readiness for drinking, smoking, and physical activity behaviour change was assessed using a readiness ruler (importance and confidence). ITT and PP analysis indicated no statistically significant interactions in recipient confidence to change a health risk behaviour. However, statistically significant interactions were reported for the importance to change behaviour. Although PP analysis included all completed primary outcome measures for participants, the readiness ruler experienced a high level of missing data from participants at baseline in the comparison condition.

A statistically significant interaction was found for the importance to change a health risk behaviour in the intervention group and close to significant increases in confidence scores. However, both indicated negligible Cohen's *d* effect sizes. Previous research has emphasised the potential role of confidence in indicating a respondent's

motivation for behaviour change. Confidence is a good and stable predictor of change, specifically concerning reductions in alcohol and cigarette smoking (Chung et al., 2011; Williams et al., 2007). Although the current study did not report significant interactions for confidence scores, results trended towards a statistically significant interaction ($p=.054$) in both ITT and PP analysis. Increases in confidence scores occurred between baseline and the last session of MI; however, it was negligible effect size. According to the literature, importance is considered less consistent across different health behaviours, as it lacks uniformity for changes. For instance, assigning a high level of importance to behaviour change is more favourable for alcohol behaviour but not for smoking (Bertholet et al., 2012).

MI interventions often use readiness rulers to assess the confidence and importance of participants to change their behaviour (Ball et al., 2017; Bertholet et al., 2012; Thush et al., 2009). This technique has been used in combination with other MI techniques including client goal setting, reflections, discussing challenges and barriers, and exploring ways to overcome these barriers. The readiness ruler can also support client dialogue through the use of the readiness rulers which encourages clients to articulate reasons for change (Miller & Rollnick, 2002).

6.10.5 Intensity, dosage, and modality of MI Interventions.

MI is recognised as an effective way to elicit behaviour change; however, considerable variation in the intensity and the dose of MI sessions have been reported across studies (Bertholet et al., 2012; Moyer et al., 2002; Wilk et al., 1997). MI studies have highlighted these variations noting that the number of sessions delivered and the requirement for participants to engage in interventions differed across studies (Lundahl et al., 2010). Seven MI recipients (15.9%) chose to reduce their smoking behaviour in the MI intervention with the total duration of MI sessions lasting an average of 50 minutes. Studies conducted with adolescents who received MI to reduce their smoking behaviour have varied in the number and length of sessions reported. Studies that indicated high levels of MI to reduce smoking behaviour reported longer and more frequent MI sessions. One study reported three 45-minute office sessions and two 30-minute office or telephone sessions over a 12-week period to adolescent participants interventionists to reduce smoking behaviour (Audrain-McGovern et al., 2011). Similarly, Harris et al. (2010) provided four MI sessions, with the first 3 MI sessions delivered every second-week post-baseline and the final session received four weeks following the third MI session, lasting between 20 to 30 minutes each. Studies reporting fewer MI sessions include the HYP programme, with a

single hour-long MI session provided to high school student smokers (Kelly & Lapworth, 2006). Variations have also been reported in the modality of MI sessions delivered to adolescent cohorts. Several studies conducted to decrease smoking behaviour have reported using a combination of methods to deliver MI to participants including face to face and follow up sessions over the phone (Colby et al., 2005, 2012). Studies also discuss the implementation of MI in their intervention as a component along with other therapeutic methods to support behaviour change. MI and CBT have been delivered in combination (Harris et al., 2010) and MI has been incorporated into an online environment to reduce adolescent smoking behaviour (Woodruff et al., 2007).

Similar variations for the duration, intensity, and method of delivery in MI interventions are reported in the studies that have sought to increase PA and or reduce obesity amongst adolescent cohorts. Furthermore, studies that have sought to increase PA often do so in combination with nutrition and dietary changes to improve their health outcomes. Most of the peer recipients ($n=29$, 69.9%) chose to increase their PA and the total duration of MI sessions lasted an average of 1 hour and 23 minutes. Although the level of MI sessions does not reach those described in the literature as high, the level of engagement for recipients in the peer-led approach is similar to other studies that have sought to increase PA. Black et al. (2010) reported high levels of MI sessions (12 sessions weekly) for adolescents to support increased PA and decreases in snacking and dessert consumption (Black, Hager, Le, Anliker, Arteaga, et al., 2010). Another intervention provided MI and CBT between 16 to 20 weeks to adolescent participants to support them in reducing their BMI in a weight management clinic in the HIP study (Ball et al., 2011). These contrast with interventions with fewer MI sessions received by adolescents including the Teaching Encouragement Exercise Nutrition Support (T.E.E.N.S.) study where short MI sessions (weeks 1 and 10) were delivered to support patient adherence to the exercise and nutrition intervention (Bean et al., 2015). Another study provided individual and group-based MI sessions in addition to circuit training to increase adolescent PA and decrease their BMI (Davis et al., 2011). Similar interventions such as “The New Moves” and the ‘Go Girls’ exercise programmes supported MI sessions with exercise programmes (Neumark-Sztainer et al., 2008; Resnicow et al., 2005). Another study delivered brief MI sessions through a personal digital assistant to increase the PA among adolescents in the healthy teens' study (Olson et al., 2008). Healthcare professionals conducted MI sessions with adolescent participants face to face and follow up sessions over the phone (Gourlan et al., 2013). The peer-to-peer MI intervention did not incorporate any additional programmes to increase PA. However, the MI intervention delivered by peer educators was delivered

individually in face-to-face MI sessions over a six-week period. Both the duration and the number of sessions that peer recipients received appear to support evidence from previous reports on the intensity and dosage that other studies have delivered to adolescent cohorts (Bean et al., 2015; Flattum et al., 2009; Resnicow et al., 2006).

Peer recipients ($n=8$) self-nominated in their low SES community youth organisations to participate in MI sessions to decrease their perceived problematic alcohol consumption. Previous research has described adolescent recruitment from hospitals (Barnett et al., 2010; Bernstein et al., 2010; Monti et al., 1999, 2007; Spirito et al., 2004; Walton et al., 2010), clinics (D'Amico, Houck, Hunter, Miles, Chan Osilla, et al., 2015; Goti et al., 2010; Tucker et al., 2017), colleges (Borsari et al., 2012; Borsari & Carey, 2000, 2005; Carey et al., 2006a, 2006b, 2011; D. Cimini et al., 2009; Feldstein & Forcehimes, 2007; Marlatt, Baer, Kivlahan, Dimeff, Larimer, & Quigley, 1998; McCambridge et al., 2011; McCambridge & Strang, 2004; Monti et al., 2007; Murphy et al., 2001), schools (Thush et al., 2009), army (Daepfen et al., 2011) and community (Bailey et al., 2004) settings that provide access to young people who may engage in problematic drinking behaviour. Peer recipients in the current study who chose to reduce their alcohol consumption had an average length of time in MI sessions with their peer educators for a duration of 1 hour and 36 minutes overall. This primary outcome indicated the greatest amount of time that peer recipients engaged with their educators in the MI intervention.

The literature often discusses interventions in response to consequences that have arisen due to problematic alcohol consumption (Bailey et al., 2004; Barnett et al., 2010; Bernstein et al., 2009; Borsari et al., 2009, 2012; Borsari & Carey, 2000, 2005). Studies conducted in EDs present settings that facilitate immediate response to engaging in discussions with adolescents admitted for problematic behaviour (Kohler & Hofmann, 2015). Adolescents and young adults who were recruited in an inner-city hospital due to problematic drinking received a MI session (20-30 minutes) and a booster phone call (5-10 minutes) from their peer educator (aged under 25 years) college student (Bernstein et al., 2010). Although findings reported decreases in the intention to drink behaviour participants' reductions in alcohol consumption were non-significant. Demographic differences between peers were discussed as a potential barrier in establishing relatedness despite the evidence of the effect on outcomes in previous trials using MI to reduce alcohol-related behaviours (Marlatt, Baer, Kivlahan, Dimeff, Larimer, Quigley, et al., 1998; Monti et al., 1999, 2007). The current study also sought a harm-reduction approach to problematic drinking behaviour. The self-nomination peer-led approach is consistent with adolescent

developmental trajectories that support peer relatedness and autonomy to change a behaviour.

Approaches that seek to mandate participation or capitalise on problematic adolescent behaviour in clinical settings provide an immediate response to problematic drinking behaviour with reductions in alcohol. Incarcerated youths detained for driving under the influence of alcohol and for problematic behaviour have been provided with an individual MI session and a booster session following their release (Clair et al., 2013; Stein et al., 2011). Similarly young army recruits classified as binge drinkers received a single MI session that lasted approximately 15 minutes in another study to change their drinking patterns (Daepfen et al., 2011). Most studies assessing the effectiveness of MI to change alcohol consumption behaviours have been conducted with college students who were considered at increased risk for problematic alcohol consumption and who were recruited following an alcohol-related incident. The literature reports mandated participation for these young people to attend a single MI session to address their risky behaviour (Bailey et al., 2004; Bernstein et al., 2010; Borsari et al., 2009, 2012; Borsari & Carey, 2000, 2005; Murphy et al., 2001). Similar lengths in time for MI sessions were reported for mandated students who received a single hour-long MI session (Borsari et al., 2012; Borsari & Carey, 2000, 2005). While other studies that recruited undergraduate students reported the length of individual MI sessions to be 41 minutes (Carey et al., 2006), 50 minutes (Borsari et al., 2009), 1 hour (Carey et al., 2011), and between 30 to 60 minutes (Murphy et al., 2001).

MI is both compatible with adolescent developmental needs to establish autonomy and to explore methods to negate negative outcomes from problematic alcohol consumption behaviour (Donovan, 2004; Wagner, 2008). Adolescents classified as high-risk patients for alcohol misuse have been recruited in the hospital EDs with some providing the duration of individual MI sessions (34-45 minutes) (Spirito et al., 2004), and others not providing a length of the brief MI session (Walton et al., 2010). Novel approaches have also been evidenced in the literature, whereby brief MI computer-based, and social media interventions provide health risk information as follow-up care to adolescents who presented in ED for alcohol misuse (Bonar et al., 2020; Walton et al., 2015). It is clear from the literature that MI provides a favourable approach to working with young and adolescent cohorts, however, the modality and intensity through which they receive the intervention vary across studies.

6.10.6 MI training and fidelity monitoring.

MI fidelity was not assessed directly in the current study; however, PEs were encouraged to reflect on the MI guides at the end of each MI session conducted with their recipient. Written contributions sought PEs to reflect on “what went well?” “What was difficult?” and what aspects of MI techniques (OARS) they felt they required further support in. MI guides were collected by the researchers and informed the design of the half-day MI training booster session. The literature recommends that studies report fidelity, as it is considered a contextual factor for client autonomy and is associated with better outcomes for behaviour change. A review of the literature on adolescent health behaviour change interventions noted the absence of fidelity reported across studies. However, the review also suggested that adopting a flexible approach with adolescent populations can support their autonomy and importantly support the client-centred approach (Mutschler et al., 2018). The current study prioritised assessing the feasibility of conducting an adolescent peer led MI intervention in low SES communities. It examined intervention components such as recruitment and retention of participants (recipients and educators) throughout the process. The experiences of those who delivered, received, and supported the implementation of the intervention was captured throughout the process. Although fidelity was not measured, MI training was delivered by a MINT trainer and a booster MI training session which was informed by peer educators’ reflections in the MI workbook. The methods employed during the intervention delivery have been provided a flexible approach to monitor MI sessions delivered by the peer educators.

Behaviour change interventions that have incorporated MI to reduce smoking have also reported MI fidelity monitoring, whereby doing has sought to assess and improve adherence to MI principles (Colby et al., 2005; Harris et al., 2010; Kalkhuis-Beam et al., 2011; Kelly & Lapworth, 2006). Methods employed across studies to evaluate practitioner delivery of MI include observations on rating and adherence to MI techniques using fidelity scales such as the Motivational Interviewing Treatment Integrity (MITI) (Pierson et al., 2007). In addition to monitoring, supervision meetings have also been conducted to discuss reflective practice to improve delivery based on practitioner experiences. Peer educators engaged in written reflective practice in the MI manuals assigned for each peer recipient. The MI booster training session was informed and designed to support the needs of PE who were encouraged to reflect weekly on their sessions with recipients. Prior studies that have recommended MI practitioner monitoring to assess competency levels during MI delivery however, not all studies have reported MI fidelity (Audrain-McGovern et al., 2011; Colby et al., 2005; Harris et al., 2010; Tevyaw et al., 2009). Where studies have measured fidelity

various approaches have been reported across studies where MI has been used to elicit health behaviour change (Lundahl et al., 2010).

Evidence is also presented in assessing fidelity for MI interventions that have sought to increase PA and diet-related behaviour change. A RCT assessed fidelity in an intervention delivered to obese female adolescents ($n=123$), by audiotaping all MI sessions which were quality-checked using MITI. Findings indicated that proficiency levels were high among interventionists and were attributed to behaviour change among participants (Pakpour et al., 2015). The HIP program incorporated theoretical and practical aspects of MI, CBT, and behaviour change principles however, it did not assess fidelity. Instead, this study reported only those interventionists participated in two days of training (Ball et al., 2011). Mentors in another study that sought to increase PA, and decrease snack, and desert consumption among overweight adolescent participants ($n=91$), reported 40 hours of training in addition to weekly supervision for interventionists during the intervention, however, fidelity was not assessed in this study (Black, Hager, Le, Anliker, Arteaga, et al., 2010).

Peer educators in the current study participated in fourteen hours of training, over two days with a MINT accredited trainer. Other studies specify the level of MI training received and the trainers' accreditation with professional bodies such as MINT (Carcone et al., 2013; Carcone et al., 2016; Davis et al., 2011) or other accredited bodies such as the French Association of MI (Gourlan et al., 2013; Lee & Kim, 2015). Although there are similarities in training received by peer educators in the current study and the literature, there are variations in the duration and support received. Training schedules have reported differences in MI training for duration and approach. One study that sought to promote weight loss in obese overweight adolescents reported 60 hours of training with a MINT trainer (Walpole et al., 2013). While the "Go Girls" study master's or doctoral level counsellors received 16 hours of MI training to provide 4-5 MI sessions over the phone to adolescent female participants ($n=123$). Interventionists also received supervision throughout the intervention, but fidelity was not assessed, and the study's findings suggested that the MI protocol was not appropriate for participants (Resnicow et al., 2005). Similarly, Love-Osbourne et al. (2014) provided the school-based health centres interventionists with 1 day of training in MI techniques and follow-up or booster training two months later, but no fidelity was assessed for MI in a one-to-one lifestyle coaching intervention delivered to obese adolescents (Love-Osborne et al., 2014). Furthermore, specifying the time allocated to MI training is not always defined where MI is one of some components in the intervention. Ball et al. (2011) trained interventionists in MI and CBT;

however, no distinctions were made for the time allocated to each component. Similarly, coaches in the New Moves programme were reported to participate in a full day of training and a half day of training mid-way through the intervention with ongoing support for MI throughout. However, fidelity was not assessed, and the time allocated during training to physical education and MI techniques was not defined (Neumark-Sztainer et al., 2008, 2010).

Borasi and colleagues (2012) measured intervention fidelity according to the Motivational Interviewing Skill Code (MISC) (Amrhein et al., 2008; Borsari et al., 2012). Interventionists participated in 2 days of MI training and attended weekly group supervision (30-60 minutes) (Borsari et al., 2012). A college student peer-facilitated intervention delivered small MI group sessions with students who were participants of an existing peer education programme at the university. These students were trained and supervised in MI techniques. Fidelity was assessed through videotapes and a sample coded by trained members of a research team to assess adherence to MI principles (Cimini et al., 2009). The greatest level of training and fidelity monitoring was reported in a study where research counsellors delivered MI to recently released adolescents from incarceration. Counsellors received training (56 hours), 2 hours of group and 1 hour of individual supervision per week. Fidelity was assessed by a licensed clinical psychologist through observations of sessions with the MI group (Clair et al., 2013). Several studies that have sought to investigate the effects of brief MI interventions with adolescents and young people have reported treatment integrity through regular supervision with a clinic in MI (Borsari & Carey, 2000) and reviewed audiotapes of MI sessions with participants in addition to the assessment of session content captured in a 50-item measure for both conditions (Borsari & Carey, 2005). Training and supervision were provided for interventionists in a brief MI intervention, where two days of training were assessed with supervised competency levels and full MI session role plays. Audio tapes were also randomly selected to assess session fidelity (Borsari et al., 2012). The current research did not conduct any formal fidelity measurements. The main aim of the study was to assess the acceptability and feasibility of an adolescent MI intervention in low SES community youth organisations. However, peer educators' MI delivery was informed by MI training delivered by a MINT accredited trainer in addition to a booster session following their delivery of two MI sessions to recipients. The booster MI training session was designed and informed by the peer educators' reflections in the MI workbook, whereby they identified areas where they required further support.

6.11 Implications for practice.

SDT provides an explanation for the efficacy of MI for behaviour change, and this has been outlined in the research (Markland et al., 2005). The mechanisms for behaviour change demonstrated under this theory including competence, autonomy, and relatedness all have been found to contribute to the initiation of behaviour change and interventionists who are proficient in MI have been found to support these mechanisms amongst adolescent participants, with relatedness established most effectively amongst peer, ethnic continuity and family involvement to elicit behaviour change (Mutschler et al., 2018). Although clinical settings provide a convenient and representative sample, schools and youth services provide continued support for this age group achieves health behaviour change outcomes (MacDonell et al., 2012; White et al., 2017). One key mechanism that has been evidenced in the literature for adolescent behaviour change is relatedness and establishing these connections can facilitate a sense of belonging (Niemic & Ryan, 2009). A review of interventions where MI has been used as a component for adolescent behaviour change found peer and family involvement contribute to the effectiveness of MI to elicit health behaviour change (Mutschler et al., 2018).

6.12 Strengths and Limitations

This study contributes to the second phase of the process evaluation of the feasibility trial where outcomes in the primary and secondary measures were assessed for peer recipient behaviour change in health-compromising behaviours. The strength of participation from the community youth organisations situated in low SES communities, which are considered hard-to-reach groups, can provide a method to challenge health-compromising issues within these communities (Frantz, 2015). The delivery of a peer-led approach in health promotion is becoming an increasingly commonly used method to target behaviour change amongst adolescent cohorts (Lorthios-Guilledroit et al., 2018; Ozer, 2017). Additionally, the successful recruitment of adolescents who participated as either peer educators or recipients suggest the acceptability of delivering a peer-led approach to health messages. This is encouraging as the literature has demonstrated that peer-led interventions can effectively change health risk behaviours (Campbell et al., 2008; Story et al., 2002; White et al., 2017).

The quantitative evaluation of the health risk behaviours is supported by qualitative findings in subsequent chapters on the feasibility of a MI peer-led approach. Findings suggest alcohol reduction for adolescent MI recipients' post-intervention. Research supports the effectiveness of alcohol reductions for adolescents who engage in brief MI interventions

(Gilder et al., 2017); however, these effects have been found to decrease over time (Palm et al., 2016). Comparison between groups for PA results was unreliable due to the low internal consistency of the scale for respondents, emphasising the importance of conducting a process evaluation to consider alternative supports or objective measures to assess outcomes levels of PA (Craig & Petticrew, 2013; Lee et al., 2011). MI group participants completed the IPAQ-*sf* with an acceptable internal consistency for the measure compared to those in the HBT comparison group. The use of validated tools that objectively measure physical activity would also further support the accuracy of PA levels reported by adolescents. Assessing PA levels in this way has provided a way to validate the accuracy of IPAQ-*sf* use in both adult and adolescent populations and is evidenced in the literature (Lachat et al., 2008; Lavelle et al., 2020; Rääsk et al., 2017). Additionally, the provision of greater assistance for respondents when completing the questionnaire may support a more accurate indication of activity levels in the comparison group.

Further analysis of MI respondents' PA changes reported statistically significant increases in four of the five PA categories: however, these increases were only significant during the six weeks of the intervention suggesting that peer recipients required further and ongoing support for behaviour change. Smoking behaviour did not show significant reductions in the behaviour. The study also encountered a loss in sample size due to the outbreak of Covid-19 pandemic which impacted the study's ability to detect statistically significant changes in behaviour over a greater length of time. The pandemic also reduced the ability to collect follow up data to investigate maintenance of behaviour change. In future research, sufficiently powered studies with longer follow up data may have the potential to produce statistically robust outcomes to better understand the effectiveness of the MI intervention for a larger number of participants and over a longer period.

6.13 Conclusions

This is the first study to investigate the effectiveness of an adolescent peer-led MI intervention to change health risk behaviours. Youth organisations provide convenient access to an adolescent cohort, which supports the autonomy intricately linked to adolescent development. There was a high retention rate of MI participants who engaged in the study as peer educators or recipients. Issues arose with the reliability of scale for the IPAQ-*sf*, most notably in this study when the measure was completed by respondents in the comparison condition. The IPAQ-*sf* demonstrated high reliability for those respondents in the intervention condition who completed the measure on a one-to-one basis. The MI intervention had significant benefits across categories in PA across the three-time points.

Maintenance of increased PA was observed for in total MET minutes/week, total minutes/week, and moderate minutes/week at three-month post-baseline. Although significant outcomes were observed for alcohol reductions, effect sizes were small. The MI intervention was an acceptable and feasible method for adolescents to engage with their peers to deliver and receive a health message.

Chapter 7. Youth workers' perspective on a peer-to-peer health behaviour change MI intervention and its implementation process (Study 4).

7.1 Chapter Aims.

Chapter 7 uses a qualitative approach to investigate youth worker perspectives on the implementation of an adolescent peer led MI intervention in youth organisations. Youth workers who assumed a lead position to support their service users in their role as peer educators throughout the MI intervention process contributed their experiences to support an evaluation of the process. The current study considers the supporting role of the youth worker with their adolescent service users, who self-nominated to participate in the peer led MI intervention. The data builds upon two additional studies that gain insight from the perspective of peer educator and recipient (chapter 8) experiences of participating in the peer led MI feasibility trial. Findings from youth worker semi-structured interviews present a qualitative understanding on the development and evaluation of the intervention process. They also contribute to the strength of evidence-based approaches as effective means in the prevention of the initiation of health risk behaviours among an adolescent cohort.

7.2 Introduction

According to the literature MI has been an effective way to promote behaviour change amongst adult populations (Lundahl et al., 2013; Magill et al., 2018). Although research has been conducted to evaluate adolescents who have received MI interventions for health risk behaviour change (Bailey et al., 2004; D'Amico et al., 2015; Stein et al., 2011; Tanner-Smith & Lipsey, 2015), no studies to date have trained adolescents in MI to deliver an evidence-based health behaviour change intervention to their peers. National and international evidence-based research inform policies and have placed an emphasis on measurements and outcomes to be applied to youth work (De St Croix, 2018; Mihalic & Elliott, 2015). Evaluation is increasingly recognized as a way to understand the relevance and value that activities and programmes have on the lives of young people who engage in youth work (Dickson et al., 2013). "A map of research evidence" indicated that 69% of youth work studies have been conducted in the US. The proportion of youth work literature that has been conducted in Europe is represented in England (14%) followed by the Republic of Ireland (1.8%), where the focus of the aims of these studies were to evaluate the impact of youth work activities on adolescents (10-17 years) across a variety of youth work settings (Dickson et al., 2013). However, a review of the literature has noted limitations in identifying evidence-based research in youth work. They included the broad qualification for youth work setting where the research was conducted. English language data bases were accessed only, and most

of the research conducted was in the United States (Kiely & Meade, 2018). As such, applying the youth work “map of research evidence” to inform policy and practice to the Irish context is difficult and irrelevant. The lack of representativeness of evidence based, peer reviewed literature on youth work in Ireland and Europe, contributes to the difficulty for the governments’ commitment to informed evidence-based policy and practice.

Youth work practice in Ireland is guided by a theoretical framework developed by Hurley and Tracey in 1993. This model underpins the practice that youth work applies to the implementation of activities and programmes placing an emphasis on social education (Hurley & Treacy, 1993). Dickson and colleagues (2013) conducted an evaluation on international youth work literature finding three core theories that support youth work practice. The three theories identified as most prominent based on the evaluation of 93 studies, included the empowerment model, socio-economic model, and positive youth development. Positive youth development recognizes that the young person can be supported in their development by establishing trusting relationships (Lerner et al., 2005). The socio-ecological model recognizes that there are individual components under which each organisation works. Consideration of these individual components across different settings, facilitates the adoption of different strategies to programme delivery. The empowerment model supports the young persons’ autonomy to participate in programmes. In this model efforts are made to support the young person to engage in activities and programmes that are self-directed (Dickson et al., 2013; Dunne et al., 2014). Youth work in Ireland is driven by the youth organisations ethos to collaborate and empower young people in their personal development and is in line with international youth work practice. Achieving a sense of belonging (Nolas, 2014) and working with young people to identify interventions that are relevant to their social context is considered important in youth work (Dunne et al., 2014; Treanor et al., 2019).

The focus of youth work in Europe and western society is to support vulnerable young people in their successful transition from adolescence into early adulthood (Loynes, 2016; Osterling & Hines, 2006; Poorman & Saitzyk, 1994). Young people who access youth organisations often live in socially disadvantaged areas and are at increased risk to harm (Larson, 2011). Supporting young people to make decisions that reduce their risk to immediate and long-term harm can enhance positive personal development (Dickson et al., 2013). Youth work is recognized as an effective way to enhance the personal development and growth of young people through their social participation and interaction in programmes that are provided to them within the youth organisations (Dickson et al., 2013; Sonneveld et al., 2020; Thomas et al., 2008). Young people who engage in youth work do so in a voluntary

capacity, across a variety of settings including youth organisations, outreach street programmes and sports clubs (De St Croix, 2018). As such it is important to apply relevant programmes, activities and interventions that meet the needs and desires of the young people who wish to participate. Youth workers assess and identify problems according to service user relevance (Dickson et al., 2013; Sonneveld et al., 2020; Thomas et al., 2008), and importantly youth workers' choice of programme or activity is based on the needs and interest of the young people and is based on their interest to participate (Davies, 2015; Ritchie & Ord, 2017).

Increasingly youth workers face the pressure to produce positive outcomes for those that they work with and who are most at risk. This emphasis is placed on using evidence-based practice, measurable standards, and outcomes and using target-based interventions to address the specific needs of groups in youth work practice across Europe. Programme evaluation is recognised to strengthen the understanding of positive outcomes for young people and inform policy and political plans (Dunne et al., 2014). In Ireland, the policies include those at government level which seek to address the health and well-being of the young people (DCYA, 2014; Healthy, 2013; Treanor et al., 2019). Youth work can assist in providing accurate information to young people so they can make informed decisions on their lives. When these decisions are specific to their health choices, the information that they acquire can increase their self-esteem and confidence to make healthy lifestyle choices (Dunne et al., 2014). The positive impact of adolescent participation in youth work has been clearly demonstrated in the research (Devlin, 2009; Forde & Meade, 2009; Merton et al., 2006). Supporting the health and well-being of young people accessing the youth organisations is often a priority for programme delivery.

Both national and international evidence highlight the positive impact that prevention and early intervention have on establishing positive health outcomes for children and adolescents when compared to receiving an intervention in adulthood (Harvey, 2014; Sawyer et al., 2012). Promoting healthy behaviours can have a positive impact on the young persons' immediate and future health (Lambert, 2016). Reducing health risk behaviours have been the focus of literature among young people who are at increased risk in low SES communities. The variation of interventions in community youth settings differ within and across communities and countries. A systematic review of the literature identified forty-four health interventions conducted as RCTs to reduce more than one adolescent health risk behaviour (Hale et al., 2014). The review identified that five of the fifty-five studies were conducted in the United States to evaluate four community-based interventions that sought to change health

risk behaviours for substance use. The studies were effective in reducing up to three health risk behaviours that adolescents engaged in, including alcohol, substance misuse and tobacco smoking (Flay et al., 2004; Grossman & Tierney, 1998; Hawkins et al., 2009; Schinke et al., 2000, 2010). A more recent systematic review of community-based peer led intervention literature was conducted by Rose-Clarke and colleagues in 2019 for middle- and low-income countries. This review identified eight studies that focused on reducing adolescent health risk behaviours out of twenty peer-based interventions for adolescents. Reductions were reported in risky alcohol use, substance misuse and tobacco use across four of the eight community-based studies (Balaji et al., 2011; Lotrean et al., 2010; Rose-Clarke et al., 2019). The National Quality Standards Framework for youth work (2010) supports an outcome-based model of work practice in Ireland. It seeks a demonstration of effectiveness for intervention and programme delivery and awards funding to youth organisations on this basis (Holton & Holton, 2017). Youth workers are in a unique position to work with young people who access their service where other agencies such as Gardai, health professionals, teachers and social workers find it difficult. Hurley and Tracey's youth work practice model which places an emphasis on social education supports the current studies objectives for interventions in youth organisations (Hurley & Treacy, 1993).

A qualitative approach provided insights into the implementation of a MI intervention in five youth organisations situated in low SES communities. The aim of conducting interviews with the youth workers was to understand their experiences of participating in the peer led health intervention. The interviews sought to understand; 1.) How the youth workers' role was affected by participating in the MI intervention. 2.) To distinguish the different components of programme delivery. 3.) Explore their experience in training and the effectiveness of the peer educators to deliver MI based on that training. 4.) Their views on maintaining the MI intervention within their youth organisations.

7.3 Methods.

7.3.1 Design.

Interviews sought to investigate the youth workers experience of supporting the implementation of the adolescent peer led MI intervention in their youth organisations. Face to face with six of the seven youth organisation representatives (M1, M3, YW1-4). The last interview was conducted over the phone (M2).

7.3.2 Participants.

All youth organisation representatives ($n=7$) who assumed a lead role within their organisation to support the implementation of the MI intervention participated in interviews. The interviewees included three males and four females, of whom there were youth workers ($n=4$) and managers ($n=3$). Three youth workers and one manager (M1, YW3-5) attended training with the peer educators. The remaining three representatives who could not attend training included one manager (M2) and a manager and youth worker (M6, YW7) from organisations (YO3.1 & 3.2) representing one community.

7.3.3 Materials.

Semi structured interviews were guided by organised questions (Appendix H). Interview questions were developed before the interviews were conducted and the questions sought to evaluate the feasibility and effectiveness of the peer led health behaviour change intervention for their adolescent service users. Interviews were recorded using voice recording software on a standard iPhone 6 and acer laptop. A computer assisted qualitative research methods software programme MAXQDA 2018, was used to conduct the analysis of data.

7.3.4 Procedure.

Those who led the MI intervention to support participant engagement were invited via email to participate in interviews with the researcher. Youth workers ($n=4$) and managers ($n=2$) scheduled a time that was convenient for them to participate in face to face semi structured interviews in their youth organisation. The lead youth workers who assumed responsibility to support the implementation of the MI intervention participated in a face-to-face interview. Four (M1, YW2-4) of whom attended MI training with peer educators. One female manger (M2) who could not attend training participated in a phone interview, see Table 7.1 for participant details.

The average length of time for the interviews that peer educators participated in was forty minutes. Interviews questions were presented in the same sequence by the primary researcher. An independent researcher took notes and monitored the timing of the interviews. Lead youth workers and managers opened the discussion with a description of what their role was within their youth organisation and the reason that they participated in the MI intervention (see Appendix H). Following the discussion on their motivations to participate in the study, youth workers and managers contributed more specifically to their thoughts and experiences of the delivery and receipt of the intervention by their service users. Research

questions focused on the process of intervention delivery including reach of participants, programme delivery within their organisations, implementation of the MI intervention based on their supporting role to assist participants and future maintenance of the programmes. They also reflected on their experiences of training and their interaction with peer educators throughout the implementation process.

Table 7.1

Youth organisation composition and implementation of intervention process.

YO	Lead YW	PE n= (12)	PR n= (44)	YW support of PE MI sessions	PE- methods of MI delivery	YW training attended	Training location
YO1	M1	PE1-4	11	YW present	When available	YW M1	YO1
YO3.1	M2	PE8	2	YW onsite	PR Club night		
YO3.2	M3	PE7	8	YW onsite	PR Club night		
	YW1						
YO2	YW2	PE4-6	10	YW onsite	During YO Opening hours	YW3-5	YO2
YO4	YW3 YW4	PE10- 12	11	YW onsite	During YO Opening hours		

Note: Abbreviations – Youth worker (YW), Manager (M), Peer recipient (PR), Peer educator (PE), Youth Organisation (YO)

7.3.5 Data analysis

Braun and Clarke’s (2006) thematic analysis using a six-phase procedure was used for data analysis. This method was chosen to identify, describe, analyse, and report the themes and patterns in the data corpus (Braun & Clarke, 2006).

7.4 Results.

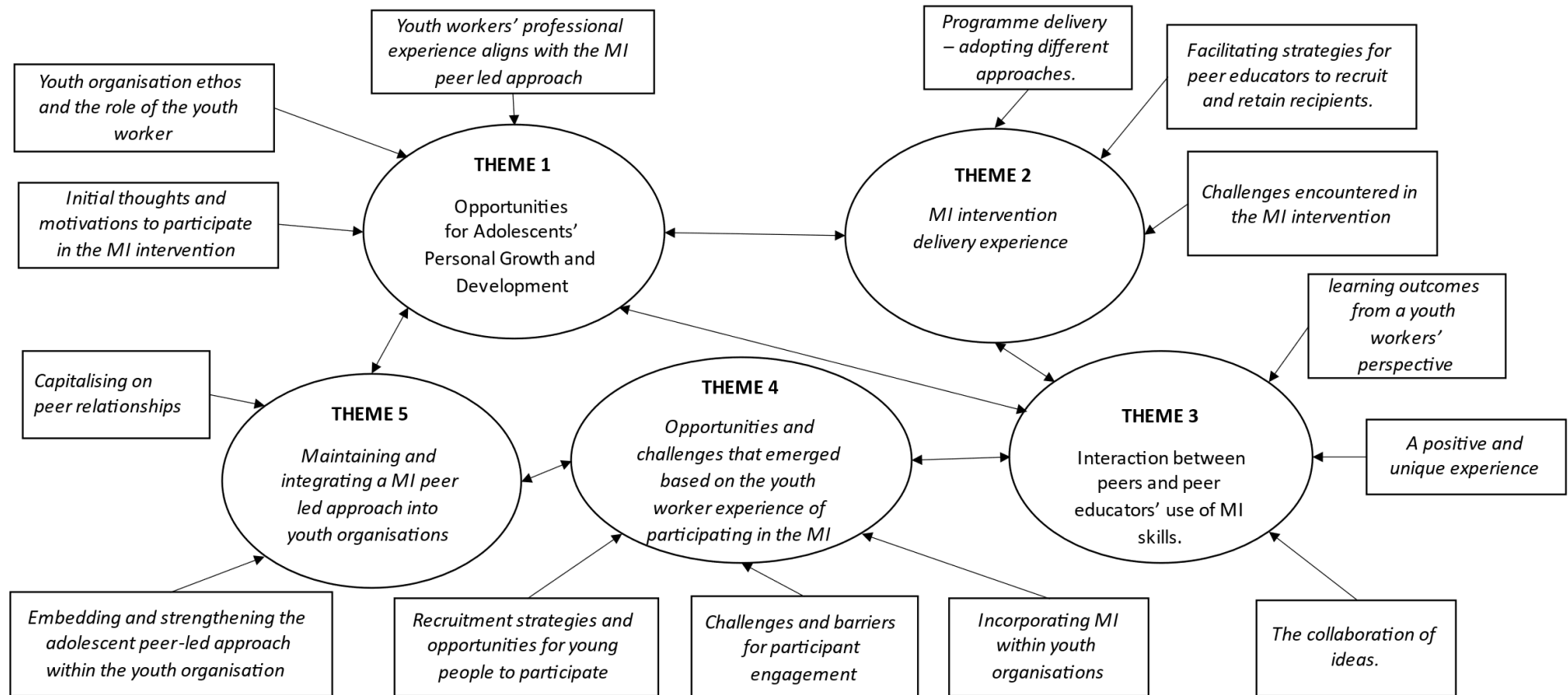
7.4.1 Thematic analysis of youth worker semi-structured interview results.

Youth workers discussed the relevance of the peer led health prevention programme, and the potential for it to provide opportunity for their service users to develop skills and

grow (Theme 1). Programme delivery was discussed in the context of the supports that youth workers provided to peer educators during the intervention process (Theme 2). Training was described as a crucial time to motivate youth worker and peer educator engagement, and which influenced the overall impact of participation in the programme (Theme 3). The opportunities and challenges encountered by youth workers was discussed during their participation in the programme (Theme 4). The last theme captured the youth workers thoughts on the feasibility of the implementing a peer led health behaviour change programme within their youth organisations (Theme 5).

Figure 7.1

Thematic Map Illustrating themes and subthemes - Youth Workers.



Note. Themes are presented in circles; subthemes are presented in rectangles. Arrows represent how themes/subthemes relate to each other.

7.4.2 Theme 1: Opportunities for Adolescents' Personal Growth and Development.

The first theme outlines the emphasis that youth workers apply to adopting a participatory approach within their organisation, where service users have a key role in informing the acceptance and feasibility of programmes or interventions within their services. Service user input and relevance of a programme introduced is a key consideration based on how the programme can support the young person's learning, development, and growth during their transition into adulthood.

Subtheme 1: Youth organisation ethos and the role of the youth worker.

The ethos of the youth organisations was discussed as being most distinguishable by the programmes and activities available for participating youths. They clearly outlined their attempts to address relevant issues that affect their service users and strive to present and implement programmes and activities accordingly.

YW4: "To just provide them [service users] with opportunities that they [service users] may not be aware of otherwise. You know to be that vehicle that can bring them [service users] to the things [activities] that are there for them and to empower the young person to look after themselves."

The MI intervention was universally agreed by youth workers to meet the needs and interests of their adolescent service users. The harm reduction approach created an opportunity for them to deliver a structured programme that possessed components that are in line with government frameworks under which youth work practice is guided.

YW2: "The Brighter Futures Better Outcomes is young persons' development, so the training [MI] that they [service users] get goes in [meets goal], and the part that they're doing interventions [MI intervention] with young people in their community ... so it hits two of them [targets]."

Positive and meaningful relationships that existed between the youth workers and service users extended to their families and the community. The importance placed on these relationships were key to youth participation in the youth organisations and propagated trust. The strength of relationships was also believed to be drivers for programme delivery. Service user 'buy in' to engagement in activities and programmes was recognized as a critical component for programme implementation.

YW1: "We'd have a very good trusting relationship with them [service users] and the majority of the community ... once I think the kids realised that it [MI

intervention] was going to be a positive thing, they were like, look we'll give it a go”

Another key relationship described by all youth workers was the one that they held with local schools. They worked in collaboration with schools to implement programmes promoting the health and well-being of the adolescents in their community. This relationship extended the reach to adolescents in the local community. However, the key underpinning and motives for the youth worker to engage in the MI intervention was based on the ‘buy in’ from their service users. Participant ‘buy in’ was heavily influenced by the relevance of the MI intervention and their willingness to engage and commit to the intervention process.

M1: “When they [service users] do buy in to it [programmes], they [service users] do it whole heartedly and they’re trying to support it.”

Subtheme 2: Youth workers’ professional experience fosters a peer led approach.

Peer-led approaches and mentorship programmes were considered important by all youth workers and influenced their decision to participate the MI intervention. Existing youth leadership, re-engagement and peer educator programmes sought to achieve similar outcomes to those of the MI intervention. Consideration for the implementation of these programmes were on the basis that they be useful and progressive for the service user’s development.

M2: “But I was definitely very clear that it was peer led and that is just something that I am very keen to get involved with and I know that young people really benefit from it.”

There was a relevance described by youth workers for the health risk behaviours targeted for change in the intervention. Cigarette smoking and alcohol consumption were behaviours that adolescents were exposed to and often pressured to engage in. Additionally, they were believed to be gateway behaviours to other more harmful behaviours such as substance misuse. All the youth workers spoke about the increased risk for their service users to substance misuse.

YW3: “Young people from socio-economic disadvantaged areas experience issues in terms of drugs... my view would always be, not to always sugar coat stuff and to create awareness, around particular topics that are relevant to them because it’s hugely relevant to them.”

Subtheme 2: Youth workers' initial thoughts and motivations to participate in the MI intervention.

The opportunity to develop skills through MI training, peer educators' payment for the delivery of MI sessions and the ability for educators to work with their peers in a therapeutic manner were all considered to be motivations for service user engagement. An intervention that focused on adolescents working together was considered by youth workers to be beneficial for their service users.

YW4: "I thought it [MI intervention] sounded great, I loved the idea of it, you know it is true that young people probably are more likely to listen to other young people than they are to adults."

Initial concerns focused on the ability of youth workers to recruit participants and to maintain their interest once recruited for the duration of the MI intervention. One youth worker (M1) spoke about his reluctance to engage in the MI intervention based on his duty of care to protect service users, some of whom he considered to be the most vulnerable within the community. He highlighted that young people in the inner city were often subject to being let down. It was his role to protect them from these occurrences where at all possible.

M1: "There's a lot going on and they [service users] are not very confident of getting involved in things [programmes] because, they're [service users] constantly being let down."

MI was considered a valuable skill for adolescents to learn. One youth worker (M1) expressed competing trains of thought when considering participating in the MI intervention. Initial excitement for adolescent service users to have the opportunity to upskill, was replaced by his concern on their ability to effectively conduct MI sessions with their peers.

M1: "When you first came to me, I was very excited about the programme, but then when I thought about it a little more, I was thinking to myself, could this work, because young peoples' confidence wouldn't be as much as a facilitator who has a bit of practice in this."

Another youth worker (YW1) spoke about how participant engagement far exceeded her initial expectations of the MI intervention. She too expressed initial reservations for peer educators to acquire the necessary skills to deliver MI to their peers or if there was the desire for recipients to self-nominate to change their health risk behaviours.

YW1: "I actually didn't think that the kids would engage as well as they did..."

7.4.3 Theme 2: MI intervention implementation and experience.

The second theme presents youth workers reflections on the effectiveness of the MI intervention delivery and explores the different approaches taken to support peer educators in their role. These supports included the youth workers accommodating different approaches including information sessions to support peer educator recruitment. Youth workers identified navigating paperwork including questionnaires and the range of consent forms required for peer educator and recipient participation in the study.

Subtheme 1: Programme delivery – adopting different approaches.

Youth organisations are adaptive to the needs of the young people who access their organisations and apply different approaches to programme implementation. The application of the MI intervention differed across sites. One approach adopted was the presence of a youth worker during all MI sessions. This required a high level of co-ordination between the youth worker and participants to schedule MI sessions. At times, this approach became difficult and disheartening for peer educators.

MI: “The young people [peer educators] were getting a little frustrated with me, [be]cause I had to be there all the time, so if I wasn’t going to be in for one of the sessions, I could organise one of my colleagues to do it, but I had to ensure that this was happening.”

Two youth organisations (YO2 & 4) supported intervention delivery at the convenience of participant availability to engage in MI sessions during the organisations opening hours. Lead MI youth workers supported room bookings and peer educators were considered to display a high level of competency to implement the MI intervention. Lead youth workers and all other members of staff within the organisation worked towards supporting the participants in the intervention delivery.

YW3: “We really were confident from the two days [MI training] that we were with these young people [peer educators] and also from previous engagement with them [peer educators] that they are more than capable of engaging with young people [peer recipients].”

The remaining youth organisations (YO3.1 & 3.2) accommodated the delivery of MI sessions when peer recipients usually attended the organisation for their “club night”. The (YO3.2) limited resources which contributed to challenges in accommodating participants with a private room to conduct the MI sessions.

YW1: "It's always space [rooms] that is the issue. Every inch of this building is used from nine o'clock in the morning until nine o'clock at night.... It's quite hard and difficult at times to get space."

Peer educators were believed to exhibit certain qualities which were believed to be important in their participation in the process. Qualities included that they possess confidence, could be a role model, ability to empathise, motivation to complete the process and the ability to demonstrate responsibility. School, family, and work commitments were considerations made on the ability of a peer educator to engage in the MI intervention. Youth workers could make informed decision on the ability of service users to participate as peer educators in the intervention.

YW3: "I suppose we [youth workers] work with young people all the time and we have an understanding on what their capacity is."

Subtheme 2: Facilitating strategies for peer educators to recruit and retain recipients.

Recruitment strategies were explored to determine the best way to engage service users as peer recipients. Youth workers reflected that peer educators effectively described the objectives of the MI intervention during their recruitment of peer recipients. Youth workers believed that training equipped peer educators with a clear understanding on the underlying principles of MI and this provided the grounding for recruitment.

YW1: "So, we [youth workers] made the introductions [to service users], the initial introductions and then PE7 did the rest of the talking [describing the intervention]. It was just PE7, she was able to explain very clearly, answer any questions that they [service users] had and then we kind of left it up to them [service users]. They [service users] were like 'yeah I'd like to do that' and then 'I'll do it' and 'I'll do it.' So, she [peer educator] was very, I would have to say hands on. Like we didn't have to spoon feed her or anything like that."

Peer educators recruited service users individually and among their own friendship groups. Youth workers discussed the importance of working with a mixture of peers inside and outside of their friendship groups. Interacting with familiar peers increased the educator's confidence to work with recipients who they did not know. Furthermore, youth workers indicated that the recipients appreciated the educators taking the time to work with them in MI sessions. The peer led approach supported a level of respect for the peer educator and the commitment was demonstrated by recipients to engage in and complete the process.

YW1: "Once I think the kids [peer recipients] realised that it [MI intervention] was going to be a positive thing and they were like, look we'll give it a go. Now I was expecting one or two [peer recipients] of them to drop off, but because they had made that commitment, it was more about she's (PE) coming here on a Tuesday and she's (PE) giving her time and kind of do you know; it was good that she had built that rapport with them as well."

One youth organisation noted how quickly a platform for discussion around behaviour change was created and with great ease. The possibility of achieving such an interaction between an adult adolescent relationship would have it was believed taken a significantly longer amount of time.

YW1: "Well, it's taken me years to kind of build, establish and maintain that kind of relationship and I think that some of them [service users] can be very hard to reach."

Subtheme 3: Challenges encountered in the MI intervention.

Youth workers underscored the importance of both timing and duration of the MI intervention. The six-week intervention following the two days of training required a high level of commitment from youth workers to support educators to deliver the intervention to their peers. All youth workers reported to experience heavy workloads in their role. Some (M1; YW2-4) emphasised how their existing duties impeded on the time they had to engage in the MI intervention. Youth workers in smaller youth organisations (YO3.1 & 3.2) did not experience the same difficulties; M2 "Really it wasn't difficult at all." All agreed that follow up or additional supports for peer recipients may sustain health behaviour change and embed the peer led support network within the youth organisation.

YW1: "Eh, I think it [intervention] was long enough...or even just to catch up [MI follow up], maybe wait a couple of months and have a regroup or something."

Paperwork was described to be one of the biggest challenges reported for some youth workers (M1 & 3, YW4). These challenges included navigating consent forms for correct use and the level of information contained on each consent form. Youth organisations (YO1 & 4) highlighted some challenges experienced in gaining parent consent as some peer recipients were reluctant to disclose their chosen behaviour to their parents.

YW3: "He [PE] was saying that getting the parental consent, like if the parents [of recipient] didn't know that they drank or didn't know that they smoked or whatever to get a parent to sign the formI think that was a barrier."

Other organisations (YO3.1 & 3.2) did not experience the same barriers in gaining parental consent. One youth organisation negated the challenges usually experienced in receiving paperwork back from parents by meeting with parents in person and explaining the context of the MI intervention.

YW1: “Eh, the forms [consent forms] aren’t a thing at all. Like if one of the kids didn’t come in here, we’d, I’d go and doorstep them [call to house] anyway, you know what I mean.”

Several different consent forms were required for service users to participate in the MI intervention. These included gaining parent and service users consent for educators and recipients to participate in the study and to collect data through interviews and focus groups. Youth workers described a level of confusion in deciphering the correct consent forms to be completed by the different participants and this was described by one youth worker (YW3) as a time when the process became ‘frustrating’.

7.4.4 Theme 3: A novel approach to participation in training.

Training was identified as the most important part of the intervention process. It provided motivation and clarity on implementation for both peer educators and youth workers on how to implement the intervention within their services. It also was discussed as a unique experience and which shaped the relationship between services, peer educators and youth workers during the implementation process.

Subtheme 1: A positive and unique experience

There was an overwhelming positive response from all youth workers who attended MI training. They described it as a unique experience when compared to previous training attended in their role as a youth worker. It was accurately pitched to trainees and was considered engaging, youth friendly and interactive.

YW3: “Look we work with agencies all the time and we try to make them aware as much as possible about the young people that we’re working work...we understand the point at which they’ll disengage, and I think it was very well done. As I say it [training] was one of the better ones.”

Youth workers reflected and made comparisons on the MI training received to previously attended training as part of their role. Training content was described as practical, and the learning goals were described as manageable. As a result, youth workers believed that peer educators gained a good understanding of the underlying principles of MI.

YW2: "I think it was really, really practical and I think that the young people got it [MI]."

Subtheme 2: A collaboration of learning outcomes and ideas

Training with young people was described as a new and welcomed experience for youth workers. It facilitated novel way for them to interact with the adolescents. It also was discussed an opportunity for them to observe the skills developed by peer educators during the training process. This instilled confidence in youth workers on the competency of the peer educators to implement the MI sessions to their peers.

YW2: "But his [trainer] whole thing was respecting young people and see where they are, push them on and look for their strengths and everything."

The positive experience during training generated enthusiasm and a sense of motivation for peer educators to participate in the MI intervention. It was noted by youth workers that an eagerness was displayed by peer educators at this initial stage to recruit recipients to work with. Training with neighbouring youth organisations was welcomed as it established professional links with neighbouring youth organisations.

M1: "And it was a good link [between youth organisations], linking projects together."

This sentiment was echoed across other youth organisations. Youth workers from two youth organisations (YO3.1 & 3.2) representing one community liked the idea of bringing the community together through training. The youth workers (M2, M3 & YW1) agreed that establishing a learning group with new people created an opportunity to encourage diverse thinking and encourage new ideas.

M2: "Also liked that the initial idea of [YO3] and ourselves working together. So, kind of like bringing communities together, like that was nice."

Furthermore, the dynamic of learning with another youth organisation was discussed by youth workers to challenge them and the peer educators to interact and learn in an unfamiliar way.

YW2: “To do it [training] with adult that you have a connection with that’s a youth worker, but then to do it with an adult [youth worker] that you don’t have a connection with that you’ve only met, you know what I mean, it was really good.”

Similarly, adolescents training together from different youth organisations, was believed to create opportunities for increased learning and prepare peer educators with the experience of working with unfamiliar peers.

Subtheme 3: Learning outcomes from the perspective of a youth worker.

Youth workers believed that the peer educators developed an understanding of the principles of MI. This knowledge was considered to positively influenced the peer educator’s ability to implement the MI intervention. One youth worker (YW1) explained the clarity that the peer educator had on the intervention when she delivered information sessions with confidence to recruit peer recipients. All youth workers echoed that peer educators possessed a desire following training to recruit peer recipients.

YW1: “She [PE7] was very clear and knew exactly what it [MI intervention] was about and was able to explain to them [service users].”

One youth worker, who could not attend MI training believed that if she could have it would have enabled her to further support the peer educator (PE8) to deliver the MI intervention.

M2: “I would have been more inclusive [MI intervention process], more clued in.”

The remaining two youth workers absent from training (M3 & YW1) described the impact of training on the peer educators’ (PE7) confidence, personable skills, and proficiency to deliver the intervention. She demonstrated a clear understanding on what was expected of her in the intervention process.

YW1: “But I definitely think she [peer educator] flourished definitely....She has a deep understanding of it [MI].”

7.4.5 Theme 4: Opportunities and challenges that emerged based on the youth worker experience of participating in the MI intervention.

Youth workers discussed the opportunities and challenges encountered based on the implementation of the MI intervention within their youth services. It was agreed that the

intervention was a valuable programme within their service and youth workers explored strategies to increase recruitment and retention of participants.

Subtheme 1: Recruitment strategies and opportunities for young people to participate.

One recommendation discussed by youth workers for recruitment strategies to promote participation in the MI intervention in the future was to facilitate information evenings for the parents and service users who access the youth organisation. This would create an opportunity to explain the process of the peer-led MI approach further and in person.

MI: “We could be able to organise and an event around information given.”

It was suggested the participant numbers could be increased by extending the intervention to neighbouring youth organisations in the inner city with whom the youth workers had relationships with. Additionally, there was the potential to recruit within the MI youth organisations as service users expressed interest to participate as a peer educator or recipient when they had observed the intervention within their organisation.

MI: “There’re ten fifteen projects [youth organisations]. If you reached out to them, there’s a lot of young people in the area that we could recruit.”

Peer educators and recipients’ engagement in the MI intervention were considered to be a motivation for future recruitment and participation within the youth organisations. Participant engagement captured the interest of service users, and it was on this basis considered a relevant programme for service users.

YW2: “So that for me it shows the practical thing [MI] that we can use this in the youth work setting.”

Subtheme 2: Incorporating MI within youth organisations.

Youth workers believed that there would have been less disruption and greater support from the schools if training had been scheduled on non-school days. Providing training on the weekend or during a school holiday break may alleviate the difficulties encountered for some of the adolescents to attend training. Several youth workers from different youth organisations (YO1, YO3.1 & 3.2 & 4) spoke about the potential for schools to yield greater numbers for participants if the MI intervention was implemented in the school setting. However, the school setting was described as more structured and formal, with less chance to support participant autonomy. The formal relationship that schools had with young people,

was in direct opposition to the informal voluntary participation that youth organisations build relationships with their service users.

YW7: “There is a lot of fear I think around the schools, you don’t want to be telling [health risk behaviour] to your teacher. It’s one thing for your youth worker because there’s no judgement here.”

Youth workers agreed that the support and guidance from researchers was important for successful programme delivery. Implementing the MI intervention would require that the duties be scheduled into their workday affording them sufficient time to support participants and alleviating the existing workload that they experience.

YW4: “Have it maybe in our timetable [MI implementation work], you know, we both have timetables that like you know, but to actually have a slot in our timetables [for MI implementation work] that would work for everybody.”

There was a consensus across youth organisations that a collaborative approach would be required between the youth workers and researchers or experts in the field of behaviour change interventions to sustain future peer led MI programmes within their service. The MI intervention was agreed to be feasible in youth organisations (YO2 & 4) if time was assigned within their role to support its implementation. Other youth organisations (YO3.1 & 3.2) agreed that although they had fewer resources available to them, they could easily accommodate the implementation of MI intervention into their organisation.

M2: “It’s [MI intervention] something that I really feel strongly about. It should be accommodated in youth centres. That shouldn’t be something that is difficult.”

Delivering MI sessions on club evenings with lead youth workers on site during sessions was described by youth workers as feasible. As such it was a programme that they could support within their youth organisations (YO3.1 & 3.2).

Subtheme 3: Challenges and barriers for participant engagement.

Navigating and completing consent forms and follow up surveys for service user participation in the MI intervention differed according to the organisations. Those organisations (YO3.1 & 3.2) who appeared to have little difficulty indicated that paper surveys and parent consent forms were easily completed. When difficulty was encountered with getting paperwork back from participants youth workers visited the recipients’ homes to collect the consent forms and follow up data.

M3: “Even if we chased them [participants] up there wouldn’t really have been a problem either, both myself and YW1 are from the community and it does help a lot.”

Larger youth organisations, who experienced greater difficulty had greater numbers of service users accessing their youth organisation. Consequently, it was not feasible for youth workers to meet with parents individually. It was recommended that hosting an information evening would provide youth workers with an opportunity to reach a greater number of parents. It would also present as an opportunity to answer questions and clarify any ambiguity that may arise with respect to the intervention. In addition to clarifying parental queries, an information evening was believed to also present an opportunity to this gain and collect parental consent forms. This would negate youth workers encountered trouble in returning adolescent service users paperwork from previous youth organisation programmes.

YW2: “Getting forms [consent] back from young people is always going to be a struggle.”

This challenge was heightened when there was a fear for some peer recipients to disclose to their parents that they engaged in behaviours such as cigarette smoking or alcohol consumption.

M1: “Parents would have an inkling that the young people are doing things that maybe they shouldn’t be doing but they don’t want to admit it and manifest it and bring it out.”

Youth workers discussed the impact of the intervention on the participants and their engagement in the process. Peer educators experienced difficulties to arrange MI sessions in the three biggest youth organisations (YO1, 2 & 4). Peer educators had to rearrange missed MI sessions when peer recipients cancelled appointments. Youth workers noted the frustration for peer educators when the peer recipient’s absence was realised when they did not turn up for scheduled MI sessions. Additionally, there was a difficulty experienced by some peer educators to collect follow up surveys once MI sessions had been completed.

YW3: “If we’ve a gap of a period in which they have disengaged from the work [MI intervention] they [participants] were doing, they [participants] forget that that’s still even going on, you know. It’s not even relevant anymore....”

Voluntary participation is the underlying principle in youth work and continued engagement in programmes was discussed by youth workers as a frequently encountered challenge.

Adolescent service users were understood to support their immediate delivery of programmes but once they were completed adolescents were quick to move on.

YW3: “Like one of the huge positive, eh like values that we carry in the youth sector is voluntary participation, you know, but that can also be the biggest challenge.”

7.4.6 Theme 5: Maintaining and integrating a MI peer led approach into youth organisations.

The MI intervention was discussed as being in line with the underlying principles of youth work in Ireland and the ethos of participating youth organisations. As such the youth workers discussed different approaches to integrating the MI peer led intervention within their youth organisations.

Subtheme 1: Capitalising on peer relationships.

Many peer recipients ($n=29$; 65.9%) chose to engage in the MI intervention to increase their physical activity and this was believed to have a direct impact on adolescents engaging in the other two health risk behaviours.

YW2: “I know it’s really hard for him to give up smoking and he may not really want to give up smoking because he thinks it’s cool, but he has a love of sports, so lets’ work on that ...”

The intervention for one youth worker could be applied as a preventative measure for service users to initiate or persist in health risk behaviours.

YW2: “The thing is about the physical thing [physical activity] is that right if you know they [service users] are getting into physical [activity] and some of them are really enjoying doing it [physical activity]. If they haven’t started smoking, then they are more likely definitely not to start smoking, because it doesn’t fit into that [physical activity]. If they are smoking, well the better they get or the more they do [physical activity], there’s more chance of them saying right I’m not going to be smoking because its effecting this [performance] now.”

Aspiring to achieve fitness and subsequently increasing their self-esteem was believed to be an indirect means of reducing alcohol consumption or cigarette smoking.

YW1: “I think the reality of it is from what I can see form the kids is that it is very kind of thought provoking from them and that it’s given them a real opportunity to

kind of look at themselves so I kind of think that it's promoting their own kind of self-awareness."

Subtheme 2: Peer educator and recipient recruitment - a targeted approach.

The soft approach of working with peers who were friends in the initial stages of the MI intervention, was believed by one youth worker to be the most appropriate. The ability for peer educators to work with a familiar peer gave them a chance to build confidence in their role before targeting others who they were unfamiliar with.

MI: "So, they did it [MI sessions] with their friend and then they interviewed someone for the first time that they didn't have the relationship with, which is very positive you know. They found that quite beneficial you know."

In another youth organisation (YO3.2), the peer educator did not know any of the peer recipients as she was completing her transition year community work placement and did not attend the youth organisation.

YW1: "I think that [PE7] was very lucky because they [peer recipients] were very involved in stuff [programmes] and as I said it was more daunting for her [PE7] as she was coming into their [peer recipients] territory."

Cigarette smoking and alcohol consumption behaviours were agreed to be gateway behaviours that their adolescent service users engaged in before in some cases graduating to substance misuse. One youth workers' (YW2) involvement with local schools and their students to achieve the Gaisce awards applied the goal of participating in community work in a structured way. The peer led MI intervention created a platform for the youth worker to consider implementing the programme long term within his youth organisation (YO4). He argued that if the intervention changes a health risk behaviour, it is a valuable and practical addition to the service. As such it must become a priority, even if there are challenges experienced in funding its implementation. This sentiment was echoed across youth organisations.

YW4: "It [MI intervention] was great and the feeling even in the centre (YO5) that everyone [service users and staff] wanted to be on board and so I think it was a great opportunity for shared learning. Definitely for the staff and for the young people and that it just kind of helped to build our bond better. You know it makes the bond stronger."

Subtheme 3: Embedding and strengthening the adolescent peer-led approach within the youth organisation.

Peer educators' expertise, established through their experience of delivering MI sessions was believed to create a pathway to develop a 'train the trainer' model or peer educator mentoring approach. In doing so the peer led approach would be embedded within the youth organisation and provide practical support to new or less experienced peer educators. Establishing a youth council within youth organisations would it was discussed, promote, and reinforce the harm reduction approach to health risk behaviours.

YW3: "Maybe you could encourage the young people [peer educators] that are engaged in it now at the moment to provide some sort of a council where they support other peer leaders where they go and do this and you're creating an environment that's led by the young people."

Peer educators could also be further challenged in their recruitment strategies to extend beyond peers who they are friends within the youth organisation. Applying a targeted approach to recruitment with the guidance and support of the youth organisation was an important next step. In youth work a measure of success was described by one youth worker was to work towards making their role 'redundant' (YW3). The opportunity to implement the MI intervention in their youth organisation (YO2) allows service users to assume a position that may otherwise have been adopted by a staff member. There was an expression of interest amongst service users, who had observed their peers engage in the intervention, to participate in upcoming MI programmes. There was also a desire expressed by recipients to become educators and peer educators were willing to deliver a second iteration of MI sessions to their peers.

YW1: "But that's the whole possibility of it [MI intervention], that it will have that ripple effect, and they will go 'ah, I want to do that' [MI sessions]. They're [peer recipients] after doing it and I want to do it. Because in a way you hear them coming out and the lads [service users] going 'what's going on in there?'"

Establishing the peer educators as points of contact within the organisation to provide an MI service was thought would normalise the programme in the youth organisations. One youth worker (YW2) spoke about how he had identified new potential peer recipients who may benefit from the MI intervention since the first iteration of MI sessions. Presenting peer recipients with a choice of peer educators to work with could further entice peer recipients to engage in the MI sessions.

YW2: “Do they [peer recipient] want someone older than them, do they want someone a similar age, do they want same sex, do they want other sex, do they already have a relationship, or do they want someone that they don’t know.”

Adopting a new approach to recruitment in collaboration with youth workers within the organisation (YO1), may identify a greater number of recipients. Their ability to choose their peer educators may it was felt expand the reach to more vulnerable adolescents. Increased confidence and proficiency that peer educators had developed following the first iteration of MI sessions, increased their ability to conduct MI sessions with new peer recipients.

MI: “Absolutely. I think they’d [peer educators] be interested in going again, they’d love to go again. I think this time around, I think the information they got this time around was very good. I think it’d grow again. I think it’d go deeper.”

Youth workers agreed that assigning time, dedicated within their role to manage and implement the MI project would increase the effectiveness of the MI intervention. One youth worker said that if the time and resources were available to him, he would have had a greater ability to support the implementation of the intervention.

YW3: “If that was purely my role, I’d give it my all and I’d be behind it one hundred per cent. It’s just having that resource you know.”

7.5 Discussion

This study sought to understand the perspective of the youth worker in the lead role they assumed to support of peer educators and recipients in their participation of the MI intervention. The feasibility and maintenance of the MI intervention in the youth organisation was explored. Thematic analysis revealed five overarching themes with subthemes connected to their objectives. Theme 1 discussed how the role of the youth workers, their relationships with service users and the ethos of their organisation informed their application of programmes and activities. Theme 2 reflected on the effectiveness of MI training and intervention delivery. Theme 3 highlighted the youth workers’ perspective on peer led approaches. Theme 4 explored the opportunities and challenges of maintaining a peer led MI intervention in their service. The final theme considered the barriers and sought strategies that built upon existing foundations within the youth organisations. This was with a view to incorporating and sustaining the adolescent peer led MI programme within their organisations.

The first theme emphasises the importance that youth workplaces place on creating opportunities for their adolescent service users to achieve personal growth and development. This is in line with both national and international evidence that underscores the positive impact that youth work has on young people (Devlin & Gunning, 2009; Forde & Meade, 2009; Merton et al., 2006). The MI intervention sought to achieve the objectives and core elements under which youth work operates (Davies & Merton, 2009; Devlin & Gunning, 2009; Ritchie & Ord, 2017). Engaging adolescents in a peer led approach to promote positive health outcomes is supported by the literature on theory-based peer led interventions (Mahat et al., 2006). The MI peer led approach appeared to meet the adolescents' developmental need to make decisions for themselves and support their independence in doing so while regarding their levels of psychological reactance (Baer & Peterson, 2002; Miller & Rollnick, 2012).

A key role in the intervention was that of youth workers, who represented as gatekeepers to those who use the youth organisation and are key to the effectiveness of adolescent participation in the research. Gatekeepers have been effective in the implementation or management of interventions (Hoppitt, Shah, Bradburn, Gill, Calvert, et al., 2012) and have highlighted positive features for intervention fidelity (Glazier et al., 2006). Youth workers who presented as gatekeepers described their responsibility to assess the risks for their service users to participate in the MI study. Their service users are considered a vulnerable group due to their age and socio-economic situation and as such were believed to be at greater risk for exploitation. The risk of exposure for targeted populations to participate in research is understood to present as a barrier to recruitment (Bonevski et al., 2014). However, youth workers place an importance on harm reduction models for health promotion and actively support such models for their service users.

Adolescent service users agreed to participate in the programme before youth organisations agreed with researchers to implement it. This is in keeping with the literature, where at the point of designing the implementation of a peer education programme, the peer educators' input and acceptance of an intervention is considered to improve its effectiveness (Frantz, 2015). Similarly, the recruitment and retention of peer recipients by peer educators averted the commonly encountered barriers in research for the participation of vulnerable groups. According to the health literature it is difficult to recruit and retain participants in low SES communities. However, there is evidence to support the effectiveness of collaboration between researchers and community organisations to encourage participation in health and medical research (Benoit et al., 2005; Mendelson et al., 2020). Adopting this collaborative approach can contribute to establishing and building trust between researchers and within a

community (Yancey et al., 2006). Recruitment and retention of minority participants is further supported by health research in the United States which emphasises the importance of using community organisations or staff within the organisations to successfully recruit participants (Alvarez et al., 2006; Signorello et al., 2005). Similarly, Bonevski and colleagues (2014) conducted a systematic review of the literature seeking out strategies to improve ways to conduct health research among disadvantaged populations. The review stressed the importance of the inclusion of community representation and collaborating with key stakeholders and participants during the research process.

Incentivising participation in health research is a frequently used method to encourage the recruitment and retention of participants (El-Khorazaty et al., 2007; Festinger et al., 2008). A commonly experienced barrier in research is the continued engagement of participants for follow up data. Competition and availability for participants' time to engage in the research, change of contact details, transport difficulties and childcare are some of the factors that have been found to impact on the ability of participants to engage in the research process (Festinger et al., 2008; Wallace & Bartlett, 2013; Woods et al., 2002). Incentivising the peer educator's role through payment for MI sessions was reported to motivate their continued involvement in the MI intervention. Youth workers observed a demonstration of professionalism and commitment in the peer educator's role when working with recipients. This was extended in the educators attempts to obtain the follow up data following their delivery of the MI sessions. Their role addressed some of the commonly experienced challenges and barriers for the retention of participants in health research (Dibartolo & McCrone, 2003; Loftin et al., 2009). Additionally, defining the study's parameters and outlining the eligibility of participants that demonstrates inclusivity can reduce the challenges encountered in community research (Ellard-Gray et al., 2015). Youth workers adopted a targeted approach to recruit peer educators stressing that considerations on certain qualities should be present and which they believed would increase their ability to deliver the MI intervention.

Accessing hard to reach populations in research often encounters difficulties due to their vulnerability, physical or social settings (Shaghghi et al., 2011) and adolescents from low SES groups participate less in research than those from higher SES groups (Ezell et al., 2013). A targeted approach to recruitment of socially disadvantaged groups through community organisations can provide a way in which to recruit a convenient sample for research. Three main forms of targeting a group were defined by Benoit and colleagues (2005). The first was to access the targeted group with the support of the community, the second, to share information and learning between the researchers and community. The third

form encouraged partnerships between the community and research to support an academic approach to the implementation of programmes to meet outcomes that inform policy and programme delivery. Enlisting youth workers to assume a lead role capitalized on the relationship that exists between them and adolescent participants. This reinforced the ‘buy in’ demonstrated in the MI intervention. Similarly, research conducted in a school based randomized control trial called the Project POWER (Promoting Options for Wellness and Emotion Regulation) was supported through the co-facilitation of young people in the community and researchers in delivery of their intervention. Upskilling of community members increased ‘buy in’ and the behaviour change outcomes for the students further supported the importance of the collaboration and inclusion of community members in the research (Mendelson et al., 2020). The literature indicates that attempts should be made to recruit a group that represent a sample of the cohort in geographical locations or among populations where there are concentrations of the targeted group (Benoit et al., 2005). The youth organisations provided the opportunity to recruit an adolescent cohort from low SES communities. Approaching recruitment in this way has been found to increase the rate of responses and build upon the trust between researchers and the community (Greene et al., 2009; Harper & Carver, 1999).

The second theme focused on the obligation described by youth workers to provide their service users with opportunities to engage in meaningful informal education programmes. Participation in research based on helping others has been found to incentivise and to be an effective motivator for participant engagement in research projects (Schoeppe et al., 2014). Youth workers supported and encouraged their service users to use the organisations facilities in the peer led intervention. Peer educators were considered to demonstrate both responsibility and ownership of their roles in the youth organisation during the MI process. This contributes to supporting developmental opportunities to increase adolescent autonomy that youth workers seek to achieve (Masten & Coatsworth, 1998). Providing transparency on the goals and objectives of the study has been found to alleviate mistrust and adopting this strategy creates a sense of ownership amongst participants for the intervention delivery (Sullivan & Cain, 2004). The peer educator was believed to have communicated effectively to peer recipient the aims of the interventions and successfully recruited on this basis. The pull factors for youth workers to engage in the MI intervention included; (1) the value of the developmental output that the MI intervention provided for participants, (2) the opportunity to work with their service users in a peer led approach, (3) assuming ownership of the implementation process and (4) the responsibility

for peer educators to implement the intervention including peer recipient recruitment, retention and follow up surveys, use of materials including sessions books to enhance the service users skills and development.

Collecting parental consent was discussed as problematic for two reasons (1) some peer recipients did not want their parents to know that they engaged in the health risk behaviours such as smoking or consumption of alcohol and (2) the information on the consent form was believed to be too detailed. Mistrust of the research process or researchers is a commonly reported barrier in health research and can have an impact on their ability to successfully recruit participants (Ellard-Gray et al., 2015; Sokol & Fisher, 2016). Bonevski and colleagues (2015) also recognized that one of the main barriers to recruitment was successfully gaining parent consent due to lack of awareness of the research and difficulty in understanding the consent forms. Some youth workers in smaller youth organisations discussed how they met with parent, and this reduced the problems experienced in gaining consent. Other larger youth organisations suggested hosting an information evening for parents to ask questions about the MI intervention. This could provide a greater number of parents with the opportunity to ask youth workers with the support of researcher's questions and to subsequently alleviate any of their concerns. It was believed that this would have increased service users' participation in the smoking and alcohol health risk behaviours. A similar approach is supported in the literature, which makes recommendations for brief information sessions to present the aims and objectives of a study to participants using a "champion" (Schoeppe et al., 2014) or in the case of the MI intervention the lead youth worker to communicate the study's information to parents and service users. Literature outlines strategies to improve the problems encountered in community research in gaining and collecting consent forms. Strategies include a reduction in contact time with parent to gain consent (Mendelson et al., 2020) and as such hosting an information evening, where parents are invited to attend may reduce this commonly encountered problems during recruitment.

The third theme explored the effectiveness of MI training and intervention delivery. Resources differed across organisations and brought about certain challenges including, availability of rooms to conduct MI sessions, availability of youth workers to support peer educator in intervention implementation and the successful scheduling of MI sessions in the youth organisations. Applying flexibility across the different youth organisations was important to accommodate for the different levels of resources available to each service to implement the MI intervention in their service. Lindquist-Grantz and colleagues (2020) highlight the responsiveness of participants who participated as co-researchers in a

community setting using youth participatory action research (YPAR). Adopting a flexible approach to successfully deliver a health intervention should be in response to the needs of participants. In doing so it fosters confidence in the young people who participate in community led research studies, placing an emphasis on addressing issues that are relevant to them in their community (Lindquist-Grantz & Abraczinskas, 2020).

Youth workers supported peer educators in a range of strategies to recruit peer recipients. Hosting information sessions within the youth organisations allowed peer educators to access a convenient sample and to recruit participants. This is an effective strategy that has been widely used in research that targets hard to reach populations. Research studies have demonstrated the successful use of this approach to recruitment of disadvantaged populations through community organisations (Benoit et al., 2005; Booth, 1999; Daniulaityte et al., 2012; Shedlin et al., 2011). Some youth workers also targeted service users in collaboration with their colleagues who worked in the youth organisation. Generating a list of service users who may wish to engage in the MI intervention was considered possible. Although this may increase participation, it is also at risk of self-selection bias and may miss some of the more difficult or harder to reach within the group. Adopting a snowball or respondent driven sampling approach to extend recruitment beyond the youth organisation and amongst peer friendships increased the participant rates and number of at-risk adolescents to participate in the MI intervention. A study that sought to recruit adolescent participants within an American Muslim community to contribute to research on their attitudes towards alcohol use used a respondent driven approach. However, it was noted that although the pilot study successfully recruited hard-to-reach participants, the results indicated the low level of alcohol use was affiliated with the original participants samples' use of alcohol (Arfken et al., 2013). Another study sought the recruitment adolescents to contribute in a study to understand the health of adolescents aged 15-19 years living in low SES urban settings across six countries. Results highlighted the limitations of participation due to the requirement for participants to access to surveys online and restricting the reach of participants (Decker et al., 2014). Respondent driven sampling seeks for participants to recruit among their contacts to boost participation numbers in the research process. Adopting this approach can influence participant selection and it is important to consider the impact of selection bias when using this method for recruitment (Mccreesh et al., 2012).

Challenges encountered in the delivery of the MI intervention included the heavy workloads that youth workers experienced in their role, which limited their time to engage in research projects. Conducting research in community organisations can experience resistance

towards research as it may interfere with the limited time and resources that staff have within these organisations. Displays of resistance to participate or unwillingness to engage may also be due to gatekeepers' protective nature of their service users and community (Hoppitt, Shah, Bradburn, Gill, & Calvert, 2012) and the time that is associated with developing a rapport with the gatekeepers (Ellard-Gray et al., 2015). A flexible approach was adopted in the MI intervention and the availability of researchers to support the youth worker in the lead role that they assumed in the intervention process was considered crucial to support the effective intervention delivery. This is in line with the literature which highlights the importance of adopting a flexible approach to conducting research to meet the needs of minority groups in health and community research (Ellard-Gray et al., 2015; Lindquist-Grantz & Abraczinskas, 2020; Wallace & Bartlett, 2013; Yancey et al., 2006). The support that youth workers received in the MI intervention included training, a training booster session, MI materials (workbook & manual), contact with researchers via numerous methods (email, phone, onsite visits), instilled confidence in the youth workers in their ability to support peer educators to implement the MI intervention in their youth organisations.

Training was believed to consolidate the peer educators' understanding and implementation of the MI intervention. Crucially it was at this stage that peer educators had clarity on their role in the research process. As the training was delivered in a location that was comfortable and convenient for service users with high levels of interaction, it was considered to be good fit for the adolescent learning. UNICEF and the World Health Organization support innovative approaches to conducting health research among adolescent populations. Empowering adolescents through meaningful participation in health research is recognized as an important way to establish good health habits and address the health needs of adolescents globally (H. Clark et al., 2020). A Youth Participatory Action Research (YPAR) approach conducted to empower adolescents to promote health and well-being reinforces the efficacy of innovative approaches to adolescent engagement in the research process. Adolescents attended training to become researchers on the health issues that were relevant to their age group (Ozer, 2017). Similarly, peer led drug and smoking prevention programmes in schools have empowered adolescents to support health behaviour change (Audrey et al., 2006; Ellickson et al., 1993).

Training with peer educators and with neighbouring youth organisations was believed to challenge participants (youth workers and peer educators) to interact with each other in an unfamiliar way. Group learning and bridging communities together to achieve similar targets in their delivery of the MI intervention strengthened their understanding of the application of

the peer led MI intervention process in the youth organisation setting. However, the attrition of peer educators from two youth organisations representing one community at this critical stage of the intervention was believed to be due to their requirement to travel to a host youth organisation for training. Peer educators required to travel unaccompanied, to a host organisation, without the support of a youth worker from their organisation was believed to have impacted on their confidence to attend training. These challenges are consistent with the literature which recognises that traveling to participate in research can present as a barrier for hard-to-reach groups (Dibartolo & McCrone, 2003; Loftin et al., 2005). One study that attempted to counteract this barrier provided travel cards to increase participation (Woods et al., 2002). However, youth workers in the MI intervention believed the absenteeism of peer educators was due to the low confidence levels of participants to travel to the host location and to engage in training with unfamiliar peers. This was on the basis that payment to cover the cost of travel was received by educators to support their attendance.

Attrition rates are often high when conducting research with hard-to-reach populations, particularly when trying to collect follow up data. This can have an impact on both the internal and external validity of results (Buscemi et al., 2015). Incentivising participants to engage in research such as providing transport or reimbursing expenses for travel and childcare can reduce attrition rates (Bonevski et al., 2014b, 2015). Additionally, providing convenient accessible locations for research participation has been found to reduce attrition rates (Loftin et al., 2005). The MI intervention was delivered in the youth organisations that both peer educators and recipients attended. Although the location was convenient, challenges including the lack of availability of recipients to attend MI sessions and missed appointments due to family, social and work commitments. This is in keeping with the literature, where research has assessed the absenteeism or retention of vulnerable participants, finding the prevalence of absenteeism attributed to constraints including forgetting about appointments or an inability to contact participants (Bonevski et al., 2014; Buscemi et al., 2015).

The fourth theme provided the youth workers perspective on adolescent peer led approaches. Youth organisations provide a setting where adolescents can participate in informal educational programmes on a voluntary basis. As such the youth workers believed that running peer led programmes were acceptable within their organisations. Youth workers spoke about actively seeking out opportunities to deliver peer led programmes in their organisations. The enthusiasm that they displayed for adolescent peer led programmes is evidenced in the literature for the successful delivery of health behaviour change interventions and promotion across a variety of settings accessed by young people. Large adolescent cohorts have been conveniently recruited in formal school-based settings for

smoking cessation and drug prevention programmes (Campbell et al., 2008; Ellickson et al., 1993). They have also been implemented into informal community settings such as health centres, street settings (Maticka-Tyndale & Barnett, 2010; Shrestha, 2002) and youth clubs (Esu-Williams et al., 2004) where they have been successful in adolescent recruitment for behaviour change programmes. As health risk behaviours are understood to be socially influenced, they are believed to be a good fit in a peer led approach to behaviour change (Campbell & MacPhail, 2002), thus supporting the youth workers thoughts on the appropriateness of the MI peer led intervention. Adolescents have successfully participated in peer-based approaches to share accurate information associated with the harms of engaging in health risk behaviours (Macarthur, Harrison, et al., 2016; Shrestha, 2002). Peer education capitalises on the dissemination of accurate information amongst those who have shared characteristics (Parkin & McKeganey, 2000; Strange, 2006). Peer educators in the MI intervention were perceived by youth workers both during training and in the delivery of the intervention to their peers to be reliable sources of information and credible in their role. These attitudes support evidence on the effectiveness of peer-led health interventions in schools (Mellanby et al., 2000). Peer education has demonstrated a positive impact in school-based peer led programmes to address health related issues including sexual health promotion (Esu-Williams et al., 2004), smoking prevention (Campbell et al., 2008; Ellickson et al., 1993; McAleavy et al., 1996) and the prevention of the HIV (Hughes-D'Aeth, 2002; Mitchell et al., 2007; Shrestha, 2002).

All youth workers described the confidence that was displayed by peer educators in their role following training. Furthermore, their credibility as educators among peers appeared to be established during the MI intervention process. This supports the literature which highlights the importance of recognizing the credibility of peer educators as agents to elicit behaviour change (Choudhury et al., 2009). It was believed that peer educators should be established within their community, possessing key attributes such as confidence, commitment and to have previously demonstrated similar skills for youth organisation programmes. The interaction between peers was important and was believed to have been achieved based on the level of trust and comfort that existed between the peer educator and their peers. Peer led prevention programmes for HIV have demonstrated similar levels of trust between peer educators and their peers to increase awareness of and to reduce health compromising behaviours (Medley et al., 2009). Youth workers believed that the adolescent peer-to-peer approach placed the adolescents on an equal footing compared to an alternative adult-led approach. These beliefs build upon previous research that emphasise the

effectiveness of a peer led approach to reducing health risk behaviours. Ten suburban New York junior high schools recruited 998 eighth graders who participated in one of five of the study conditions. Health risk behaviours (including alcohol, cigarette use and marijuana use) reduced in the peer led intervention condition when compared to adult led and control conditions (Botvin et al., 1990). Adult-led approaches were believed by youth workers to be more problematic, as they represented an inbuilt power differential. This supports the literature for MI where adolescents can be reluctant to engage in interventions based on their inability to relate to the person who is delivering the MI sessions (Mellanby et al., 2000). The peer led approach created an opportunity for the peer recipient to engage in MI sessions without fear of judgement when compared to a similar interaction with an adult.

The credibility of the peer educator in the peer group is important. The interaction between peers was on the knowledge that the peer educator possessed to support the recipient. Becoming a credible source of information creates an opportunity to empower the adolescent to support their peers in a structured way (Ellickson et al., 1993; Hughes-D'Aeth, 2002). Peer educators demonstrated a clear understanding of the implementation and principles of MI following training. This was observed by youth workers to further support the peer educator's ability to recruit participants and deliver MI sessions effectively over the duration of the feasibility trial. Social learning theory contributes to understanding the motivations of peer health educators in their participation as volunteers in peer led interventions. Peer educators present as role models to their peers and reinforce acceptable attitudes and behaviour towards health. They represent individuals who are more likely to be listened to compared to someone outside of their peer group (Klein et al., 1994, pp. 126–130). Consequently, peer educators may be a more credible method through which health promotion is delivered among adolescent groups (Ellickson et al., 1993; Hughes-D'Aeth, 2002). In a practical sense, the peer educators in the MI intervention provided the peer recipients with supports to initiate ways to increase their physical activity. One youth worker expressed concern for the capacity of the peer educator to facilitate complex interactions with their peers on the basis that this interaction was established over time. However, most youth workers could not think of any disadvantages to the peer-led approach and supported the understanding that theory-based peer led interventions can have a positive effect on changing health risk behaviours (Mahat et al., 2006). The impact of the peer led approach on peer recipients has been demonstrated in research (Al-Iryani et al., 2011), but further research needs to be conducted on the impact that such interventions have on the peer educators, who have been recognized as being effective in their approach to disseminate information on health promotion (Audrey et al.,

2006). Gaining their perspective would support the sustainability of such an approach to health promotion.

Theme 5 describes the opportunities and challenges of maintaining a peer led MI intervention. These were discussed with respect to building the programme upon existing foundations within the youth organisations for an adolescent cohort. Community driven research has highlighted several commonly encountered barriers and developed strategies to overcome these barriers when working with hard-to-reach populations (Bonevski et al., 2014). Mistrust is often encountered between participants and researchers among socially disadvantaged groups (Hussain-Gambles et al., 2004). Consultation with community representatives can help include minority and hard to reach groups who are underrepresented in the health literature (Anderson et al., 2009; Furimsky et al., 2008; Hoppitt, Shah, Bradburn, Gill, & Calvert, 2012; Hussain-Gambles et al., 2004, 2006). Placing an emphasis on the consultation process with communities and participants who engage in the research can support the acceptability of research being conducted among hard-to-reach populations (Langhout & Thomas, 2010; Mendelson et al., 2020) and can help to address commonly encountered mistrust and fear of researchers (Benoit et al., 2005). The MI intervention was designed and implemented to address the frequently encountered recruitment barriers of mistrust and to capitalise on the familiarity and strength of authentic relationships between service users and youth workers. Youth workers who assumed the lead role in the MI intervention acted as gatekeepers to access the adolescent population for participation in the MI intervention. This supports the literature which places an emphasis on community and participant engagement in the research. It is an important way to promote the acceptability of health research among hard-to-reach populations. Furthermore, it is suggested that establishing community partnerships with research can help to address the mistrust and fear of researchers among vulnerable populations (Benoit et al., 2005).

Another barrier experienced by youth workers in their role in the MI intervention was their successful navigation and use of consent forms. These barriers reflect those challenges commonly experienced in health research. Strategies adopted to overcome such barriers have been to simplify consent forms to extend the reach of those who are vulnerable, who have low literacy or who belong to vulnerable ethnic minority groups (Cortés et al., 2010; Couzos et al., 2005; Sudore et al., 2006). Where there was confusion with respect to consent forms, youth workers met with parents to explain consent form content. It was also suggested that hosting information evenings with parents at the point of recruitment may reduce such barriers to obtaining consent, as these information evening would provide an opportunity

answer any confusion and the clarify the studies aims and objectives. Studies that have encountered similar barriers with consent forms have argued that modifying consent forms may be a way to negate such difficulties in gaining consent (Sudore et al., 2006). Research has adjusted consent forms to account for low literacy (Flory & Emanuel, 2004), has adopted strategies to change attitudes towards research which are diminished within a community (Corbie-Smith et al., 1999; Corbie-smith et al., 2002) or have simplified the system of gaining consent (Booth, 1999). An age-related issue for some peer recipients was to gain consent from their parents for their desire to participate in MI to reduce smoking or alcohol behaviour. Their desire to participate was in direct competition with the requirement for them to disclose to their parents that they engaged in the health risk behaviour. Participant stigmatisation from their peers or fear of disclosing behaviour to parents was a concern that youth workers highlighted in MI intervention. Adolescents' unwillingness to disclose their activities or behaviour may be due to a number of reasons (Tasopoulos-Chan et al., 2009). Retaining autonomy to engage in an activity (Finkenauer et al., 2005; Marshall et al., 2005) and or fear of disclosure which may result in disapproval (Darling et al., 2006; DePaulo & Kashy, 1998; Marshall et al., 2005) from parents are predictors that can influence participants' decisions to share information. These factors for engagement in research including fear and stigmatisation have been evidenced in the literature and have influenced participation rates in previous health studies that recruit people with HIV or AIDS (Anderson et al., 2009).

The initial stage of the study appears to be a crucial point in time where additional support is required for the peer educators to attend MI training. Supporting participants in travel associated with research with travel cards or funding has overcome similar barriers in previous research (Loftin et al., 2005; Woods et al., 2002). Individual youth organisation training for peer educators in their own youth organisation was believed to be a method to encourage greater attendance at this early stage of the intervention. Adopting this approach would, it was believed, increase the peer educator attendance but may reduce the relationships or partnerships that youth workers believed were valuable with neighbouring youth organisations through shared training. Important motivators for participation in the MI intervention for youth workers included reducing the perceived harms that participants may experience based on their participation in the study. Additionally, payment to peer educators for their work assigned value to the time and effort that they put into the MI intervention. This is in line with previous research that supports payment for increased attendance and participant satisfaction (Festinger et al., 2008). Although youth workers believed the initial motivator to participate was the payment incentive, participating in the peer-to-peer

intervention created a sense of pride among peer educators in their work with their peer recipients. The absence of some peer educators at the point of training represented those who were required to travel to a host organisation for training without youth workers. This suggests that the initial stage of the study may be a crucial time where support is required for the peer educators to travel to and attend MI training. Alternatively, hosting each training in the organisation of the peer educator may encourage increased attendance. The role of the peer educators and their engagement with the peer recipients promoted a shared ownership within the youth organisation. The project promoted and encouraged ownership of the intervention. This supported participating youth organisations to apply a range of strategies and to assume flexibility according to the best fit for each organisation.

7.6 Limitations

This study conducted semi-structured interviews with youth workers in their youth organisations. Interviews were conducted by the researcher who had previously worked throughout the implementation process with the youth workers. Due to the relationship developed, interviewees may have provided contributions to support researcher and potentially suppressed concerns with the intervention. Triangulation of results were sought through quantitative measures for primary and secondary outcomes and qualitative chapters, but there was a possibility for missed or misrepresented trends within the interpretation of the data.

7.7 Conclusion

Overall, the MI intervention was agreed to be an effective and appropriate method for adolescent service users to support each other to improve their health and wellbeing. All the youth workers who participated in the implementation process contributed their experiences in the semi-structured interviews. Peer led approaches were considered to be the gold standard for the delivery of programmes by service users who accessed their youth organisations. The aims of these programmes were to support service users' personal development and growth. The three health risk behaviours were considered relevant to the targeted cohort and the harm reduction approach was appropriate. Service users would be provided with an opportunity to interrupt these behaviours before they became more persistent and established. The commonly encountered barriers that are experienced in community research, specifically in low SES communities appeared to be counteracted due to the 'buy in' that youth workers demonstrated for the intervention. As gatekeepers they created a buffer between the researchers and participants which reduced mistrust of the research process. Their enthusiasm

to participate in the MI intervention served as an endorsement to service user and in their encouragement to them to participate in the MI intervention.

Chapter 8. A Qualitative Exploration of Participants' Perspective of an Adolescent Peer-led Health Behaviour Change Intervention and the Implementation Process. – (Study 5)

8.1 Chapters Aims.

Chapter 8 adopts a qualitative approach to capture the views and experiences of adolescent peer educators and recipients, following their participation in the peer-led health behaviour change intervention. These interviews contribute to the second of three phases conducted to evaluate the process of the MI feasibility trial. Semi-structured interviews explore the acceptability and effectiveness of the intervention from both perspectives, in addition to barriers and challenges encountered during the implementation process. A review of existing literature is discussed, highlighting the impact of peer educator contributions and adolescent recipients who have received and participated in complex health behaviour change interventions.

8.2 Introduction.

Innovative strategies are required to engage adolescents in research and to support interventions to improve their health outcomes. Peer-led approaches are becoming increasingly prevalent to change health risk behaviours and deliver health promotion messages to adolescent cohorts. They have been implemented in settings that are accessed by young people including schools, community centres, and other informal settings where young people assemble or congregate (Audrey et al., 2006; Bonevski et al., 2014; Ebreo et al., 2002; Ochieng, 2003). Theory-based peer-led interventions can have a positive effect on changing health behaviours (Mahat et al., 2006) and capitalise on opportunities for socialisation and peer selection for membership to groups amongst a large network (Campbell et al., 2008; Johnson et al., 2011; Larson & Brown, 2009). They can also positively affect an individuals' behaviour based on the receptiveness of information by participants who receive the health message (Maxwell, 2002).

Adolescence is a life period where health behaviours, lifestyle choices, and values are established and contribute to health outcomes (Azzopardi et al., 2019). Adolescents establish key relationships with positive prosocial peers and these relationships can have a positive or negative impact on their health, particularly when the associated norms of a peer group involve participating in health-related behaviours (Jaccard et al., 2005). Engagement in health risk behaviours such as cigarette use, alcohol use, substance misuse is often influenced by peer group norms (Donovan, 2004; Kaplan et al., 2001). Promoting a protective transition for

young people from adolescence to adulthood requires that risk factors be addressed in their social environment specific to family, peer, and school relationships to improve their health outcomes (Larson & Brown, 2009). Adopting a harm reduction approach to reduce health risk behaviours provide adolescents with opportunities to receive a health message that is both relevant and acceptable for them to make healthy lifestyle choices. Peer-led health promotion or prevention programmes are typically delivered in person to share the knowledge and experience of a health educator with their peers (Parkin & McKeganey, 2000).

Peer education can be applied to any life stage (Green, 2001), and has demonstrated a positive impact in school-based peer-led programmes that address health-related issues including sexual health promotion (Esu-Williams et al., 2004), smoking prevention (Campbell et al., 2008; Ellickson et al., 1993; McAleavy et al., 1996) and prevention of the Human Immunodeficiency Virus (HIV) (Hughes-D'Aeth, 2002; Mitchell et al., 2007; Shrestha, 2002). It is considered an effective strategy for health promotion among adolescents (Ochieng, 2003), operating under the assumption that participants share a social status (Parkin & McKeganey, 2000; Strange, 2006) including age, ethnicity, gender, and membership to a socio-economic group (Harden et al., 1999; Parkin & McKeganey, 2000). All can signify a peer association and have been adopted as qualifiers to implement peer-led health interventions (Bosi et al., 2013; Campbell et al., 2008; Mellanby et al., 2000; Valente et al., 2007). Adolescent peers can play a vital role in each other's psychosocial support and their social interaction can represent positive outcomes when behaviours are positively reinforced (Frantz, 2015). The implementation of peer-led and peer education programmes in schools, clinical and community settings are becoming an increasingly popular way to target these health risk behaviours. Shared characteristics between peers enhance the ability of educators to deliver a health message effectively to the targeted group and create opportunities for adolescents to make informed decisions concerning their health behaviours (Lorthios-Guilledroit et al., 2018; Ozer, 2017). Moreover, the peer-led approach facilitates access to hard-to-reach groups and is a cost-effective way to change health risk behaviours (Frantz, 2015).

A peer led approach capitalises on the inbuilt relatedness that exists between individuals and creates an opportunity to empower young people to actively engage with each other to promote and protect their health. The lifestyles of young people are increasingly linked with the prevalence of risk factors associated with non-communicable diseases (Frantz, 2006). In low- and middle-income countries, peer education and peer led interventions have focused largely on increasing awareness around HIV prevention, illness

management and increasing awareness on sexual health (Al-Iryani et al., 2011; Anderson et al., 2009; Campbell & MacPhail, 2002; Ebreo et al., 2002; Geneau & Hallen, 2012). In high income countries peer led and peer education approaches attempt to address the prevalence rates of alcohol, tobacco, drug use in addition to other health risk behaviours such as diet, physical inactivity, and sexual health. All these health risk behaviours contribute to increasing public health concerns globally (Azzopardi et al., 2019).

Adolescent development is closely connected to social interactions with their peers and membership to peer groups (Cotterell, 2013). Studies on adolescent health behaviours have found that those who engage in health risk behaviours including smoking, alcohol consumption and substance misuse will be more likely to do so if their peer group engages in these behaviours (Ennett et al., 2006, 2008; Hoffman et al., 2007; Lorant & Tranmer, 2019). Peer education provides a way to challenge health risk behaviours by sharing accurate information specific to the risks associated with engaging in the behaviour. Adolescent peer education interventions have been successfully delivered in schools alongside teachers in tobacco prevention programmes (Goenka et al., 2010) and alone to deliver health information on nutrition and the risks associated with tobacco smoking (Audrey et al., 2006; Story et al., 2002). Adolescent peer led interventions are not limited to the school setting but across a range of settings where adolescents attend. Both clubs and community centres can and have supported the delivery of interventions amongst adolescents that promote informal interactions between peers (Macarthur, Harrison, et al., 2016).

Peer leaders and educators have successfully encouraged young people to participate in health education (Elliott, Watson, & Harries, 2002). The literature supports peer education and peer-led approaches as they are considered effective methods for the implementation of peer-led health interventions (Finnerty et al., 2010; Mellanby et al., 2000). A peer educator receives specialised training and information to support a peer recipient in their attempts to change a behaviour (Abdi & Simbar, 2013; Mason-Jones et al., 2011; Strange et al., 2002). Peer leaders or educators have been successfully trained to deliver health messages to their peers for a range of health risk behaviours and in harm reduction programmes (Sussman et al., 2001; Telch et al., 1990; Valente et al., 2007). One such study that recruited ten suburban New York junior high schools with 998 eighth graders participating in one of five of the study conditions emphasised the effectiveness of the peer led approach when compared to other intervention conditions. Health risk behaviours (alcohol, cigarette use and marijuana use) reduced when the peer led intervention accompanied with a booster session were implemented, compared to other conditions including adult led and control conditions

(Botvin et al., 1990). Further support for the peer led approach was outlined in a meta-analysis on youth substance misuse interventions and programmes. Findings in this analysis indicated that the presence of a peer component is more effective than those interventions or programs that do not incorporate a peer led approach (Tobler & Stratton, 1997). Peer leaders have been recognized as a key factor in the effectiveness of such school-based programmes and health promotion strategies (Mellanby et al., 2000). Furthermore, informal peer led approaches have been argued to support increased autonomy for peer educators in their scheduling, individual style, method of delivery and content of the health message to their peers over more formal peer education programmes (Green, 2001).

The peer educator facilitates an ease in communication on sensitive health topics with their peers through existing levels of trust (Medley et al., 2009). Establishing the credibility of the peer educator amongst the targeted peer group is important and peer led programmes are developed based on this underpinning assumption (Green, 2001). Interactions between peers is on the basis that the educator has the knowledge base to support the recipient and as such becomes a friend who provides credible information to their peer. Larkey and colleagues (1999) emphasised the importance of employing social networks that are already established. Hispanic peer educators delivered health messages to their peers that were found to be more effective and personalised when compared to non-Hispanic peer educators (Larkey et al., 1999). Peer education creates an opportunity to empower the adolescent through the acquisition of skills and knowledge to support them when interacting with their peers. This is in line with previous research which has highlighted the importance of recognizing the credibility of peer educators as agents to elicit behaviour change (Choudhury et al., 2009).

The experiences of adolescents and young people who have participated in health behaviour change interventions can inform the acceptability and feasibility of an intervention (Audrey et al., 2006; Sebire, Banfield, Jago, et al., 2019; Shah et al., 2011). Process evaluation studies for adolescent health behaviour change interventions have sought to understand the feasibility and effectiveness of these interventions from the peer educators, supporting staff members' and stakeholders' points of view. However, there is limited evidence about the experiences of those who have received an intervention from their peers (Audrey et al., 2006; Sebire, Banfield, Jago, et al., 2019; Shah et al., 2011). Where evidence is presented, the method of assessing participant engagement varies across studies and is limited in its content (White et al., 2017). The methods of capturing participant experiences include questionnaire surveys, evaluation forms, focus groups and interviews (Fithria et al., 2021; Mitchell et al., 2007; Schneider et al., 2009; Shah et al., 2011). These methods of collecting participant views

can provide insights into the feasibility of a trial and inform the acceptability of the intervention received.

Peer led interventions who sought to understand the experience of participants who received the intervention included both the ASSIST smoking prevention and the PLAN-A peer led health studies (Audrey et al., 2006; Sebire et al., 2019). Students who received the smoking health message from peer supporters in the ASSIST programme, reported a high level of initial interactions and level of engagement with the educator, however, this engagement reduced over time. Information detailing the chemical composition of cigarettes was described as the most potent message received, however, some details of the information were not accurately retained by recipients. The findings indicated that the health message had little effect on those who had already decided not to smoke, whilst those who had experimented suggested that the health message would influence abstinence in future smoking behaviour. Furthermore, the subtle approach adopted by some peer educators in their delivery of the health message was considered more favourable than the more detailed than sensational approaches adopted by other peer educators (Audrey et al., 2006). Recipient contributions have provided some insights into the effectiveness of the peer educator' health messages in peer led programmes to increase PA and to prevent HIV (Mitchell et al., 2007; Shahmanesh et al., 2021). An evaluation of the Students As LifeStyle Activists (SALSA) peer led programme conducted in a New South Wales high school, sought to assess the programmes' feasibility and effectiveness, capturing the perspective of recipients in addition to high school teachers who supported the implementation of the intervention. Preliminary evaluation of this programme (3 x 75-minute lessons) considered peer educator feedback through questionnaires in addition to those who received the school-based health promotion programme. Recipients expressed a genuine interest in the programme activities and the peer leader's role was considered an acceptable way to receive the health message. Findings indicated that recipients reported to recognize the importance of healthy eating and exercise due to their participation in the programme (Shah et al., 2011). Additionally, a HIV/AIDS prevention programme, delivered to reduce sexual health risk behaviours amongst African youths, sought recipient feedback through focus groups as part of the evaluation process of the programme. Recipients (10 – 13 years) provided anonymous feedback through questionnaires, on their experience of participating in the health promotion study. Findings indicated that peer educators were respected, considered credible, responsible, and demonstrated empathy when delivering the health message to their peers (Mitchell et al., 2007).

Peer-led studies that have sought to promote increased PA and improvements in diet have also provided positive outcomes from the perspective of recipient engagement in the peer-led process (Sebire, Banfield, Campbell, et al., 2019; Story et al., 2002). As part of a process evaluation in the Peer-Led Physical Activity iNtervention, PLAN-A program, adolescent female recipients ($n=24$) aged 12-13 years, engaged in focus groups to discuss their participation in the study. Participants' awareness of the intervention, their views of peer supporters, conversations with their peer supporters, and the impact that they believed the intervention had upon them were explored through guided questions. Participant perspectives contributed to understanding the feasibility of the trial and overall process evaluation. Results outlined the acceptability of the intervention among participants, high fidelity, and informing its implementation, with some refinements recommended in a larger scale trial. Findings indicated that most recipients accepted the support provided by peer-educators. However, some recipients suggested that establishing this acceptance took time. One recipient did not recognize that they had received support, while another believed the peer supporters to be 'boastful' and suggested that the power differential between the educator and recipient increased the division between peers. While other recipients discussed the influence that their educator had on supporting them to increase their physical activity levels (Sebire, Banfield, Jago, et al., 2019). The perceived competency of peer educators was also captured for recipient engagement in the TEENS adolescent peer led healthy eating programme in the USA. As part of the process evaluation, focus groups were conducted with peer educators, following their delivery of the intervention in addition to teacher observations conducted during the programme delivery. Feedback from those who received the intervention was provided through recipient evaluation forms. This captured the recipients' experience of the intervention that sought to change their eating habits. Most recipients ($n=956$; 78%) reported that peer educators were useful in their role, with half (57%) reporting that their peer educators were helpful and remaining recipients reported the peer educators not to be helpful at all (Story et al., 2002).

However, challenges have also been identified in the literature for recipients who have received a health message from their peers. The experiences of adolescents who received the Activity and Healthy Eating in Adolescence (AHEAD) programme from their peers was captured in post-intervention behavioural questionnaires. These questionnaires assessed their experience of receiving a health message from their peer supporters in a 10-week adolescent peer led obesity programme. The results indicated that one third of recipients understood the delivery of the health message, but most participants reported to have had either no conversation or were unsure if they had a conversation with their peer educator. Findings

suggested that the health message delivered by peer educators, containing two core components (healthy eating and physical activity) required a high level of knowledge. Consequently, the study's findings suggested that the two core components were too difficult for the peer supporters to diffuse the message with confidence and effectively to their peers to change the health behaviour (Bell et al., 2017).

The experiences of recipients have also informed the development of programmes that have sought to reduce health risk behaviours amongst adolescent cohorts. A recent adaption of the ASSIST programme sought participant engagement in the FRANK and friends, peer-led drug prevention programme. Participants had previously participated in a smoking prevention programme +FRANK. Six focus groups were conducted with Year 9 (aged 13–14 years) students ($n=47$) to explore participant knowledge, risk perceptions of drug use and the prevalence of drug use among their age group. Participants also discussed their navigation of the Talk to FRANK website, so that the study could capture an understanding on the age appropriateness and the acceptability of the health information provided on drugs. Findings informed the development of the peer led intervention (White et al., 2017). Understanding the experiences of peer recipients can provide valuable insights into the acceptability of a peer led intervention (Al-Iryani et al., 2011), and peer educators have been recognized as effective in providing health information to their peers (Audrey et al., 2006; Mitchell et al., 2007; Sebire, Banfield, Campbell, et al., 2019; Shahmanesh et al., 2021). Adopting a peer led approach is considered acceptable and feasible amongst this cohort, based on the assumption that adolescents consider their peers reliable and important sources of information (Evcili & Golbasi, 2019).

This chapter examines the experiences of both the adolescent peer educators and recipients who participated in the peer led MI intervention. It builds upon evidence presented through interviews with youth workers to understand their experience of participating in the intervention; thus, elaborating on the process evaluation on the implementation of the MI intervention within participating youth organisations.

8.3 Methods.

8.3.1 Design.

Peer educators ($n=3$) participated in one small group interview representing one youth organisation, and two pair-based interviews with peer educators ($n=4$) representing three youth organisations. The objectives of the qualitative approach were to understand the experiences of peer educators in relation to: (1) Strategies used in the recruitment and

retention of peer recipients, (2) Training and learning outcomes based on their participation in the MI intervention, (3) Engagement in the overall intervention process, (4) Delivering a health message to their peers using MI techniques and, (5) Their views on maintenance of and sustaining the MI intervention within their youth organisation. Interviews with recipients sought to examine their experience of engaging in the MI intervention and receiving the health message from their peer educator.

Peer recipient feedback was captured in two interviews with participants ($n=4$) from two youth organisations representing one community. The objectives were to understand 1) Why they chose to participate in the intervention to change their health risk behaviour, 2) Their experience of receiving the health intervention from their peers, and 3) The outcomes of their behaviour change.

8.3.2 Participants.

Peer educators ($n=7$) representing four youth organisations (YO1-4) participated in one small group and two pairwise interviews. The absence of peer educators ($n=2$) on the day of a scheduled focus group in one youth organisation (YO1) required that the anticipated focus group be adapted to a small group semi-structured interview. Another youth organisation (YO5) was unsuccessful in scheduling a time convenient for peer educators ($n=3$) to participate in the interview process.

All peer recipients ($n=44$) in the MI intervention were invited to participate in focus groups in each of their youth organisations. Participants ($n=4$) from two of the four youth organisations attended the interviews and contributed their experiences of receiving the health message from their peer educators. Two male and one female recipient participated in the first interview and one female recipient participated in the second interview in one community youth organisation YO3. The youth organisations were both convenient and comfortable for participants to participate in these interviews and followed the recommendations for locations of interviews (Morgan & Krueger, 1998). Despite extensive efforts to recruit participants from other youth organisations (YO1, 2 & 4), conducting focus groups with the recommended participant numbers was not achieved.

Table 8.1

Composition and Duration of Peer Educator and Recipient Interviews.

Participant	Gender	Data Collection Method	Duration (min)	Youth Organisation
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Peer Recipient Data Collection Process				
PR 1	Male	Small Group Interview	16.39	YO1
PR 2	Male			
PR 3	Female			
PR 4	Female	Semi-structured Interview	8.20	YO2
Peer Educator Data Collection Process				
PE1	Male	Small Group Interview	32.31	YO1
PE2	Male			
PE3	Female			
PE4	Male	Pair Based Interview	44.7	YO4
PE5	Male			
PE6	Female	Pair Based Interview	34.00	YO2
PE7	Female			YO3

Note: Abbreviations –Peer Recipient (PR), Peer Educator (PE), Physical Activity (PA)

8.3.3 Data collection

Interviews and focus groups contributions were recorded using standard iPhone 7 and acer laptop. A computer assisted qualitative research methods software program MAXQDA 2018, was used to conduct the analysis of data.

8.3.4 Procedure

On receipt of ethical approval from TCD, participants were requested by the lead youth workers to participate in a focus group. Participants were requested to travel to the host youth organisation where they had attended MI training to participate in one of two focus groups consisting of six peer educators. Challenges were encountered in attending focus groups at the host organisations. In response to these challenges three separate meetings were held with peer educators who participated in two pairwise interviews and one small group semi-structured interview. Peer educators (4M; 3F) were presented with two alternative options to participate in interviews. 1. To participate in focus groups in the University (Trinity College Dublin) on a date convenient to all peer educators or 2. To participate in an interview or focus group on their own youth organisation. One pair-based interview was conducted in the university with two female peer educators (PE6 -7) from two youth organisations representing one community (YO3). The two remaining youth organisations (YO 1 & 4) indicated that peer educators preferred to participate in interviews in their own youth

organisations. Peer educators ($n=3$) from the remaining youth organisation (YO5) could not schedule a time convenient for them to contribute their experiences in a focus group.

Similar challenges were encountered in the recruitment of recipients of the MI intervention to participate in focus groups. Seven participants agreed to participate in one focus group in the first youth organisation (YO3). On the day of the focus group three recipients did not turn up and one recipient declined to participate on the day of the interview. The second youth organisation situated in the same community initially recruited two recipients to participate in an interview with the primary researcher; however, only one participant participated in the interview with the second recipient absent (YO3). The primary researcher led the interviews, and an independent researcher took notes and monitored the timing of the interview. Interview questions were similar for both interviews and presented in the same sequence by the primary researcher.

Participant contributions opened with discussion about their reasons for participating in the MI intervention (see Appendix H). Following these initial questions enquiring into participant motivations questions were specifically designed to understand the thoughts and experiences of those who received and those who delivered the MI intervention. Research questions explored intervention processes including training, adoption strategies, implementation of the intervention and intervention maintenance.

8.3.5 Data analysis.

Braun and Clarke's (2006) thematic analysis using a six-phase procedure was used for data analysis. This method was chosen to identify, describe, analyse, and report the themes and patterns in the data corpus (Braun & Clarke, 2006). This method of data analysis adopted a similar approach as outlined in the previously discussed youth worker (Chapter 6) and stakeholder (Chapter 2) interviews.

8.3.6 Qualitative research standards supporting rigour and quality.

The literature has noted the importance of considering the researchers position including the shared characteristics held with participants (insider) and the power dynamics that may influence contributions during interviews with participants (Berger, 2015). The researcher conducted interviews and acknowledges the biases and influence of the role assumed during the data collection process. A reflexive approach was adopted during group-based interviews and data collection. The positioning of the researcher with respect to the research topic is also an important consideration and is discussed in the literature as a method to enhance the quality and rigour when conducting qualitative research (Dodgson, 2019).

Qualitative research seeks to incorporate features that promote trust, credibility, transparency, transferability, and confirmability (Lincoln & Guba, 1985). An extensive process of consultation with the literature on peer led health behaviour change interventions was conducted to confirm previous findings with those presented in the current study. Transparency was achieved by clarifying the aims, objectives, and procedures of the study in the context and setting under which they were delivered. Providing this clarity through extensive and in-depth descriptions of the data supports future research in investigating peer led inventions in a similar context. The triangulation of results throughout the process evaluation captured in the pilot phase, stakeholder and youth worker interviews was one method adopted to explore the trustworthiness of findings. Secondary analysis of the codes and themes was conducted by a post doctorate researcher in a peer review of codes and themes to further ensure the findings were credible (Glaser & Strauss, 1967).

As an Irish woman in her forty's, who had previously worked in professional capacity as a community support worker and research assistant with similar disadvantaged and marginalised communities, there was an appreciation held for the vulnerability of participants to engage in the research process. These vulnerabilities are discussed in the literature and include participants' age, low SES and potential fear of the research process presenting as challenges and barriers to their participation (Bonevski et al., 2014; Yancey et al., 2006). However, although there was an awareness and professional experience present for the vulnerability of participant demographic, the ability for the researcher to understand the experiences of recipients and educators may have been missed. Although the researcher sought to address the challenges and barriers for participant engagement and applied flexibility to facilitate their participation in data collection, the power dynamic between the researcher and participants may have been present during interviews. Participants discussed the value that they assigned to a peer led approach and noted the power differential between adults and young people in discussing health risk behaviours. The researchers position as an adult and her supportive role throughout the implementation process may have contributed to participants providing socially desirable answers and restricted the adolescents' ability to discuss in greater detail the challenges that they encountered during the intervention process.

8.4 Results

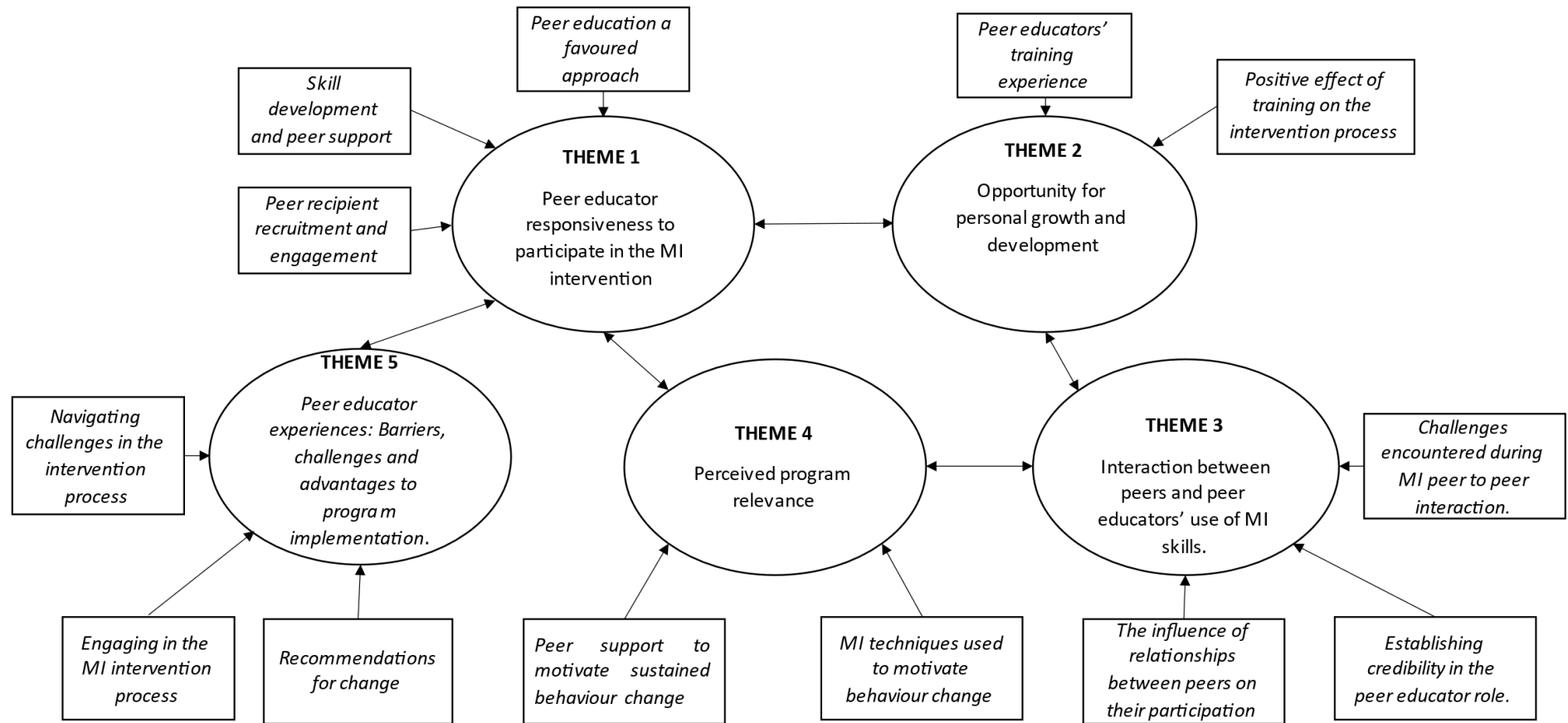
8.4.1 Thematic Analysis Participant Interview Results

The first two themes provided insights into the motivation for adolescent service users to participate in the study. Peer educator and recipient perspectives are explored with respect

to their responsiveness to the programme and their motivation to participate in the peer led MI intervention (Theme 1 & 2). The intervention process appeared to support the participants' interpersonal characteristics and supported the social interactions that they fostered between peers (Theme 3 & 4). Both educators and recipients discussed the challenges, barriers, in addition to advantages that they encountered due to their participation in the intervention process and the effectiveness of the peer-led MI intervention to support health risk behaviour change (Theme 5). Themes are visually presented in Figure 8.1.

Figure 8.1

Thematic Map Illustrating themes and subthemes – Participants.



Note. Themes are presented in circles; subthemes are presented in rectangles. Arrows represent how themes/subthemes relate to each other.

8.4.2 Theme 1: Participant [PE & PR] responsiveness and motivation to participate in the peer-to-peer MI intervention.

Subtheme 1: Participant motivation to participate in the MI intervention.

The peer educators' enthusiasm and motivation to participate in the health behaviour change intervention appeared to be based on a desire to "help" recipients to reduce their chosen health risk behaviours. The altruistic motivation was accompanied by the opportunity for them to develop skills that allowed them to deliver the peer-to-peer intervention in a structured way.

PE1: "I wanted to do it [be]cause it's helping people like stop smoking, drinking.... it's good to help other people."

PE4: "I think we still would have done it [MI sessions] even without the pay, it was good to still take part in it and learn something new."

Educators also discussed the support and encouragement received by their parents in response to their desire to participate in the intervention, instilling a sense of pride within them for their role as an educator in the MI intervention.

PE5: "Mine [parents] were delighted and they thought, oh you're going to go far with this [MI intervention]."

Several factors appeared to influence recipient participation including, a motivation to reduce their chosen health risk behaviour (smoking and alcohol) and a curiosity of what the MI intervention was.

PR1: "I was drinking [alcohol] a lot."

PR2: "Yeah I was trying to smoke less."

PR3: "I was just interested in it [MI intervention], to see what it [MI intervention] was..."

Subtheme 2: The effectiveness of participant recruitment and engagement in MI process.

The recruitment of recipients was discussed by educators to have been done with "ease." Access to potential adolescent participants supported a snowball sampling approach that was adopted during the recruitment process. Educators' ability to recruit peers was believed to be based on their connectedness with recipients and the trust in peer educator

responsiveness to and implementation of the MI intervention. This responsiveness appeared to influence their ability to recruit and work with their peer recipients.

PE4: “Oh I could think of people [PR] just like that (click of fingers), literally that easy.”

PE3: “Especially [be]cause we’re younger, we’d know more people as well like.”

Recipient familiarity in addition to the convenience they associated with access to the youth organisation further encouraged their participation in the intervention. The youth organisation also presented an ease at which recipients could engage in the intervention process.

PR4: “I liked doing it [MI] here because I’m here [youth organisation] a lot anyway. So, it was more comfortable to do it somewhere I’d been all along.”

PR3: “[Be]cause it’s closer to us and we’re here [youth organisation] most of the time already.”

Although recipient recruitment presented few challenges for educators, retaining recipients required some effort and was described as frustrating and time consuming. One recipient who began the process did not continue engaging in the intervention following his receipt of the first MI session.

PE1: “Well I tried to do it with someone [PR] and I done it for one of the weeks and he stopped. He didn’t want to do it [MI] anymore and I had to try and get someone else.”

Educators also discussed the disappointment experienced with the absenteeism encountered for agreed upon scheduled appointments with recipients. The frustration required continued effort on the part of the educator to reschedule the missed MI sessions.

PE5: “yeah, like you’d be chasing them [PR]. It was annoying.”

Peer educators suggested incentivising recipient participation at the end of the MI intervention. Hosting a “pizza night” might encourage recipients’ continued engagement in the MI process. Another suggestion was to host an event to formally introduce the programme

to service users and parents, delivered alongside the research team might increase participation at the recruitment stage of the MI intervention.

PE3: "I think it would have been good if we had an introduction day for everyone, and for you to come in and explain it [MI intervention] ... I think that would have been better."

Subtheme 3: The acceptability of a peer-led approach.

The adolescent peer led approach was considered a more desirable approach when compared to an adult led one. Shared interests and experiences with their peers in addition to closeness in age presented an inbuilt relatedness that participants believed would be absent if the intervention was delivered by adults. Educators suggested that the interaction between peers would dispel any judgement on recipient behaviour disclosed during MI sessions. While recipients discussed that the ease of interaction between peers was based upon understanding, relatedness, and perceived lack of judgment displayed during the MI sessions. These interactions were believed to reduce the power differential that they often encountered in adult led interactions.

PR 2: "Well if you're a teenager you probably just think, like if you were getting interviewed by an adult, you'd think that they're just talking down to you or something, whereas someone our age they don't judge you."

PE5: "If it's [MI sessions] coming from someone like an adult they'd [PR] be thinking oh he's telling me what to do more than a young person [PE]."

PE3: "[Be]cause you can relate to someone your own age, whereas with an adult you can't."

The relationship between peers revealed that the connectedness that existed between them was an important factor that supported their responsiveness to the peer-led programme. Furthermore, recipients suggested that the interaction was enhanced due to the capacity for educators to understand the challenges that recipients encountered when trying to change their behaviour.

PR1: "[Be]cause with the teenager [PE] we can relate to them a bit more."

PR4: "Just because she [PE] knew what she was talking about, but she understood you at the same time."

8.4.3 Theme 2: Participants' opportunity for personal growth and development.

Educators indicated that it was important for them to engage in opportunities provided by the youth organisation to engage in programmes where they could develop skills. These opportunities supported their personal development and growth. MI training was one such program that created a chance for them to develop and build interpersonal skills. Furthermore, recipients reflected on the effectiveness of MI sessions to support them in behaviour change.

Subtheme 1: The positive impact and perceived effectiveness of training among peer educators.

MI training was described as interactive, fun and a positive experience. The focus was of the course content was delivered with the use of games, icebreakers, group work and frequent breaks to create an environment that was a positive and age-appropriate learning experience. Educators discussed the understanding that they developed on how to apply MI techniques in sessions with their peers.

PE3: "Like he [MI trainer] wasn't boring you with the theory of it [MI], it was interactive, and you were learning if you get me, so that was great."

The training was pitched to encourage the peer educators to learn through practice and with fun to reduce their levels of boredom or disengagement. This approach encouraged educators to practice MI techniques and reproduce scenarios that they may experience in the MI intervention. All educators agreed with an unanimously that training was a positive experience and generated an initial enthusiasm at the beginning of the intervention.

PE3: "That [training] was brilliant."

PE5: "I thought that [training] was deadly."

PE4: "It [training] was really good and really interactive."

PE3: "Yeah, and it wasn't just sitting there learning all the time, like he [trainer] was actually doing it [MI] with you. Like you learnt straight away. That was brilliant."

Educators underscored the positive impact that this initial stage of the intervention had on their perceived ability to deliver MI sessions to their peers. Combining training with educators from neighbouring youth organisations challenged them to interact with unfamiliar peers.

This approach also garnered support on shared experiences including the challenges that they encountered during the intervention process.

PE7: "Yeah no, like before the training I wouldn't have had a clue what to do, after the training I was pretty confident about it [MI]. That I know what to do and I had all of the things [knowledge] that I needed."

Key learning outcomes from training included developing MI techniques and skills, how to apply them in MI sessions with their peers and possessing a clear understanding in the limitations of their role as peer educators. Educators spoke about providing support but not having the ability to make recipients change their behaviour.

PE7: "...more that if people don't want to be helped then there's nothing you can really do about it."

PE7: "Also that it's not about you, that you're making the changes and it's helping them out that it's not just you're trying to make the change for them. It's like helping them out with their change [of behaviour]."

The MI booster session provided peer educators with an opportunity to discuss challenges experienced based on their first two sessions of the MI intervention. This opportunity was considered by educators to be a time where they could develop or build upon existing techniques that they had learnt during initial MI training.

PE1: "Yeah [be]cause we could tell him [trainer] what went wrong and what went well [during MI sessions] and he helped us improve what we were doing wrong."

PE3: "I was getting stuck on some parts [MI sessions] and when we went back, he helped me, he went over it [MI techniques] and it helped."

Suggested improvements for MI training centred on the challenges experienced by educators to gain permission to attend training in their youth organisations. Some educators experienced trouble in gaining permission as training was on school days. It was suggested that scheduling training during a school holiday, weekend or spread out over a few evenings may reduce the challenges encountered to participate in the MI training.

PE2: “Emm, the way it was you had to get days off school for it [MI training], but if we’re doing it again like do it [training] on the weekend or when we have a break.”

Overall, the training content was reported to contribute to the peer educator’s responsiveness to participate in the MI intervention. The recruitment of recipients and enthusiasm to participate in the MI program was established at this crucial stage of the intervention process.

8.4.4 Theme 3: Interaction between peers supported by skills developed by the peer educators.

The educators’ responsiveness towards and subsequent delivery of the intervention, appeared to be supported by the skills developed during MI training. However, the interaction between peers during initial MI sessions was discussed as sometimes challenging.

Subtheme 1: Challenges encountered in peer-to-peer interactions during the intervention process.

The familiarity between peers sometimes led to conversation that was outside of the behaviour change directed MI session. This meant that peer educators had to refocus their recipients’ attention to discuss the health behaviour. Challenges experienced by educators in sustaining continued conversation during MI sessions was achieved by using skills and techniques developed during training to encourage continued peer dialogue.

PE4: “A couple of times they’d [PR] try and say yes and no and then I would just throw it back, the question, but I would just word it differently.”

PE5: “Yeah, I was the same, yeah just start a conversation and you’d lead off. You could be talking about one thing, and it would jump to a different thing, and I’d just have to bring it back.”

PE3: “You’re putting it to them if that makes sense, you’re not telling them what to do but like this is on you if you want to do it [change behaviour]. We’re here to help you get the motivation if that makes sense. Like it’s for them to do [change behaviour] and it’s the fact that you’re not telling them what to do but you’re helping them.”

Recipients suggested that a relaxed approach was adopted during MI sessions between peers, despite their reported anticipation of awkwardness to participate in the study. This initial

awkwardness dissipated as sessions progressed and the interaction became more familiar and comfortable over time.

PR4: "It [intervention] was just interesting like going there every week and getting asked loads of questions and all that."

PR3: "It's just like each week it sort of got rid of it [awkwardness]."

PR1: "Yeah and talking to her changed it[awkwardness]."

MI sessions supported recipients in their efforts and to develop strategies to change their behaviour. Engaging in the weekly? with their educator put recipients at ease and the confidence displayed in their role supported an informed and positive interaction.

PR 3: "It wasn't like really formal, she [PE] wasn't just constantly asking you questions. She'd ask you a question and then talk about it for a few minutes and then ask you another question."

One recipient highlighted how her interaction with her educator supported her in developing strategies to increase her physical activity. The educator was considered to provide an empathetic understanding of the challenges that the recipient encountered in achieving the goals set to increase her physical activity. Furthermore, the educator was believed to be knowledgeable, increasing the credibility of the recipient's view of the educator's role.

PR4: "Just because she [PE] knew what she was talking about, but she understood you at the same time."

Researcher: "When she understood you, what do you mean...?"

PR4: "She understood that you'd want to reach certain stuff [goals], but you still had homework and school around it."

MI sessions provided a method to develop strategies to overcome the challenges and barriers in achieving behaviour change and appeared to increase the perceived confidence of recipients during in the intervention process.

PR4: Yeah definitely, at the start I was thinking, oh god I'm definitely not going to get that far, but by the end, I kind of got more comfortable with it [behaviour change]. So, I was able to get further than I thought I would."

Subtheme 2: Perceived credibility in peer educator's role.

Recipients considered educators to be accurate sources of information and the MI intervention was thought as relevant for the health risk behaviours that they engaged in. Techniques adopted to incentivise behaviour change included motivating recipients to consider establishing a reward to support their abstinence from the smoking and alcohol consumption behaviours and to increase physical activity. Educators discussed their supporting role and continued engagement with recipients throughout the programme to encourage behaviour change.

PE1: "With the smokes [cigarettes], they cost money so eh, saving the money and going to the cinema maybe. With the money that you have saved from not buying smokes [cigarettes]."

The self-report measures completed in the first MI session, assessing the level of behaviour, contributed to recipient insight into the prevalence of their behaviour.

PR2: "Well I thought like [be]cause it [self-report measures] happened in the first week, I thought like it made you aware of it [behaviour]."

Educators indicated that recipients possessed similar motivations to change their health risk behaviour.

PE7: "It was kind of different but a lot of the reasons why people were doing it [behaviour] were the same. Like there was a lot of overlapping, like it was a different oh you are drinking, or you are smoking but the reasons [to change] were more or less the same."

Recipient self-reported surveys completed at baseline and the last MI session provided an opportunity for educators to discuss the health risk behaviour. Additionally, discussion during MI sessions could incorporate the information captured in surveys to explore recipients' level of engagement in the behaviour.

PE7: "Smoking from like three times a day and five times a day and you could see at the end of the six weeks that it was like once a day or every second day. Like you could see the changes in them so yeah."

Subtheme 3: The effects of interpersonal relationships between peers on the MI process.

Peer pressure was believed to be one of the reasons why recipients engaged in two of the health risk behaviours [smoking tobacco and alcohol consumption]. Peer educators also discussed the stressors that the recipient experienced in their lives leading to continued engagement in the health risk behaviours.

PE7: "Like stress and school or their friends were doing it [health risk behaviour] as well, I don't know, peer pressure."

Recipients also indicated that their engagement in and initiation of smoking and drinking behaviours were associated with social interactions with their peer groups and with having 'fun.' Furthermore, these behaviours were discussed as being initiated due to peer pressure and normative behaviour established within their peer group.

PR1: "For Fun"

PR2: "Well they [adolescents] start going to parties and discos and all like that and want to drink."

PR1: "Following the crowd."

Efforts by recipients to achieve behaviour change in MI sessions over the six weeks was discussed as extending beyond the MI sessions. Additionally, the continued interaction between peers in the youth organisation, through informal conversations following MI sessions provided an understanding of the impact that the intervention had on one recipients' alcohol consumption behaviour.

PE7: "...he stopped drinking [alcohol] and afterwards he hasn't drunk much since then, he's only kind of if he's out with family and kind of for certain events he's have a few drinks and that's it. He wouldn't go overboard, like what he used to do."

8.4.5 Theme 4: Perceived relevance and effectiveness of the peer-to-peer intervention.

The relevance of the MI intervention was discussed by peer educators in the context of how recipients engaged in MI sessions. Different approaches to motivate change were

adopted and individual differences observed in recipient characteristics. These differences required several strategies to support their motivation to change their behaviour.

Subtheme 1: MI techniques adopted by participants to motivate behaviour change.

Peer educators reflected on the different MI techniques used when working with peer recipients who engaged in different health risk behaviours. Recipients who engaged to reduce smoking and alcohol consumption behaviours were encouraged to reward the change in behaviour as a method of motivation.

PE2: “Emm well the smoking was actually like you’d get them to cut down and there would be a reward at the end of it.”

Educators discussed developing strategies with recipients to support behaviour change. These strategies included planning and setting goals weekly to reduce and abstain from engaging in the health risk behaviour. Building upon previously achieved goals and exploring challenges and barriers encountered to from the previous week was discussed as a method through which to increase or decrease a desired behaviour.

PE1: “....., not go out every night but then if you [PR] did go out, not drink as much as you usually would.”

Educators suggested that the MI intervention, increased recipients’ self-confidence, promoted continued motivation to sustain behaviour change and impacted on their ability to successfully navigate social engagement with their friends where they previously engaged in the health risk behaviour. One recipients’ reduction in alcohol consumption was reflected upon by a peer educator who described the impact that they believed his engagement in MI sessions had on him.

PE7: “He [PR] was a lot more confident, a lot more happy since he had stopped drinking. Because he would drink every weekend and when he was in school, he would come in Monday morning feeling all tired, because he’d been up late both nights of the weekend. Then he wasn’t really doing any homework so that was kind of a certain problem that he had. He kind of didn’t know [be]cause he was out drinking and all that, and then his grades started increasing as well.”

Recipients who sought to reduce their smoking and alcohol consumption behaviour required that they avoid situations where they usually smoked and develop alternative plans for social occasions when they previously consumed alcohol with their peers. Similarly, increasing physical activity required that the participant assign time to engage in exercise and to reach weekly goals, despite competing commitments that they had on their time to engage in physical activity. Reflections on goals discussed in MI session between peers, emphasised the challenges encountered by recipients to achieve set goals. However, this exercise also presented a method to explore the barriers encountered in achieving weekly behaviour change outcomes.

PR4: “Yeah because then I knew like I was going to be with her every week, and I had to try and keep up with it [PA].”

PR4: “Yeah setting times, I thought oh no that’s going to be too much I’m not going to be able to do that [goal]. And then I surprised myself that I could kinda [of] do more than I had said.”

Subtheme 2: Techniques used, and challenges encountered to elicit and sustain behaviour change.

Recipients discussed the impact that the MI intervention had on them specifically with respect to their behaviour change. Achievements were described where the emphasis was placed on the unexpected progression that they experienced between MI sessions. Changes appeared to be based on recipients’ increased confidence to work towards and achieve the goals as set during MI sessions with their peer educators.

PR4: “Yeah definitely, at the start I was thinking, oh god I’m definitely not going to get that far but by the end I kind of got more comfortable with it. So, I was able to get further than I thought I would.”

PR1: “You could see the progress like if it was one answer from one week, it’d be a different answer the next week.”

One educator reflected on the support she had observed between recipients, who had chosen to change their smoking behaviour. Peer support and motivation to change the health risk behaviour appeared to extend beyond MI sessions, whereby recipients encouraged each other within the youth organisation setting. This was described as a key element to facilitate the recipients’ enthusiasm for continued engagement in the MI intervention.

PE7: “Yeah, I think that [MI] had more of an effect because there was three or four of them like who were hanging out every day who were in the youth club. They were all like trying to stop [smoking] so they helped and supported each other in that as well. So probably it made it easier for them.”

Strategies adopted by one peer recipient to reduce the likelihood of drinking alcohol, was to develop practical ways to abstain from the behaviour. Techniques included changing social plans with peers and replacing them with alternative plans to avoid situations where previously they may have engaged in drinking behaviour.

PR1: “Don’t go out with the normal plans that I would do, swap my plans... babysitting.”

Educators also discussed the different levels of motivation demonstrated and capacity for recipients to change their behaviour. Once MI support was finished, educators discussed the struggle that recipients would experience in sustaining change made in their behaviour.

PE4: “They did it [physical activity] for the six weeks, in the sessions and then it was like once the support was over, they just stopped doing their exercise then.”

PE4: “It’s like there had to be an ongoing constant check in for them to do it [physical activity].”

These findings were reflected among recipients who suggested that sustained behaviour change would require further opportunities for them to receive support following the intervention. Although some participants reported a reduction in their health risk behaviour, sustaining this behaviour change was difficult and fluctuated over time.

PR1: “yeah I stopped for a while, I wasn’t drinking as much as I used to and then it went up and then it went back down.”

PR2: “Yeah, I was just cutting down a bit [smoking]. I was buying like a lot more boxes than I am now.”

8.4.6 Theme 5: Participant experiences of barriers, challenges and supports to elicit and maintain behaviour change.

Peer educators reflected on their experiences of engaging in the intervention process. Challenges and barriers were discussed specific to scheduling and missed appointments with recipients. Advantages included developing skills through training and implementing the skills with peers in a safe and familiar environment.

Subtheme 1: Insights and recommendations for intervention improvements.

Delivering MI sessions to peer recipients in local youth organisation brought about some challenges. Missed appointments required that peer educators reschedule sessions and although this was reported to be easy it was also considered to be frustrating. Difficulties were encountered in recipients change of contact details and finding a convenient time for both recipient and educator to meet.

PE7: "It was more just really people not turning up at the sessions and it was harder like to try and get them to come in when they have something on."

PE7: "It was fine for two people [PR] and then it was just the one person [PR], she never really showed up to the club, so it was kind of hard getting her in because then they all change their phone numbers, and we had no contact for them."

One educator reported an increased confidence in her ability to deliver MI sessions as she progressed to her second wave of MI sessions with new recipients. Discussion between peers that was initially reported to be laboured became more fluid in subsequent sessions. Furthermore, the educator suggested an increase in perceived proficiency in her role in line with the greater number of MI sessions delivered to her peers.

PE7: "I was definitely more confident than the first one, the first wave [second set of peer recipients]. Yeah, and just, I knew what I was doing, and I wasn't too worried about it."

Familiarity between peers was considered important for some educators. The ability to work with friends and acquaintances who accessed the youth organisation supported educators to establish a sense of perceived competency in MI techniques. Furthermore, educators believed that intervention delivery over six weeks was an appropriate time frame for recipient engagement.

PE3: "I thought it was perfect because you cannot expect them to change in four days, like do you know what I mean.... It wasn't too long, and it wasn't too short."

The peer-to-peer interaction and participation in the process as an educator was discussed as becoming easier as the intervention progressed. Understanding the challenges encountered by recipients to achieve weekly goals, determined an empathetic relationship between peers as they worked together to support change in behaviours. Service users who observed the implementation of the intervention in their youth organisations expressed an interest to participate as peer educators in the program.

PE7: "I think yeah, I remember one day, I think we were in and out with other people [PRs] and they [service users] were like, "why couldn't I do this?" But they had gotten the choice at the start and just didn't know what it was."

Subtheme 2: Experiences of engaging in the MI intervention process.

Skills developed during the MI intervention process were discussed as providing educators with an ease in their communication style and was considered useful in their everyday lives. Although educators reported a nervousness at the initial stages of the intervention process in their ability to effectively interact with their peers, they reported a sense of achievement in their participation by the end of the process. The training received, skills developed and the solution-focused approach to working with recipients presented them as a role model in MI sessions and within the youth organisation.

PE7: "Yeah, I definitely became more comfortable with talking to people, like who I didn't know and like a gained a new skill that like you know I'm not going to forget it."

The educator's opportunity to assume a lead role in the programme delivery and the intervention process required that they undertake several responsibilities to successfully implement the MI intervention. Scheduling MI appointments with recipients was discussed as a responsibility that foster a sense of their ownership in the intervention process. The lead role created an opportunity for them to use the youth organisation facilities in an autonomous manner. Youth workers' trust in their ability was demonstrated by the level of responsibility afforded to educators throughout the process.

PE4: “Even organising it [MI sessions] ourselves gave more power of what we were doing to us. So, if we didn’t prepare a room or anything that was not going to help then.”

The MI intervention generated interest amongst other service users who observed participants engage in the programme within their youth organisation with both curiosity and the desire to participate. The MI intervention was viewed to be a positive programme and presented an opportunity if extended for other service users to participate in. Educators spoke about the impact that positive programs have on young people who access the service.

PE1: “But there were people [service users] saying ah what’s that, what’s happening, and we would explain to them what it’s about.”

PE3: “Exactly, [be]cause when they see other people who are doing positive things, they could be like why can’t I do it, instead of the negative stuff and that I could be as productive as them if that makes sense.”

Subtheme 3: Challenges navigated during the intervention process.

Educators suggested that recipients should have a choice to extend or reduce the duration of their participation in MI sessions. Additionally, establishing a learning group or meeting with other educators who had trained in MI could be useful to gain different perspectives of delivering MI sessions. Sharing experiences and identifying solutions to specific challenges faced in the MI intervention could adopt be established through collaboration with other educators from other youth organisations.

PE4: “I thought just if we could have met with the other groups [PEs] that are doing it [MI] and heard how they’re getting on?”

PE7: “It was good, yeah, I think with using the reminder booklets [MI manual] that we used ... I think looking at that every so often when you’re back just before you meet them [PR], just to refresh your mind. Instead of just picking it out during the session.”

It was suggested that more icebreaker techniques be included in the manual to support continued conversation and a greater variety of questions to aid peer educators in their interaction with peers. Overall, these supporting materials were believed to be helpful to peer educators in their delivery of MI sessions. However, some believed that MI sessions became

prescriptive in nature using the MI workbook and suggested that its design should become more interactive and less repetitive. None of the peer educators reported to have experienced any sensitive disclosures in MI sessions.

PE7: "I think that most of them were old enough to know or weren't comfortable maybe sharing those things[disclosures], so most of them only said stuff that was relevant like to the questions."

8.5 Discussion.

This chapter sought to capture the experiences of participants who engaged in the peer-led MI intervention. Research has shown that adolescent peer led health interventions are an acceptable approach to reduce health risk behaviours amongst adolescents (Al-Iryani et al., 2011; Audrey et al., 2006). Understanding the role of peer educators and recipients can provide valuable insights into the acceptability of interventions. Educators emphasised the importance of the level of trust they were afforded in their role to implement the MI intervention. These perceived high levels of trust supported their ability to interact with recipients in a skills-based approach to reduce health risk behaviours. Similar reports of ease of interaction and trust developed between adolescents in peer led health interventions has been discussed in the literature. The approach is considered to facilitate and contribute to an openness between peers who seek to reduce risky behaviours (Medley et al., 2009). The advantages associated with fostering such trusted relationships have also been recognized as contributing to positive youth development and can counteract the frequently encountered levels of mistrust experienced between participants and researchers within socially disadvantaged groups during the implementation of health interventions (Hussain-Gambles et al., 2004; R. M. Lerner et al., 2005).

The first theme discussed the experiences of the participants, including their receptivity and motivation to take part in the MI intervention. The opportunity to participate in the intervention was valued by the recipients for two key reasons. The first was to change their risky health behaviours, and the second was the ease at which they could participate in the intervention in their youth organisation. Research studies have sought to deliver peer-led programmes to support health behaviour change in similar convenient locations for adolescents such as schools (Audrey et al., 2006; Story et al., 2002; White et al., 2017). Furthermore, the literature has noted the importance of applying flexibility and supporting community involvement to increase the acceptability of a health intervention (Flanagan & Hancock, 2010). Recipients indicated that receiving the intervention in their youth centre

supported their ability to engage in the intervention process. Educators suggested that the trust empowered to them to recruit, schedule, and deliver MI sessions to their peers instilled their sense of ownership for them in the MI intervention and contributed to their responsiveness and high level of engagement throughout the process. This supports research conducted among hard-to-reach populations where it is recognised that fostering a sense of participant ownership in the research process is an important factor in the acceptance of a program (Bonevski et al., 2014).

The second theme highlighted the participants' desire to seek out opportunities for personal growth and development. Training was considered a crucial time for educators to establish competency and proficiency in their role during this phase of the MI intervention. Training content sought to not only develop the educators MI skills but also for them to develop an understanding on the risks associated with engaging in the three health risk behaviours. The MI workbook, manual and guidance on administering the self-report measures provided further aids for them during training to implement the intervention. Educators described training as a time of motivation for them to participate and a key factor in their acceptance of the intervention. During this phase of the intervention, their self-assurance grew, and they received support in their capacity to impart the health message to their peers. These abilities enabled them to take the initiative in carrying out the intervention. After receiving training, educators' perceived ability to convey the health message to their peers reinforced their role as reliable sources of information. Choudhury et al. (2009) highlighted the importance of recognizing the credibility of peer educators as agents to elicit behaviour change. The motivation displayed by educators to recruit of recipients within the two-week timeframe following training, further supports the recommendations for the delivery of a peer education programme by educators to be implemented at least three weeks following training (Campbell & MacPhail, 2002).

The third theme examined the interactions between peers in the MI study including the credibility of the educator in their role, participant interactions and the effects of interpersonal relationships and challenges encountered during the implementation process. Peer educators discussed the recipients' receptiveness of the MI intervention and their subsequent sense of accomplishment in their role. Educators' application of MI techniques and the knowledge acquired during training equipped them with a skillset to provide a supportive approach to their peers during MI sessions. The literature on peer education highlights that becoming a credible source of information creates an opportunity to empower the adolescent to support their peers in a structured way (Ellickson et al., 1993; Hughes-

D'Aeth, 2002). Similarly, peer educators' ability to recruit participants and deliver MI sessions over the duration of the feasibility trial illustrated the acceptance of the program and their capacity to engage in the intervention process. Recipients described the educators as empathetic, understanding, and knowledgeable in their role. These findings are in line with previous research which has highlighted the effectiveness of adolescent peer leaders in role when delivering a health message to their peers (Mutschler et al., 2018). Findings in the current study from a participant perspective are consistent with evidence where peer educators have been found to be both an acceptable and effective method to deliver the health message (Frantz, 2015; Oakley et al., 2006).

Recipient engagement in the MI intervention was discussed as due to their awareness of the harms associated with and engagement in the health risk behaviours. These presented as motivating factors for participation in the intervention. Engaging in health risk behaviours including smoking and drinking alcohol were described as occurring when socialising with friends and associated with having fun. These findings reflect those in the literature which recognises the strong association of adolescent peer group norms and socialisation for engaging in health risk behaviours (Doyle et al., 2022; Taylor et al., 2015). Initiation of and pressure to engage in health risk behaviours closely align with membership to adolescent friendship groups and norms established within these groups (Shah et al., 2011). It is therefore important to consider the social context and influence that health risk behaviours have on adolescent peers. Both peer pressure and group normative behaviour were reported to be contributing factors for participants to engage in the health risk behaviours targeted for change in the MI intervention. Recipients recognised the peer educators' ability to understand the challenges and barriers that they encountered to change their behaviours. These results echo findings in adolescent school-based health interventions studies, that recognise the importance of relatedness in the implementation of peer led health interventions (Bell et al., 2017). It also supports the literature where adolescents are believed to be more likely to modify their behaviour, when they receive a health message from their peers (Mellanby et al., 2000). This is based on the understanding that they encounter similar challenges and barriers, thus playing a key role in each other's support and psychosocial development (Mitchell et al., 2007).

Educators appeared to present as role models to recipients and reinforced acceptable attitudes and behaviour towards health. Similar findings support the peer educator's role in the literature where they present as models for peers when delivering the health messages (Merakou & Kourea-Kremastinou, 2006). It also builds upon previous research where peer

educators have effectively delivered health promoting messages related to risky behaviours (Audrey et al., 2006). According to the social learning theory peers can reinforce acceptable attitudes and behaviours towards health within their peer group more effectively than those outside of that group (Klein et al., 1994). Consequently, peer educators may be a more credible source through which health promotion is delivered among adolescent groups than when compared to an adult led approach (Ellickson et al., 1993; Hughes-D'Aeth, 2002). In a practical sense, the peer educators in the MI intervention provided the recipients with supports to initiate ways to increase their physical activity and could provide practical goals and objectives to overcome engaging in alcohol consumption or smoking behaviours. This supported the understanding that theory-based peer led interventions can have a positive effect on changing health risk behaviours (Mahat et al., 2006). Peer educators have been found to be reliable information sources with recipient contributions providing insight into the success of the educator in their role (Shah et al., 2011). Previous research has highlighted the effectiveness of school based and adolescent peer-led programmes in the delivery of health messages to reduce health risk behaviours (Shah et al., 2011), where adolescent peer led interventions have reported a reduction in tobacco use and alcohol consumption (Bell et al., 2017). In a review of the literature assessing health behaviour change interventions, two of the study's linked their effectiveness to school students who acted as peer educators and emphasised the value of adopting an autonomous peer led approach (Bell et al., 2017). However, there is limited evidence outlining the adolescent participant experience of receiving a peer led health and methods of data collection vary across studies. The recipient experience of receiving the MI intervention in the current study builds upon previous research that has sought to assess the acceptability and feasibility of adolescent peer led health prevention and intervention programs (Bell et al., 2017; Brieger et al., 2001; Mitchell et al., 2007; Shah et al., 2011; Story et al., 2002; White et al., 2017).

The fourth theme describes the relevance that participants assigned to the intervention and the perceived effectiveness that they attributed to the peer led MI behaviour change program. Peer educators' interpersonal skills appeared to support participant engagement in the MI intervention. Recipients discussed the effective delivery of the health message by educators. They described the awareness and empathy for the challenges and barriers that they encountered to change their behaviour during MI sessions. These skills appeared to reduce recipient apprehension to engage in the MI process and increased the ease in interactions between peers throughout the intervention. The literature has recognised the importance placed on establishing relatedness between peers in reducing barriers encountered for participant engagement (Shah et al., 2011). The PLAN-A intervention experienced some

reluctance from participants to engage with peer supporters in the physical activity intervention and the those who received the intervention indicated that some educators were perceived to be ‘a bit boastful’, resulting in an inability to establish peer connectedness. Like the MI intervention the PLAN-A peer led intervention relied on educators recruiting participants. This resulted in peer supporters accessing their friendship groups and an unexpected division of the student year into two groups had implications on the ability for educators to recruit (Bell et al., 2017). Another study further underscored the importance of connectedness when educators contributed their experiences in a qualitative study based on their role in delivering a street youth peer education HIV/AIDS prevention programme in urban Uganda. It was found that their ability to empathise with the target group increased their perceived connectedness with participants and allowed them to develop a significant rapport. The shared characteristics that educators had with participants who are homeless, equipped them with practical solutions drawn from personal experience (Sebire, Banfield, Campbell, et al., 2019).

The ability of peer educators to connect also relies on their ability to deliver the health message effectively. Research has sought to understand the participants’ experience in receiving a health message from their peer, in peer education and peer led programs. Methods of data collection that seek to capture the experiences of adolescents who receive a health message from their peers vary across studies. Questionnaires, focus groups and evaluation post intervention present findings on the effectiveness of peer recipients’ receiving a health message from peer educators to reduce health risk behaviours including drugs (Shah et al., 2011), nutrition and physical activity (Bell et al., 2017) and HIV/AIDS (Sebire, Banfield, Campbell, et al., 2019). The SALSA (Students As LifeStyle Activists) peer led programme was evaluated by participants through completing a questionnaire post intervention, to assess their understanding of the health message received during the intervention from their peers (Shah et al., 2011). While Bell and colleagues indicated in their research that when the health message is more complex, participant health behaviour change can become less effective (Bell et al., 2017).

The structure of the MI sessions in the current study appeared to prolong participant engagement when compared to more informal peer led approaches (Shah et al., 2011). MI participants discussed working towards goals during weekly guided interactions with their peer educators, which supported their motivation to change their behaviour. This approach differed to other peer led studies which adopted a more informal approach to the delivery of the health message. The peer supporters and leaders in the PLAN-A physical activity and ASSIST peer led approaches provided informal interactions between participants and peer

educators (Bell et al., 2017). Evaluation of both interventions sought to understand the peer recipients experience of participating with their peer supporter. There was an inability for some to recognise that they had received the health message, while others noted the positive influence that their peer supporter had on changing their behaviour. Similarly, participant feedback through questionnaires during the process evaluation of the AHEAD peer led obesity program highlighted the participants' uncertainty in recognising the peer leader (Sebire, Banfield, Campbell, et al., 2019).

An initial motivation for peer educator to participate in the study was remuneration for their delivery of MI sessions to their peers. However, following training peer educators discussed their desire to participate irrespective of the receipt of payment. These findings have also been reported in the literature where it has highlighted the benefits of payment to participants for increased attendance and participant satisfaction in research (Festinger et al., 2008). Concerns have been outlined in the literature on the quality of adolescent peer led intervention delivery when compared to that of an adult-led of programmes, specifically with respect to training, delivery, and fidelity of the programme (Green, 2001). Peer educators clearly outlined the effectiveness of training and the impact that it had on their enthusiasm to participate in the intervention. They also discussed the autonomy afforded to them in their implementation of the intervention and support available both before and after MI sessions were delivered. The adolescent peer-led approach was more acceptable than an adult-led approach for adolescent behaviour change. This build upon previous research which emphasises the effectiveness of a peer led approach to reducing health risk behaviours (Mellanby et al., 2000). Peer educators believed that an adult-led approach would present an inbuilt power differential when working with adolescents and lack relatedness to the challenges and barriers that they might encounter to change their health risk behaviour. This supports the literature for MI, where adolescents may display reluctance to engage in sessions based on their inability to relate to the person delivering the MI sessions (D'Amico et al., 2008). The peer led approach was believed to create an opportunity for adolescents, to engage in a MI session without fear of judgement while fostering a relatable interaction which may be otherwise absent in a similar interaction with an adult.

The final theme describes participant experiences of engaging in the MI intervention. It was clear that the relatedness between peers, supported the positive relationships which were discussed as being built upon trust and respect. Although participant engagement in the MI intervention was reported to be initially awkward, it became more relaxed for both educators and recipients as MI sessions progressed. Initial participant reluctance to engage in

adolescent peer led health interventions and informal peer led studies has been reported from adolescent participants in other studies (Shah et al., 2011). This hesitancy to participate has been recognised as a barrier in conducting peer led health research (Bell et al., 2017). In the ASSIST study, levels of engagement for recipients appeared to reduce across time, despite high levels in information delivery and ease of interaction reported by recipients in the initial stages of the smoking prevention health program. However, the level of engagement decreased as the intervention progressed and was in line with the decrease in peer supporters' delivery of information on the risks associated with cigarette smoking (Mitchell et al., 2007). MI participants reported increased levels of interaction between peers in the MI intervention as the weeks progressed. This interaction was reported to become more comfortable and familiar over time with a reduction in the initial awkwardness.

Receiving the health message from a peer has been shown in the research to be an effective way for young people to change their attitudes and behaviours compared to that of an adult led approach (Sebire, Banfield, Campbell, et al., 2019). The growing literature on the effectiveness of peer led and peer education approaches to change health risk behaviours supports findings for participant results in the MI intervention. Peer educators were relatable based on their ability to empathise with participants. In contrast, it was believed that an adult would be more likely to judge them, despite the positive relationships that existed between them and youth workers. Recipients believed that adults would not be able to understand their perspective with respect to the challenges and barriers that they encountered in achieving behaviour change. These findings support those found in adult led health promotion interventions, where teachers encountered challenges in the delivery of the life orientation (LO) health education programs in South African schools, as students did not perceive them to be relatable in their delivery of the health message (Sebire, Banfield, Campbell, et al., 2019). Participant relatedness to peer educators was considered preferable than an adult led approach. The anticipated judgement that participants believed an adult led MI session may evoke would reduce their likelihood to engage in the intervention. According to research a significant barrier to participation in research for hard-to-reach groups is mistrust of the research process but if trust can be established amongst hard-to-reach groups, participation rates can increase. Peer led health prevention programs capitalise on the relatedness between adolescent peer groups during the recruitment and implementation stages of such interventions (Sebire, Banfield, Campbell, et al., 2019).

Peer recipients' absenteeism for scheduled appointments presented as a challenge for some peer educators during the MI intervention. The social environment including

commitments to family, work, school, and friends of participants has been recognized in the literature to negatively impact on participation rates and follow up data collection amongst hard-to-reach populations (Bonevski et al., 2014; Woods et al., 2002). Peer educators discussed the frustration they experienced when appointments were missed and attempts to reschedule the MI sessions. These challenges included the changing of contact details, competing with recipient's time, and existing commitments (school, family, friends, and work). These challenges and barriers to participant engagement, among hard-to-reach populations, have been recognized in the literature (Bonevski et al., 2014; Buscemi et al., 2015). Adopting strategies such as sending reminders, acquiring multiple contact details including phone numbers, using social media platforms and contact details of parents have been found to address some of these commonly experienced barriers in working with participants from hard-to-reach population groups (El-Khorazaty et al., 2007; Rothschild et al., 2011). Peer educators discussed using social media platforms when contact details changed and working with youth workers to contact peer recipients when they encountered difficulties with their peer recipients. Missed scheduled appointments due to family or work commitments led to frustration experienced by peer educators to meet with recipients and changing contact details created barriers to rescheduling of appointments.

8.6 Limitations

The study sought to conduct two focus groups with peer educators and one focus group with recipients. The outbreak of Covid-19 pandemic had substantial impact on collecting qualitative data from participants in youth organisations involved. This strongly limited the ability to capture recipient, and for one youth organisation peer educators' experiences of receiving and delivering the MI intervention. The small sample size also hindered the ability to conduct moderation analyses on potential factors such as school group, which may focus groups as originally anticipated. The scheduling of groups between youth organisations was problematic and instead, two small semi-structured interviews were conducted with peer educators. Peer educators (n=7) from three of the four youth organisations contributed their experiences out of a possible twelve educators who participated in the MI intervention. One youth centre was unable to facilitate educator contributions due to the lack of availability of educators. One small group and one semi-structured interview were conducted in two youth organisations for recipients in the MI intervention. Scheduling a time was difficult and a planned focus group resulted a small group-based interview due to the unforeseen absence of participants and a semi structured interview was conducted with a recipient in another youth organisation. The limited number

of participants ($n=4$) provided a small contribution from the larger sample ($n=44$) of recipients to capture the experiences of receiving the MI intervention from their peers. Scheduling interviews, following the intervention was problematic and the small sample of recipients ($n=4$) who contributed to the focus group and the semi structured interview is reflective of researchers commonly encountered challenges in retaining participants from socially disadvantaged groups in health research (Bonevski et al., 2014). As such the qualitative contributions from those who received the intervention is limited, and represents only two youth organisations representing one community, where two peer educators delivered the MI intervention. Consequently, caution should be applied in generalising the qualitative findings across participating youth organisations. As they are in communities areas that are dispersed across a large urbanised area and where the majority of peer educators ($n=10$) delivered the MI intervention. Furthermore, interviews were conducted by main researcher and may have yielded more desirable contributions from participants and suppressed concerns that they may have had with the intervention. Although, triangulation of results was sought through interviews conducted with youth workers (Chapter 7) and quantitative measures for primary and secondary outcomes (Chapter 6), however there is a possibility that trends were missed or misrepresented.

8.7 Conclusion

This chapter presents the participants' perspective on receiving and delivering the MI intervention for health behaviour change. The literature supports adolescent peer education and peer led approaches in changing health risk behaviours (Sebire, Banfield, Campbell, et al., 2019). Recipients supported the MI peer led approach on the basis that their peers presented as more relatable and possessed a better understanding of the challenges and barriers that they experience to change their health risk behaviour. Peer educators assigned value to MI training, expressed ease in their ability to recruit recipients, and to deliver MI sessions to their peers. A high level of motivation to engage in the process was supported through the study's qualitative findings, which suggested that educators valued the opportunity for personal development, autonomy to deliver the program and to engage in a peer led approach. Participants also indicated that the youth organisation provided a comfortable and convenient location for them to engage in the intervention process, supporting the literature where peer led health promotion interventions have been successfully delivered in schools and have shown high levels of engagement from participants and for those in community settings (Audrey et al., 2006; Mitchell et al., 2007; Sebire, Banfield, Campbell, et al., 2019; Sebire et al., 2018). Challenges and barriers encountered

during the MI process were discussed with respect to considerations for future iterations to the MI intervention process. Suggestions included establishing educator learning groups and adaptations to program materials (workbook and manual) that incorporate more interactive supports for peer educators during training and in MI sessions with their peers. Although recipients' contributions were explored, the number of participants who contributed was low. Similarly, the literature capturing the experiences of adolescents who receive a health message from their peers is limited, however, studies that do provide an indication of the acceptability and effectiveness of the intervention process (Audrey et al., 2006; Sebire, Banfield, Campbell, et al., 2019; Sebire et al., 2018).

Chapter 9. General Discussion.

9.1 Thesis overview.

The aims of this thesis were to evaluate and test the feasibility, acceptability, and effectiveness of an adolescent peer-led health behaviour change intervention in relation to three core outcomes: (a) smoking, (b) alcohol consumption, and (c) physical activity. The evaluation process used quantitative data to measure the effectiveness of the intervention for primary and secondary outcomes and qualitative methods provided an insight into the pathways and mechanisms of the intervention. The main findings of the thesis are presented and discussed in relation to literature in evaluating complex health behaviour change interventions and adolescent peer led health promotion. The theoretical and practical implications will be discussed according to the findings presented in this thesis, outlining the contributions that they make towards behaviour change research. Lastly, the strengths and limitations of the studies will be presented, and recommendations will be made for future research.

9.2 Theoretical contributions/implications.

The literature has highlighted the prevalence and risks associated with health risk behaviours for global health. Health research has discussed the positive impact that adolescent peer led health promotion and interventions have had on health behaviour change. Despite the promising outcomes and acceptance of adopting a peer led approach to engage and empower young people in behaviour change, no studies to date have trained adolescents in MI to support their peers to change their health risk behaviours. This thesis provides a novel approach to delivering peer led health promotion and builds upon existing literature on behaviour change interventions. It offers insights into the components and mechanisms of a complex health behaviour change intervention with Irish adolescents from low SES communities.

9.2.1 Assessing the acceptability of the adolescent peer led MI intervention.

An overarching objective at each phase of the evaluation process was to test the acceptability of conducting an adolescent peer led MI intervention from a stakeholder, participant, and youth worker perspective. Challenges and barriers were explored and when they were encountered the study tracked refinements at each stage of the implementation process. The findings support the approach suggested by the MRC framework which emphasised the important role that stakeholders play at the design, implementation, and evaluation stages of a programme (Moore et al., 2015). Key insights were captured during

interviews and focus groups conducted with stakeholders, youth workers, educators, and recipients to assess the acceptability of the adolescent peer led MI intervention in low SES community youth organisations. As suggested by Flanagan et al. (2010) the acceptability of an intervention programme is reliant upon establishing trust, respect, applying flexibility, and supporting community involvement. A key component identified as important during stakeholder interviews for the implementation of the MI intervention was to establish relationships with the youth workers to promote their engagement in the research process. This was discussed as being achieved by establishing youth worker 'buy in' the intervention to present to their service users. These findings were reinforced during the pilot and feasibility trials, where recruitment and retention of participants and youth workers was based on establishing and sustaining relationships, applying flexibility during the intervention implementation, and providing ongoing support from researchers throughout the process. Prior studies have noted the importance of enlisting stakeholder involvement at the initial stages of behaviour change interventions (Tarquinio et al., 2015), where critical features such as intervention content and processes are explored and refined based on stakeholder and participant input. They can provide practical solutions to anticipated or encountered challenges and barriers increasing the likelihood of intervention replication. Furthermore, the findings were in line with previous research which stresses the importance of relationship building and collaboration between researchers and community organisations to encourage participation in health and medical research (Benoit et al., 2005; Mendelson et al., 2020).

The role of the youth worker in the intervention process was carefully considered by the researcher. Firstly, the youth organisations considered the appropriateness of the MI intervention within their service and for their service users. During the recruitment phase, the youth workers collaborated with the researcher to explore how to facilitate the MI intervention within their organisation. Specifically, the researcher aimed to lessen the workload associated with implementing the MI intervention in their youth organisations. Building a trusting relationship involved outlining the study's aims and objectives, clarifying the youth workers' roles, and understanding their needs to fulfil their commitment to the research. Moreover, the researcher supported this relationship by empowering the youth worker to take the lead in supporting participants throughout the intervention. Consistent support and high availability from the researcher were maintained throughout the process. Consequently, a partnership was established between the services and the research team, where both depended on each other and were highly motivated in the success of the

research project. This approach to establishing key relationships with the services required considerable time and effort by the youth workers and researchers. It also generated a sense of cohesion and respect between both parties to complete the MI process. The literature supports and acknowledges the importance of building trust and establishing strong relationships with communities who are participating in the research process. It is considered particularly crucial to foster these trusting relationships among socially disadvantaged populations (Benoit et al., 2005; Bonevski et al., 2014).

Although establishing trust among youth workers was the first most important step in the acceptance of the MI intervention, sustaining and building upon this trust occurred during all stages of the research process. Establishing this sense of collaboration and trust can negate the challenges of recruiting and retaining hard-to-reach groups who often display mistrust of engaging in research (Bonevski et al., 2014; Yancey et al., 2006). Findings in the study indicated that youth workers 'buy in' was based on the opportunities that the peer led intervention provided for their adolescent service users. The relevance of harm reduction models for health promotion were actively sought out by youth workers and the MI intervention presented an acceptable model for their service users to engage in. The programme also aligned with the objectives of Irish youth services to provide opportunities for service users to participate in programmes that develop their personal strengths and well-being (Clarke MacMahon & O'Reilly, 2015).

Qualitative analysis suggested the MI intervention was acceptable to educators, recipients, youth workers and stakeholders and that the youth organisations were an appropriate location for adolescents to deliver and receive the health message. The objectives of the study aligned with those that guided youth work practice and the ethos of youth organisations which is to foster a sense of autonomy among service users and to engage in activities and programmes that promoted their development and well-being. Some of the issues emerging from this finding relate specifically to the capacity for youth workers to fully support the implementation of the health intervention. Youth workers suggested that their role would require additional supports to facilitate intervention delivery within their service in the future. These supports would alleviate the work associated with delivering the intervention, including collecting consent forms, follow up data and to support service users including peer educators and recipients during the process.

Several factors contributed to the initial acceptance of the MI intervention from the youth workers perspective. Peer leadership programmes had been previously delivered in the youth organisations and were considered valuable for their service users. The peer led

MI intervention promoted the autonomy and an opportunity for service users to develop interpersonal skills which were in line with youth workers commitment towards their service users. The design of the MI intervention met the Gaisce programmes objectives, assisting youth workers who seek out opportunities for their service users to fulfil the award. Findings also indicated that their acceptance of the programme was a motivator for them in the supportive role that they assumed with educators during the intervention process. In accordance with the present results, previous studies have demonstrated that empowering community members is an effective strategy to heighten the level of support in the delivery of peer led programmes (Kirsten. Corder et al., 2016; Mitchell et al., 2020) and how their contributions have led to the effective implementation and management of interventions (Hoppitt, Shah, Bradburn, Gill, & Calvert, 2012). As such, enlisting youth workers was of critical importance and their endorsement of the MI intervention contributed to both the acceptance and motivation of educators and recipients to participate in the MI intervention.

The findings also suggested that the acceptance of the MI intervention was influenced by the opportunity that youth workers perceived the intervention to hold for their service users. Consistent with the literature, youth workers reported the opportunities such as developing interpersonal, transferable skills and health promoting behaviours to be motivating factors in the acceptance of the MI intervention. Prior studies noted the importance of peer led education to provide an opportunity to engage adolescents in health promotion with peers who they have shared characteristics with (Parkin & McKeganey, 2000; Strange, 2006). Findings also suggested that participant engagement was influenced by the high level of autonomy and ownership that participants were afforded to implement the MI intervention in their youth organisations. Youth workers discussed prioritising activities that fostered a sense of responsibility for their service users to participate in. These findings are in line with the literature which suggests that adolescent autonomy and ownership of an intervention delivery improves its effectiveness (Frantz, 2015).

Key insights during the initial modelling and the subsequent exploratory phase of the process evaluation ascribed relevance of the MI intervention for the targeted health risk behaviours. The risks for engaging in these behaviours were considered to increase adolescents service users' susceptibility to substance misuse and the peer led promotion of healthy behaviours approach aligned with the youth organisations ethos to identify and implement relevant programmes to support the health of young people in Ireland (Dunne et al., 2014; Treanor et al., 2019). Furthermore, reducing these risks were a priority for youth

workers as discussed during both phases of the evaluation process. The thesis sought to examine whether cigarette smoking, risky alcohol consumption behaviour and decreases in physical activity aligned with current national and international literature on adolescent health risk behaviours (Doyle et al., 2022; Pearson et al., 2014; Pinhas-Hamiel et al., 2022). Exploratory findings during qualitative analysis with youth workers suggested small increases in cigarette use among adolescents which supporting recent trends in adolescent cigarette smoking and vaping use as outlined in a European school survey (Espad, 2020). Additionally, educators and youth workers discussed the challenge that may exist for some recipients to disclose their smoking and alcohol consumption behaviour with their parents who were required to provide active consent for service users to participate in the intervention. Also, consistent and evidenced in the literature, motivations to engage in alcohol consumption behaviour were described by participants to be subject to group norms, peer pressure and associated with opportunities to socialise with their peers (Doyle et al., 2022; Taylor et al., 2015).

Participants discussed their preference for a peer led approach over an adult led one. These results reflect those in the literature where peer led programmes have been found to capitalise on the relatedness between peer groups at both the recruitment and implementation stages of the intervention (Audrey et al., 2006; Sebire, Banfield, Campbell, et al., 2019; White et al., 2017). The findings reported suggested that participants anticipated that an adult led MI session may evoke judgement and would reduce their likelihood to engage in the intervention. These findings were supported by youth workers and stakeholders during all stages of data collection in the evaluation process, who suggested that an adult led approach may experience greater levels of resistance by recipients. It was also suggested that receiving the intervention from youth workers may be more problematic, as they represented an inbuilt power differential. Similar challenges have been discussed in the literature for adolescents' reluctance to engage in MI sessions due to their inability to relate to the MI practitioner (D'Amico et al., 2008). However, initial findings at stakeholder interviews indicated some reservations for the capacity of adolescent to facilitate complex interactions during MI sessions with their peers. Crucially it was believed at this stage of the evaluation process that the intervention efficacy would be reliant upon the level of credibility that the educator possessed with their recipient. This also accords with earlier research, which showed that peer led approaches should generate similar levels of trust between peers to support an increased awareness of the health compromising behaviours and the importance of establishing credibility in the peer educator's role (Medley et al., 2009).

Several components of the intervention design were examined to explore the acceptability of the intervention implementation. These components included timing and duration of the intervention and recruitment strategies to encourage participant engagement in the MI process. Stakeholder and youth workers findings suggested that a six to ten-week intervention was the most acceptable timeframe for the delivery of the programme. This was guided by the youth workers experience of delivering programmes within their youth organisations. Findings also suggested that delivering the intervention during school term and avoiding programme delivery during or in between school breaks (Easter, Halloween, Christmas, or the Summer) would be most appropriate for a several reasons. Reasons included interruptions to the continuity of the intervention, anticipated attrition during holidays and reduced motivation for participants to engage in the intervention process. Training on a school day also was discussed as challenging for educators who were required to gain consent from the schools and explain their absenteeism to attend training. It was suggested that future studies should consider delivering training educators on a non-school day.

The self-nomination of peer educators was regarded as an acceptable and appropriate way to recruit service users to participate in the MI intervention. This method of self-nomination has been used in other peer led health interventions where it has been found to increase the peer educators' sense of ownership of their role (Audrey et al., 2006; Mercken, Steglich, Sinclair, et al., 2012). The selection process of peer educators was also considered an important factor in the acceptance of the MI intervention. Stakeholder, youth worker and educators in the pilot study explored and reflected on the self-nomination process of peer educators following the intervention delivery. Due to a limited number of places ($n=3$) for educators to participate in each youth organisation, the random selection of names was considered to be the fairest approach. However, all service users who expressed an interest to become educators were invited to attend MI training. Educators recruited recipients to receive the peer led MI sessions within their youth organisations. These snowball or respondent-driven recruitment strategies are considered an effective method to recruit hard to reach populations (Bonevski et al., 2014; Ellard-Gray et al., 2015). They have been used in peer led health prevention programmes that capitalise on the relatedness between adolescent peer groups at the recruitment and implementation stage of interventions (Sebire et al., 2019). Youth workers and stakeholders agreed that incentivising participation would motivate educators and would assign value to their role throughout the implementation process. Educators discussed the payment of fifteen euro per MI session as

an initial motivator, however, some educators indicated that it was a valued experience irrespective of the payment. These findings are consistent with research where incentivising participation has been found to place a sense of ownership, reduce participant fatigue, and encourage continued engagement in the research process (Bonevski et al., 2014).

9.2.2 Assessing the acceptability of training.

As suggested in the literature when conducting research with an adolescent cohort it is important to apply flexibility in the timing and delivery method of training (White et al., 2017). This was echoed by stakeholders, youth worker and participant contributions during the exploratory phase of the process evaluation. They underscored the importance of adapting training content and its method of delivery to capture and sustain the attention of adolescent participants. A process of refinements was made to MI training and qualitative findings stressed that training adopt an informal and dynamic approach to establish peer educators' acceptance to the overall intervention process. Training acceptance was discussed according to its content relevance, duration, timing, and educators perceived confidence in delivering MI sessions to their peers. Educator recommendations included incorporating a greater number of role plays and activities to establish MI skills and to include frequent breaks during the training day to sustain participant attention. This finding broadly supports the emphasis placed on the importance of enhancing educator training for adolescent participants to support their continued interest and engagement in the process (Frantz, 2015; Sebire, Banfield, Campbell, et al., 2019).

Furthermore, as suggested by Frantz et al. (2015) incorporating role plays and opportunities for participants to engage in interactive learning through shared experiences and open discussion during peer led training programmes supports their level of engagement and can increase the confidence in the role of an educator. To achieve this level of confidence, the feasibility trial incorporated recommendations from the exploratory phase (stakeholder and pilot study) to MI training and introduced additional educator materials to support their role. Refinements included changes in training content and approach by incorporating more activities and breaks, additional educator supports (MI manual and workbook) and self-report measure administration guidance to assess the study's outcomes. Barriers to engagement in the MI intervention process would not have been identified and the accompanying refinements would not have been made without this initial stakeholder and pilot testing phase. A central motivation discussed for the participation of adolescent service users was to develop skills and gain experience during training. However, stakeholders indicated that it would be vital that training instil

confidence in educators to perform their role to ensure that they were not put in a position where they might fail. The literature on peer education supports these findings, recognising the importance for educators to establish key communication skills during training to effectively provide the health message to their peers (Audrey et al., 2006; Kirsten. Corder et al., 2016; Mitchell et al., 2020 ; White et al., 2017).

9.3 Testing the feasibility of the adolescent peer led MI intervention.

9.3.1 Training.

Consistently during the process evaluation, an emphasis was placed on training as the key factor for the success of the intervention. Findings from stakeholder and youth worker contributions emphasised that training would represent a vital stage within the intervention process where participant engagement and motivation to carry out the intervention would either be established or lost. These findings align with research that has sought to evaluate the implementation of peer led health interventions, which were more effective if they supported skill development and training strategies when compared to educational strategies for health behaviour outcomes (O'Mara-Eves et al., 2015). Furthermore, the literature on training peer educators emphasises training as a critical time for intervention effectiveness and where it can impact the sustainability of an intervention (Campbell et al., 2008; Corder et al., 2020; Hawkins et al., 2017; Mitchell et al., 2020).

The MI booster training session in the feasibility trial was introduced in response to educators' experiences and recommendations in the pilot phase. Educators recommended additional supports to skill them further in sustaining conversation with recipients during MI sessions. These challenges were also discussed for educators in initial MI sessions of the feasibility trial. However, the MI booster training which adopted a focused approach, and which was informed by educator reflections in the MI workbook sought to address the challenges encountered during the initial MI sessions. These challenges included sustaining conversation and the use of MI techniques with their peers. Findings suggested that incorporating the additional training tailored specifically to address the challenges were useful and provided educators with the opportunity to practice MI techniques and adopt strategies to sustain recipient engagement. This additional training may have also provided a continued motivation for educators and skilled them further in their delivery of MI sessions to their peers. These results provide further support for that of White et al. (2017) where additional training was a valued support for educators, providing them with the chance to enhance their communication skills used during their interactions with their peers.

It also presented an opportunity for all participants to increase their confidence to deliver the intervention and provided an opportunity to discuss any uncertainties with respect to their delivery of MI sessions. This is supported by the literature, which places an emphasis on assisting peer educators during training to effectively implement an intervention. It has also been previously described as the stage where educators can build their knowledge and increase their confidence in their role during the intervention process (Frantz, 2015).

In addition to the booster MI sessions, an MI manual was developed as a supporting material for educators, providing fact sheets on the risks associated with each of the health risk behaviours and a summary of MI techniques and role plays. An MI workbook was also developed and provided educators with a method to record recipients' challenges, goals and barriers encountered for behaviour change. These were developed in response to recommendations by educators in the pilot study to provide additional resources for MI session delivery. This finding is consistent with Hawkins et al. (2017) where supporting material was recognised as a method to support peer educators in the delivery of their health message. Educators in the pilot phase reviewed the resources, and refinements were made before the inclusion of materials in the feasibility trial. Although some educators in the feasibility trial perceived the resources as positive and supportive for them in their role, others indicated that they did not use them or that they were a distraction for recipients during MI sessions. However, most educators used the MI workbook, and they indicated that reflections provided a method through which they record discussion points and to remind them of recipient's goals, challenges and barriers to behaviour change in subsequent MI sessions. Most educators indicated that they did not use the MI manual, and this may be due to the efficacy of training and the booster session or that it required additional time to use the resource. Where the manual was used educators indicated that it served as a reminder of the risks associated with the behaviours. Future studies to support peer educators in their role might therefore incorporate fact sheets in the MI workbook on the health risk behaviours to provide recipients with accuracy of the risks of engaging in health behaviours.

The MI trainer was discussed as integral in the acceptance of the intervention process by both youth workers and peer educators in the MI intervention. The impact of attending training was discussed as creating a sense of ownership and instilling motivation among educators to implement the intervention. Youth workers also valued the opportunity to train with educators as they developed an understanding of the peer educator's role. Where a youth worker could not attend training, peer educators were still considered

knowledgeable and motivated to implement the MI intervention in their youth organisations despite the absence of a youth worker. However, it was these youth organisations that recorded the only absenteeism of self-nominated peer educators for training. It appears that attending training without the presence of a youth worker and traveling to a new and unfamiliar youth organisation presented as a barrier for participants to engage at the initial stage of the intervention process. This finding has also been reported in research whereby traveling can present as a barrier to participate in research for hard-to-reach groups (Dibartolo & McCrone, 2003; Loftin et al., 2005). Although the study sought to address this barrier through the reimbursement of travel cards, the unfamiliarity of attending training in new youth organisation may have affected the attendance and subsequent participation for some service users. This resistance to attend neighbouring youth organisations at the stage of focus groups was also encountered. Scheduling focus groups with more than one youth organisation was problematic and instead small group interviews in each youth organisations were conducted.

Those youth workers who did attend and complete training highlighted the readiness for peer educators to perform their role and their motivation to recruit peer recipients for the intervention following their participation in MI training. Training with neighbouring youth centres, in addition to youth workers training with peer educators was described as bringing about a sense of collaboration at the initial stages of the intervention process. Incorporating a greater number of activities and opportunities to engage in mock MI sessions prepared peer educators to engage in MI sessions with their peers. Furthermore, youth workers established an awareness during training for the role that the peer educator would employ. In future investigations, it might be possible to adopt educator recommendations to establish a peer educator support group across all participating youth services.

9.3.2 Assessing recruitment and retention rates.

Eleven youth organisations participated in the study and five were assigned to the MI condition based on their capacity as an organisation to host the MI sessions. Five youth organisations were assigned to the intervention condition, and none withdrew during the intervention process. An additional six youth organisations were recruited in the comparison condition, with one opting out following educators HBT training. The comparison condition experienced greater difficulty in recruiting and retaining recipients in youth organisations for the HBT. In response to low recipient numbers a second recruitment drive targeted second level schools. This increased recipient numbers and reduced missing data for most variables which may have been due to the frequency that the students attend

and engage in the school setting. It may also be the case that increased participation in schools was due to the transition year (TY) teachers undertaking a role that appeared to encourage students' participation in the HBT and assisted in the process of collecting follow up data and consent forms.

All peer educators self-nominated to participate in the MI study. The pilot phase recruited MI peer educators ($n=8$) from two youth organisations who attended MI training and the first 6 peer educators who were randomly selected to deliver MI sessions to their peers. This phase of the intervention sought to assess the feasibility of the self-nomination process, the and the ability for peer educators to recruit recipients following MI training. Additionally, the pilot phase sought to assess the retention of recipients and the acceptability of implementing the MI intervention in youth organisations. Educators recruited five recipients each and thirty service users received MI sessions from their peers in two youth organisations within one community.

Forty-eight peer educators self-nominated to participate in the feasibility trial in both conditions. These findings suggest that the self-nomination process was an appropriate method of recruitment in both arms of the study. Educators ($n=26$) in the comparison group attended one HBT training in their organisation or school and youth organisations and twenty delivered the HBT in groups of three. Peer educators from one youth organisation did not deliver HBT following their training and one school could not collect follow up data after baseline. Recipients ($n=127$) of the HBT provided follow up data across all three timepoints ($n=67$), however challenges were encountered in collecting follow-up data from recipients ($n=60$) indicating high attrition for the comparison condition. One of the issues that emerges from these findings is highlighting the difficulty in sustaining participant engagement for follow up data collection for those who received the comparison condition.

Seven MI peer educators withdrew from the study before MI training and three following their receipt of MI training. Findings from youth worker contributions assessing the reasons for educator withdrawal included lack of confidence to travel to a host youth organisation and personal reasons restricting the educator's attendance. The challenges for educators to participate in the intervention included an inability to recruit recipients and one educator moved out of the community following training. Only one recipient withdrew from the study following her receipt of one MI session. These findings suggest that the peer led approach to recipient recruitment was feasible in recruiting and retaining adolescent service users who delivered and received the MI intervention in a low SES youth organisation. Where challenges were encountered by educators to recruit peer recipients, youth workers

introduced educators with potential service users who may benefit from engaging in the intervention. Adopting a targeted approach to recruitment of peer recipients was considered to reach those who may benefit from the intervention.

9.3.3 Timing, dose, and fidelity of the MI intervention.

Findings according to all phases of qualitative analysis suggested that the duration of the intervention should adopt similar approaches to previously run programmes within youth organisation over a ten-week period. This approach supports evidence from previous observations where short timelines are considered most effective for health behaviour outcomes in community health interventions (O'Mara-Eves et al., 2015). Timing of the intervention during school term was also stressed by youth workers as an important factor to consider in the pilot and feasibility trial. The intervention process included training, recruitment over a two-week period following training and one MI session per week over a 6-week period with each recipient. The eight weeks of the intervention delivery was within the recommended timeframe that stakeholder and youth worker interviews suggested during the initial stages of the process evaluation. Peer led health promotion research further reinforces these recommendations whereby a programme should be implemented at least three weeks following the educator's receipt of the training (Campbell & MacPhail, 2002). Most peer educators ($n=38$) delivered 6 MI sessions to recipients with the first session averaging as the longest ($M=15.81$ minutes) and the shortest MI session in the 5th week ($M=11.36$ minutes). It is difficult to compare MI session duration against previous research as considerable variation in the intensity and the dose of MI sessions are reported across studies (Bertholet et al., 2012; Moyer et al., 2002; Wilk et al., 1997). However, the high level of MI delivery by educators and engagement by recipients in MI sessions across the 6-week intervention support its feasibility in a youth organisation setting.

This study did not examine fidelity for the peer led MI intervention despite the recommendations in the literature to report fidelity for MI proficiency. Although the reporting of fidelity has been raised as an important issue for research where MI has been used for behaviour change interventions, it has also been suggested that adopting a flexible approach with adolescent populations can support their autonomy and importantly support the client-centred approach (Mutschler et al., 2018). Furthermore, the main aim of the process evaluation was to assess the feasibility and acceptability of the intervention for an adolescent cohort in the first two phases of an MRC guided evaluation (Craig & Petticrew, 2013). Qualitative findings from educators and youth workers who attended MI training and educators who attended the MI booster session delivered by a MINT trainer suggested

that they were confident in their ability to deliver MI sessions with their peers. Training sessions were delivered by the same MINT trainer and participants engaged in the same training schedule in each youth organisation. The MI workbook also encouraged educator reflections which informed the MI booster session. This was considered to further support the educators in their role and provided them with the opportunity to address any challenges and issues that arose during their interaction with recipients. Youth workers also discussed educator's role and guidance provided where educators encountered challenges or difficulties during the implementation process. Although these resources provided a method to support educators in their MI skills and reinforce techniques, further work is needed to develop reliable analytical methods to assess the proficiency of educators in their role as an MI educator in future research.

Focus groups and interviews were conducted with the researchers in this study. Due to the high level of engagement between the researcher and participants (youth workers and educators) during all stages of the MI implementation process, it is possible that participants may have provided socially desirable answers captured in the qualitative analysis. The enthusiasm displayed by youth workers for the intervention may also influenced the opinion and experience of the educator's impression of the peer led approach. Triangulation of results from all phases of the process evaluation sought to provide some method of validation for the main themes and findings across youth organisations including those who participated in the pilot study ($n=2$) and the feasibility trial ($n=5$) and through stakeholder interviews ($n=9$). Furthermore, trends may have been misinterpreted or missed by the researcher for responses provided by participants due to pre-existing beliefs. Although the researchers previous background of working with marginalised community members may have supported the recruitment of youth organisations and fostered a level of trust, the experience may also have influenced assumptions in the interpretation of results.

Primary and secondary outcome measures provided self-reported data to evaluate the three health risk behaviours and their readiness (confidence, motivation) to change their behaviour. Respondents who participated in the study were required to gain parental consent which may have suggested sampling bias. The primary measures that assessed the effectiveness of the MI intervention for behaviour change using valid and reliable scales (AUDIT, IPAQ-*sf*, and CDS-12). All measures were assessed for their internal consistency, and all fell within the acceptable range except for those respondents who completed the IPAQ-*sf* in the comparison condition. Although scales used were reliable and valid, caution should be applied due to the nature of the behaviour inquiry and the possibility that peers

may provide socially desirable responses to display engagement and progression during the MI process. However, the level of engagement in MI sessions and commitment of recipients to meet educators weekly suggests the feasibility of peer led MI sessions. Qualitative findings further reinforced the recipient motivation and techniques that they used for behaviour change.

9.4 Assessing the effectiveness of the adolescent peer led MI intervention.

The rates of missing data in the MI condition were low and PP analysis provided data across the three timepoints (baseline, 6 weeks & 3 months post baseline) for thirty-two respondent who received the intervention. ITT analysis was conducted with MI recipients ($n=44$) who chose to increase their PA ($n=29$; 65.9%) followed by those who chose to reduce their alcohol consumption ($n=8$; 18.2%) with a similar number of recipients choosing cigarette smoking ($n=7$; 15.9%). Respondents in the comparison condition encountered greater difficulty for follow up data with PP analysis providing fifty-eight completed measures for those who chose to increase their PA ($n=28$; 48.3%), to reduce their alcohol ($n=10$; 17.2%) or to increase their PA and reduce their alcohol ($n=20$; 34.5%). PP analysis could not be conducted for recipients in the comparison condition for cigarette smoking as responses were missing on the CDS-12 at follow up timepoints. The comparison condition provided a choice for recipients to change any number of the three health risk behaviours following their attendance in the HBT. There were similar trends in behaviour choice for participants in the comparison condition. Recipients ($n=119$, 93.7%) chose to increase their PA, followed by alcohol ($n=84$; 66.1%) with cigarette smoking ($n=41$; 32.3%) experiencing the lowest behaviour choice. The reliability of the IPAQ-*sf* scale ($\alpha >.27$) was low for recipients who completed the measure in the comparison condition, suggesting that they may have encountered difficulty in completing the measure. It is suggested in the literature that this may be due to completing the measure in large group sizes, ambiguity in the filter questions or lack of comprehension by respondents on what the levels of PA (moderate, vigorous activity) were in the measure (Aibar et al., 2016; Fernández-Bustos et al., 2019). Follow up data for those who chose to decrease their smoking behaviour also experienced missing data across all timepoints following baseline, providing no comparison for PP analysis.

9.4.1 Primary and secondary outcomes.

Although cigarette smoking observed a low participation ($n=7$; 15.9%) rate in the MI intervention, these participation rates appear to be representative of current cigarette use among adolescents in Ireland, across Europe and the U.S. where trends in cigarette smoking

behaviour has been reported to be on the decline since the late 1990's (Li et al., 2018; Sunday et al., 2021). PP analysis could not be conducted due to missing data across timepoints, however, ITT analysis provided data for comparisons between MI recipients and those respondents in the comparison condition reporting no statistically significant differences in behaviour change. Most recipients ($n=29$; 65.9%) chose to increase their PA in the intervention condition. These findings are supported by evidence where peer led approaches to promote increases in adolescent PA have reported high recruitment and retention rates (Bell et al., 2017; Kirsten. Corder et al., 2016; Sebire, Banfield, Campbell, et al., 2019). The most common behaviour chosen by recipients to change was PA and between groups analysis could not be conducted due to the low internal consistency of the IPAQ-*sf* by comparison condition respondents. Pre and post-test results in ITT and PP analysis for MI recipients indicated statistically significant increases in PA categories between time 1-2 and time 1-3 in PP. As such tentative indications of maintenance behaviour change were observed however without data from the comparison group the interventions effectiveness could not be established.

Similarities between national and international reports on alcohol consumption behaviour for young people appeared to be representative of the small sample size ($n= 5$; 15.6%) and nature of self-reported hazardous drinking for those who received the intervention (Mongan et al., 2021). Furthermore, findings in the current study provide an insight into the nature of adolescent recipient alcohol consumption, whereby those who chose to reduce their alcohol consumption in the intervention condition, self-reported to engage in hazardous drinking behaviour at baseline. These findings are like those presented in a recent HRB report for the prevalence and nature of substance misuse among Irish young people (Doyle et al., 2022). Levels of alcohol dependency were significantly higher for MI recipients ($M = 17.6$, $SD= 5.45$) which is ranked as high-risk or harmful levels (16-19) when compared the comparison ($M = 5.45$, $SD= 5.13$) ranked as low risk on the AUDIT. According to W.H.O. recommendations alcohol consumption as self-reported by MI participants would be recommended to receive a BI (MI or CBT) for individual or group counselling. Respondent self-reported scores as presented for those in the comparison group suggest are considered low risk and according to W.H.O. recommendations a harm reduction approach such as the H.B.T. is considered appropriate (Higgins-Biddle & Babor, 2018).

Follow-up comparisons indicated statistically significant reductions in self-reported alcohol consumption for recipients in the MI intervention condition. Risky or hazardous

levels (8-15) of alcohol consumption were reported at time 2 ($M = 15.25$, $SD = 6.69$) and time 3 ($M = 12.13$, $SD = 6.13$). The W.H.O. recommends MI counselling to support these levels of self-reported alcohol consumption. Between group comparisons reported statistically significant differences for the comparison and intervention group. These estimates suggest that self-reported alcohol consumption in the MI condition were higher with statistical significance than the comparison group and provides justification for service users to receive a BI to support them in behaviour change. According to these data, we can infer that the intervention had a positive impact on reducing alcohol consumption behaviour, however, this data must be interpreted with caution due to low sample sizes and the limited follow up data at 3 months which cannot provide evidence of maintenance in behaviour change.

9.4.2 Secondary outcomes.

Recipients were also assessed on the confidence and importance that they attributed for behaviour change. However, the readiness ruler experienced a high level of missing data from participants at baseline in the comparison condition and no significant differences were reported for confidence to change their behaviour. This is considered an important factor to understand a respondent's motivation for behaviour change and a stable predictor of change for reductions in alcohol and cigarette smoking (Chung et al., 2011; Williams et al., 2007). The importance attributed to behaviour change was statistically higher across all timepoints for those who received MI sessions when compared to recipients in the comparison condition. Importance is considered less consistent and lacks uniformity for changes in behaviour, for example assigning a high level of importance associated with changes in alcohol but not smoking behaviour (Bertholet et al., 2012).

Although the study's aims were to assess the effectiveness of the MI intervention for significant decreases in their health risk behaviours at follow-up time assessment, the COVID-19 outbreak reduced the ability to collect follow-up data at 6- and 10-months post-intervention. This follow-up data collection may have provided greater statistical power and increased the ability to detect significant effects between groups and to assess maintenance of behaviour change over a longer period. Furthermore, due to the low sample sizes of participants in the study, caution should be applied in the interpretation of the effect sizes as there is an increased risk of a type 2 error with underpowered comparisons. A greater number of participants in an adequately powered trial would provide greater confidence in the analysis and detect differences across conditions. The current study sought to conduct a process evaluation assessing primarily the acceptability and the feasibility of a peer led MI

intervention. Findings also captured the relevance and nature of the health risk behaviours targeted for change among this cohort. Future studies assessing behaviour change for this cohort are recommended to include objective measures and provide greater clarity and instruction to respondents in completing the self-report measures to assess the effectiveness of the adolescent MI peer led intervention.

9.5 Strengths and Limitations

Both quantitative and qualitative data was collected to assess the acceptability of the adolescent peer led MI intervention. This data collection explored intervention components including primary and secondary measures, peer educator resources, the MI training process, and methods. Adopting this approach to the research provided a method of triangulation of data which strengthened the internal and external validity. Interviews and focus groups presented qualitative data from several sources including community stakeholders, youth workers, peer educators and peer recipients who engaged in the research process. This data generated insights into understanding the acceptability of the trial, the feasibility of its delivery in a low SES setting and captured the experiences of those who participated in the intervention process. It also provided the opportunity to apply ongoing evaluation, make refinements and adjustments throughout of the intervention process.

The first phase of the process evaluation generated in-depth and detailed understandings of intervention functioning on a small scale. Stakeholder contributions from a variety of sources including Irish second level schoolteachers, community youth workers, an MI practitioner and a health promotion researcher proposed different approaches for recruitment, training, and implementation of the intervention. Findings informed the pilot phase during stage one of the process evaluation, and the experiences of peer educators and youth workers were gathered through interviews and focus groups to understand the core components associated with the implementation of the MI intervention. A strength of this analysis was that all peer educators and youth workers who participated in the intervention process contributed to qualitative data. Their contributions collated participant views on what went well and recommendations for refinements and improvements for a larger trial. Stage one of the evaluation process assumed an exhausted approach to qualitative data collection and saturation of dominant themes.

The second phase of the process evaluation incorporated key insights and recommendations for change during the first stage of the trial and gathered further

qualitative data transferring a deeper understanding of the intervention process. Interviews were conducted with youth workers, peer educators and peer recipients to discern their experience of participating in the intervention process. Youth workers discussed the acceptability of its implementation among service users, the feasibility of incorporating the intervention into their services and its relevance for service users according to the health risk behaviours targeted and the appropriateness of the intervention in a youth work setting. Peer educators and recipients participated in small group-based interviews, providing insights on the implementation process from the perspective of those who delivered and those who received the intervention. Peer educators from four of the five youth organisations participated in interviews, the absence of peer educators from one youth organisation was due to the inability to agree upon a time that was suitable for all. It was anticipated that two focus groups would be conducted to capture the experiences of peer educators, however, scheduling a convenient time for youth organisations to meet was difficult and instead small group-based interviews were conducted in the youth organisations where each group of peer educators delivered MI sessions to their peers. Similar difficulties were encountered in scheduling peer recipients' participation in focus groups to explore their experiences of receiving the MI intervention from their peers. Problems arose with scheduling a time convenient for peer recipients to participate in a focus group resulting in only two youth organisations out of a possible five providing peer recipient feedback.

Limitations during the process evaluation included self-selecting bias whereby peer educators who participated in qualitative (focus groups and interviews) data collection, may exhibited a greater propensity to contribute based on the level of engagement that they undertook during the research process. One youth organisation captured youth workers but not peer recipient or educators' experiences and this may have provided different responses on the experiences of those who participated. Similarly, only one community representing two youth organisations could recruit recipients to participate in a small group semi-structured interview, further reducing the ability to capture the experiences of those who received the intervention. However, all youth workers contributed to both phases of the evaluation process and most peer educators provided their experiences of participating in the implementation of the intervention. Furthermore, key stakeholder contributions were captured from a variety of community, education, and training perspectives to discuss the acceptability and feasibility of the approach. This provided a fundamental grounding for the overall implementation of the MI intervention.

9.6 Implications and further research

9.6.1 Theoretical implications

This research supported existing research on the acceptability and feasibility of conducting peer led health behaviour change interventions and health promotion among adolescent populations. The prevalence of health compromising behaviours including alcohol consumption and sedentary behaviour among young people is a cause for concern in Ireland and data indicates that nicotine addiction is increasing through vaping. There is a need for preventative and treatment interventions to support behaviour change and a peer led approach appears to be acceptable and to meet the social, psychological, and physical developmental needs of this age group. Several reports have captured the trends of health risk behaviours that Irish adolescents engage in through national data (Doyle et al., 2022). However, capturing their experiences in qualitative studies can provide further insights into the harmful patterns of health risk behaviours during this important stage of life. The findings in study supported an adolescent MI peer led approach to behaviour change that encourage positive health choices and thus reduce the likelihood of these behaviours becoming established by early adulthood.

The current study examined the effectiveness of the study for primary and secondary outcomes and the results indicated reductions in alcohol consumption and increases in PA for those who received the intervention. The findings provided tentative indications of maintenance of alcohol reductions and increases in PA; however, these findings were only for follow up data at three months. Longitudinal studies may capture the impact of the MI intervention over a longer period and provide stronger evidence for changes in behaviour. Additionally, cigarette smoking behaviour has decreased in successive years with a target to reach smoking below 5% as outlined in the Tobacco Free Ireland policy by 2025 and although the sample of participants was representative of these reductions an increase has been observed in vaping of nicotine products (Sunday et al., 2021). Future research may assess the feasibility of a peer led MI intervention to examine the effectiveness of reducing vaping and or cigarette use behaviour among Irish adolescents. Furthermore, qualitative findings suggested the prevalence of the behaviours targeted for change. However, a larger study would provide a more accurate indication of the relevance and prevalence of these health risk behaviours from a national perspective for adolescents from low SES communities.

Although the findings suggest the acceptability of the MI peer led intervention, those who received the intervention had a low representation in the findings. Future research may benefit from understanding the recipient's perspective in greater depth. Conducting focus groups or capturing recipient experiences have been evidenced in the literature but are limited (Audrey et al., 2006; Sebire, Banfield, Jago, et al., 2019; Shah et al., 2011). A larger trial may provide greater insights into recipients' experiences of participating in the intervention to understand the components (timing, duration, support materials used) and provide insight into the mechanisms of change (motivation to participate, setting and achieving goals, challenges and barriers encountered) where recipient feedback is captured.

MI training was found to be feasible, acceptable, and supported the autonomy that a peer led approach is theorised to promote and adopt in peer led health promotion for adolescents (Frantz, 2015). This is an important issue for future research as the modifications informed training in the exploratory and modelling phase of the process evaluation. Training was a key component for the acceptance and motivation of participants in the research process. Future research could conduct exploratory analysis to further explore the relevance of supporting material and methods used by service users who delivered the MI interventions to their peers. Intervention components including recruitment and retention strategies to increase participant numbers, timing of the intervention, role of the youth worker and enhancing supports for peer educators in their role could also improve the method of intervention delivery. The third phase of the process evaluation is to conduct a RCT which could increase participant numbers and recruit a larger sample size to assess the effectiveness of the peer led MI intervention and provide sufficient statistical power (Moore et al., 2015).

9.6.2 Future research directions.

The focus of this research was to assess the acceptability and feasibility of an MI peer led health behaviour change intervention and the study's design was examined for weaknesses during the pilot study and stakeholder stage. The feasibility trial further examined the components and captured the mechanisms of impact for intervention effectiveness. The analysis examined the dose and reach of participants and fidelity of the programme was ensured where youth organisations received MI training and booster training from a MINT trainer. Furthermore, the method in which the intervention was delivered across sites was consistent in its delivery and the low SES population who received the intervention. Further studies, which take these variables into account, are

therefore recommended to conduct an a RCT with a larger number of participants from low SES communities with a greater geographical spread in Ireland.

Youth work practice enlists target-based interventions to meet the needs of their service users with a priority to incorporate programmes that produce positive outcomes (Dunne et al., 2014). The current study has demonstrated the acceptability and feasibility of conducting an MI peer led intervention in youth services in low SES communities. In future investigations, it might be possible to make further refinements as captured in qualitative analysis from the feasibility trial. Training was considered a key component for intervention effectiveness and a motivator for educators and youth workers to implement the MI intervention. Suggestions to further enhance the intervention process included refining the workbook to include fact sheets on the health risk behaviours and the exclusion of the MI manual, in addition to creating opportunities for a peer educator support group where their experiences and challenges throughout the process can be explored.

Although the self-report measures demonstrated internal consistency, it is recommended to test the agreement and correlation between objectively measured (through accelerometry) and self-reported data (i.e., IPAQ-*sf*). Additionally, youth workers supported the implementation of the intervention so that educators could deliver the behaviour change intervention with ease. This required additional time to perform the supporting role. Supports included ensuring room availability for peer educators, safeguarding materials (signed consent forms, MI workbooks in the youth organisation), scheduling training and booster session, organising an information evening for peer educators to recruit recipients and the presence of a youth worker on site when MI sessions were conducted. These additional duties were discussed as factors to be considered as they required additional time and increased the workload for youth workers during the implementation of behaviour change programme.

9.7 Conclusion.

There are multiple sources from national and international reports and published literature to highlight the prevalence of health risk behaviours and the problems associated with the initiation of these behaviours during adolescence. Peer led health promotion, health education, and peer led interventions have been delivered in response to and to deter or delay adolescent cohorts from engaging in these health risk behaviours. A gap exists in addressing in evaluating peer led health behaviour change interventions and programmes in Ireland to assess their acceptability, feasibility, and effectiveness in changing behaviours.

This is particularly evident for vulnerable and hard to reach populations who are at greater risk of developing NCDs because of engaging in these behaviours. The findings in this process evaluation are directed towards adolescents in low SES communities. However, demographic information on the ethnicity (travellers, ethnic minorities, refugees) were not captured. Instead, the study's participants accessed youth organisations situated in deprived areas according to the Pobal deprivation index in Ireland.

Evidence in the literature both nationally and internationally highlights the increased risk of developing NCDs for populations in low SES communities. This increased risk is associated with increased morbidity and mortality rates globally. As these diseases are preventable, placing a focus on adolescence for early intervention and prevention is important to reduce health inequalities for low SES groups. National data reports and the literature have reported increases in sedentary behaviour, increases in vaping and nicotine addiction and for some of those who consume alcohol, the levels of alcohol consumption are problematic. The findings in this study provide an evaluation of a peer led intervention that was considered acceptable and feasible for adolescents in low SES communities to engage in.

The current research supports the peer led approach and highlighted the capacity for adolescents to develop skills in MI, deliver and receive MI sessions with their peers and to assume a lead role in supporting their own behaviour change. Most recipients chose to increase their PA and pre and post data indicated statistically significant increases in PA. Recipients who chose to decrease their alcohol consumption, did so with statistical significance reducing their levels from harmful to risky. Although cigarette smoking did not reduce with statistical significance, MI recipients were recruited and engaged in MI sessions to change their behaviour.

Lastly, the adolescent MI peer led approach was accepted in the low SES community youth organisations. All participating organisations recruited service users as peer educators and educators successfully engaged in the intervention process. MI training was perceived as the most important component in the intervention process. It was a stage of the process that was considered to familiarise participants (youth workers and peer educators) with the intervention delivery, to provide youth workers with the ability to support educators in implementing the intervention and to equip educators with skills required to perform their role. Most importantly it was at this stage of the process where participants displayed their motivation to recruit recipients and to deliver the intervention. Qualitative findings in the exploratory phase and modelling phases of the process

evaluation provided insights into the acceptability and feasibility of the intervention for both the components and the context in which it was delivered.

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