Developing the theoretical basis for a targeted family-involved intervention, to reduce co-occurring alcohol use and mental health problems in young people aged 12 to 17.

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Abstract

Background: There is a high prevalence rate of co-occurring alcohol use and mental health problems in young people. This is associated with adverse outcomes and poses a substantial public health concern. Despite the key influence of family life, there is a lack of family interventions developed and evaluated specifically for young people with co-occurring alcohol use and mental health problems.

Aim: This thesis addresses this gap by developing the theoretical basis for a targeted family intervention to reduce co-occurring alcohol use and mental health problems in young people aged 12 to 17 years.

Method: Formative exploratory work was carried out by systematically reviewing the effectiveness of existing family interventions and carrying out qualitative interviews with young people and caregivers to explore their experiences of these co-occurring difficulties. Findings were then integrated to form the basis of initial intervention strategies. These were then further developed within co-design workshops with young people, caregivers and professionals to develop the theoretical basis for a prototype intervention.

Results: Targeting family functioning is insufficient, with family interventions found to be ineffective. Rather, galvanising familial support alongside enhancing young people's coping mechanisms emerged as key. This involves building their resources, including knowledge and skills. The relationship between alcohol use and mental health are embedded within, and interact with, young people's social context. Consequently, a holistic approach should be taken within an intervention, targeting these interacting socio-ecological factors.

Conclusion: This doctoral work contributes to the existing evidence base with a contextualised understanding of young people and caregivers needs to support young people with co-occurring alcohol use and mental health problems within the UK. It provides the theoretical basis for an intervention, building familial support and young people's own

coping mechanisms, tailored to how alcohol use and mental health problems specifically link for that young person.

List of abbreviations

BCT: Behaviour Change Techniques

CAMHS: Child and Adolescent Mental Health Services

DALY: Disability Adjusted Life Year

MRC: Medical Research Council

NICE: National Institute of Health and Care Excellence

RCT: Randomised Controlled Trial

RT: Randomised Trial

SD: Standard Deviation

SES: Socio-Economic Status

UK: United Kingdom

USA: United States of America

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Chapter 1. Introduction

1.1 Chapter introduction

This doctoral thesis aims to develop a theoretical basis for a prototype family intervention to reduce co-occurring alcohol use and mental health problems in young people. To this end, it will examine existing family interventions and their effectiveness, and explore the views of young people's and caregivers regarding the needs of affected young people.

This introductory chapter outlines the background and need for this research. First, it will discuss the levels of co-occurrence of alcohol use and mental health in young people and the associated detrimental impacts. Then it will outline the possible causes for this co-occurrence, drawing upon multiple theoretical models. This will include the key influence of common familial factors for both alcohol use and mental health problems. It will then describe the lack of preventative and therapeutic psychosocial interventions, developed specifically for young people with co-occurring alcohol use and mental health problems. The justification for the need of a family preventative intervention will be outlined. Finally, the specific aims and objectives will be raised, alongside an overview of the thesis.

1.2 Background and area of study

1.2.1 Co-occurring alcohol use and mental health problems in young people; prevalence and impact

Worldwide, mental health and substance use disorders are the 6th leading contributors to the global burden of disease in young people aged 0-24 years of age (1). This is measured as disability adjusted life years (DALYs). Alcohol is the most widely used psychoactive substance in adolescent populations (2). For the purpose of this thesis the term alcohol use, will be used to refer to any use and experimentation and irregular to frequent heavy use, which may reach a diagnostic threshold for abuse or dependence requiring the need for formal/specialist treatment (3, 4). I will distinguish the levels of alcohol use presented in the literature. In the United Kingdom (UK), trends show that the prevalence of current alcohol

use increases between ages 11-15, from 5% to 37% (5). Further, prevalence of drunkenness increases with age, from 1% at 11 years of age to 20% in 15 year olds (5). This increase in alcohol use parallels similar trends in sub-clinical mental health problems between ages 11-15; feeling low increases from 14% to 23%, feeling irritable and bad tempered rises from 19% to 30% and feeling nervous, from 19% to 30% (5). The most common mental health problems in young people consist of internalising problems which refer to emotional problems, and externalising problems which consist of behavioural problems (5-7). Internalising problems encompass anxiety, typified by worry and fear, and depression encompassing sadness, loss of interest and energy, and low self-esteem. Externalising problems are characterised by disruptive and violent behaviour. It can also encompass hyperactivity problems, marked by inattention, impulsivity and hyperactivity (8). However hyperactivity problems differ in that they are considered to be neurodevelopmental (9). These mental health terms will be used to refer to both sub-threshold symptoms and those reaching a defined threshold constituting a diagnosable disorder. I will provide distinctions to reflect levels and types of common mental health problems presented in the literature.

Mental health disorders frequently co-occur with alcohol use in young people (10). Together they are associated with poor school performance and drop out (11, 12), legal problems (11), suicidal ideation (13, 14), poorer treatment outcomes (15) and longitudinal effects into adulthood (16). The terms “dual diagnosis”, commonly used in clinical settings, and “heterotypic comorbidity” both refer to the combined presence of disorders from different diagnostic groupings (6, 17). In the UK, the Associated Office for Health Improvement and Disparities favours the term “co-occurring” as this also captures non diagnostic levels of co-occurrence (18). Co-occurrence is often measured “concurrently” or “successively” (17). The former refers to alcohol use and mental health problems being present at the same time, or within a close time frame (19). Whereas “successively” refers to alcohol use and mental health problems present at different time points during a person’s lifetime (17). This distinction is important as it introduces the possibility that they may not be causally related to each other (17, 19). As such, for the purpose of this thesis,

the broader term co-occurring will be used to refer to mental health problems and alcohol use present at the same time or within a close time frame.

A systematic review reported that up to 60% of young people aged 14 to 18 years who engage in alcohol and other substances also have a co-occurring mental health problem (12). This was based on studies reporting both successive and concurrent co-occurrence and which included both subthreshold and clinical levels. More recently an England based survey in 2017, reporting on concurrent co-occurrence, found that rates of alcohol use and frequency of alcohol use were higher in those young people with clinical levels of mental health problems compared to those without (5). Specifically, more than a third, 36% of young people aged 11-16, with a mental disorder had tried alcohol compared to a quarter, 22.7%, without a mental health disorder(5). Equally, young people with a mental health disorder, 31.7 %, were more likely to drink monthly than those without a mental disorder, 19.4% (5). It is important to note that the data reported here are from community samples, providing a more accurate representation of the population than clinical samples (17). As clinical samples suffer from higher levels of co-occurrence and therefore more likely to seek treatment (12, 17). There is limited literature reporting on co-occurrence prevalence rates for either community or clinical samples of young people.

Current diagnostic tools apply a clinical cut off (20). This may result in prevalence estimates being an under representation, as many people experience co-occurring problems without meeting the threshold for a diagnosis (21). With mental health and alcohol use problems presenting on a continuum, sub-threshold levels can still lead to detrimental outcomes (22). Lewinsohn and colleagues reported that 33% of young people with lifetime subthreshold conduct problems and 27.8% of young people with subthreshold depression had co-occurring sub-threshold alcohol problems (21). However, studies such as Lewinsohn et al., which report subthreshold prevalence estimates for young people, are few (23).

1.2.2 Aetiology of co-occurring alcohol use and mental health problems

The relationship between substance use (including alcohol) and mental health problems is complex and multidirectional (10, 24, 25). To investigate this relationship, longitudinal study designs are preferred as they enable an understanding regarding the temporality of effects, an indication of causality (26). In contrast, cross-sectional studies (such as surveys) can only provide evidence regarding association at a particular time point and not causality (a relationship between variables over time). Twin studies and mendelian randomisation studies have the additional strength in that they can both minimise the potential bias from other confounding variables (26). Within twin studies, monozygotic twins and dizygotic twins share 100% or 50% of genetic make-up respectively and both share the same family environment. Whilst mendelian randomisation takes a genetic variant strongly related to the outcome of interest, such as alcohol use, and uses this as a proxy for the instrumental measure of alcohol use (27). According to Mendel's second law 'the law of independent assortment', genetic variant transmission from parents to children occurs randomly, limiting bias from confounding variables. The subgroups of this genetic risk can be considered equivalent to that of randomized controlled trial treatment groups (RCT) (27). The following section outlines findings from studies utilising the above study designs.

There are three main theoretical models delineating the possible causes of co-occurring mental health problems and alcohol use. First, sequential causation, which suggests that alcohol increases the risk of mental health problems and vice versa (25). Both externalising and internalising problems have been found to predict alcohol use. Edwards and colleagues reported that sub-clinical depression in young people aged 12-17, was associated with both alcohol use and harmful alcohol use at the age of 18 (28). Specifically, a one standard deviation (SD) difference in baseline depressive symptoms represented 17% increased odds of harmful drinking in males and approximately 30% in females. Furthermore, a one SD difference in change in depressive symptoms over time was associated with 22% increased odds of harmful drinking in females. A longitudinal study, based on a community sample, also reported that externalising symptoms at the age of 12 predicted high levels of alcohol use at the age of 14 (β=0.19, p<0.05) (20). Varying mechanisms have been suggested for

internalising and externalising problems respectively. For internalising problems, the self-medication model proposes that young people drink alcohol to cope with their symptoms and challenging life events (117,119). Whilst behavioural disinhibition has been suggested to underly the link between externalising problems and alcohol use (29).

Alternatively, alcohol use has been shown to predict both internalising and externalising problems. Salom and colleagues reported that young people drinking at the age of 14 was associated with developing clinical levels of co-occurring alcohol and mental health problems, including anxiety, depression, eating and psychotic disorders, at age 21(19) . This may be explained by the depressogenic effect of ethanol (30) and the neuroadaptive changes linked to repeated exposure and withdrawal from ethanol (31). As for the impact of alcohol use on externalising symptoms, findings from a mendelian randomization analysis indicated that the ALDH2 polymorphism, used as a proxy measure for alcohol use, significantly lead to heightened aggression and attention problems in young people aged 14 (32). This may due to alcohol use impacting attention-related brain structures such as a smaller prefrontal cortex and total white matter volumes (33). Taken together these findings are suggestive of a second model in which the relationship is in fact bidirectional, with mental health problems and alcohol use impacting each other (26)

The third, the common factor model, suggests that risk and protective factors are not disorder specific, rather that alcohol and wider substance use and mental health problems may be a result of common underlying risk factors (34). Common underlying risk and protective factors have been identified within psychological, family, school, peer, community and cultural domains (34). Adolescence is a developmental period in which young people progressively seek autonomy and their peers become increasingly influential. However, family in its variety of forms remains one of the influential contexts in which the young person develop (35). In keeping with key literature, this research will include a broad definition of family, encompassing parents, carers, grandparents, aunts, uncles and siblings (35). The identification of common familial factors has been based mainly on studies examining family factors in relation to alcohol use and mental health problems separately

and not in relation to their co-occurrence (4, 36-38). The limited number of studies investigating familial factors specifically in relation to co-occurring alcohol use and mental health problems will now be discussed.

Salom and colleagues reported that for young people aged 10-14 years, family conflict and substance use problems were associated with 9% and 10% of the risk of co-occurring depressive symptoms and alcohol use, respectively. Further, emotional closeness to family was associated with lower odds of risk for co-occurring depressive symptoms and alcohol use in girls (23). Using cross-sectional data another study concluded that the lowest levels of family social support were reported by young people with clinical levels of co-occurring depression and alcohol use compared to young people presenting with clinical levels of either depression or alcohol use separately at the age of 17 (39). Due to these two studies using cross-sectional data one cannot infer causal relationships. As such it cannot be ruled out that the findings may be a result of co-occurring alcohol use and mental health problems leading to reduced family functioning and reduced family support.

In a longitudinal study examining familial protective factors including, bonding with family, carers rewarding good behaviour and family cohesion at the age of 14, each predicted reduced likelihood of co-occurring clinical levels of alcohol use and depression at age 21 (40). Furthermore, Monahan and colleagues (25) investigated both risk and protective factors using a longitudinal design. Risk factors included poor family management, family conflict, family history of antisocial behaviour, parental attitudes favourable toward drug use, parental attitudes favourable toward antisocial behaviour and family history of substance use. The protective factors encompassed opportunities for prosocial involvement, rewards for prosocial involvement and attachment. The risk factors measured at age 12-13 were associated with increases in concurrent depressive symptoms, antisocial behaviour and alcohol use at age 14-15. Whilst the protective factors were associated with reductions in concurrent depressive symptoms, antisocial behaviour and alcohol use (25).

Across most of these studies, varying potential confounding factors were controlled for, including; the young person's gender, age, ethnicity, socioeconomic status, school level (primary or secondary), experience of bullying, baseline mental health and alcohol use, family environment, and maternal mental health/substance use. However, many studies did not control for sibling influence, paternal factors, or genetic contribution. Studies, such as twin studies, suggest that there are shared underlying genetic factors for mental health and substance use, including alcohol. A strength of twin studies is their ability to distinguish between genetic and shared environment influences (26). A twin study found that 39% of the covariance of sub-threshold conduct and substance use (including alcohol) is attributable to genes and 43% to shared environment in young people aged 13-18 (Bennett, 2017). Similar results have been found in relation to the co-occurrence of sub-threshold depression, with modest to moderate correlations for both genetic (r_A = .26–.59) and environmental influences (r_C = .30–.63) in young people aged 12-17 (41). As such both heritability and the family environment appear to play an important role in the co-occurrence of mental health and alcohol use.

There is a need for additional research exploring the complex array of familial factors and associated mechanisms in relation to the development of co-occurring alcohol use and mental health problems in young people. Current studies apply a range of measures for different aspects of family functioning and parenting techniques. This is whilst also examining a range of study outcomes, including different combinations of substances, internalising and externalising symptoms. This hinders comparability. Findings are further complicated by not specifying whether concurrent or successive measures are used. Thus, there is a need for researchers to establish and apply specific outcome measures for co-occurrence and to be explicit whether it measures concurrent or successive co-occurrence. There is a particular need to gain a better understanding regarding the role of family members beyond mothers, such as fathers, siblings and grandparents. The further identification of both risk and protective factors specifically in relation to concurrent alcohol use and mental health problems in young people will help inform preventative interventions and specific factors they should address.

1.2.3 Interventions for co-occurring alcohol use and mental health problems

There is a dearth of psychosocial interventions that have been specifically developed for co-occurring alcohol use and mental health problems in young people (10, 42). With the likelihood of multiple pathways resulting in co-occurring alcohol use and mental health problems, it is not sufficient to simply target alcohol use with the aim of also reducing mental health problems as a secondary effect, or vice versa (43). Rather, there is a need for interventions designed specifically to address co-occurring difficulties in young people (43).

There has been a disproportionate emphasis on treatment as opposed to prevention, within both research and practice. This stems from the traditional disease model, in which treatment is provided once a diagnostic threshold is reached (34). Whereas prevention, at the core of Public Health, aims to delay the onset or initiation and reduce levels of symptoms before it reaches a diagnostic threshold (44). Prevention can be classified as universal and targeted prevention as put forward by United States Institute of Medicine (45) based on the work of Gordon (46). Universal prevention involves interventions aimed at the entire population regardless of individual risk, in this case of mental health problems or level of alcohol use. Targeted prevention is divided into two distinct types of interventions; selective and indicated (47). Selective interventions are aimed at individuals who are experiencing risk factors associated with clinical levels of mental health problems or alcohol use (e.g. children of parents with depression or substance use) (47). Indicated interventions, however, are targeted at individuals with pre-existing symptoms or pre-clinical diagnoses (47), e.g. from screening questionnaires. In addition, evidence suggests that promoting mental health, focused on increasing well-being rather than preventing a disorder, is also integral in reducing both mental health problems and alcohol use (34).

Increasingly the need for the prevention of mental health problems and substance use, (including alcohol use), alongside treatment, for young people has been emphasised by the UK government within 'Future in mind' paper (7) and more recently the Green Paper 'Transforming Children and Young People's Mental Health Provision' (48). It is recognised

that prevention can offer the greatest opportunity to minimise considerable emotional burden, health impact and financial costs to individuals, families and society associated with current clinical levels of co-occurring mental health problems and alcohol use (34). As alcohol use and mental health often first arise during adolescence, this is an important time to intervene, within primary care, local authorities and the third sector (49), with the potential to impact the entire lifespan (34).

Targeted interventions enable intervening with those with greatest need. This requires screening in order to identify those at risk or presenting with symptoms (50). Despite the cost of screening these are considered to be more cost-effective and efficient than universal interventions, as they are aimed at a smaller number of individuals (50, 51). It also results in a more suitable intervention for the individual, which may increase their motivation to engage (52). For 10 to 20 year olds, from the onset of mental health symptoms and alcohol use, there is the opportunity of two to four years to target these symptoms before they reach a diagnosable threshold (34). Together this is suggestive of the need for targeted interventions.

1.2.4 Family interventions

Family interventions have the potential to address co-occurring problems as they target shared underlying risk and protective factors for alcohol use and mental health problems, in line with the common factor model (53). For many family interventions the primary mechanism of change is often indirect. Here emotions, cognitions and behaviours within the family are targeted to improve family functioning. The improved family functioning is in turn theorised to reduce the risk of a range of outcomes including alcohol use and mental health problems (54). Family interventions have been found to be effective in reducing both subthreshold and clinical levels of mental health problems and substance use (including alcohol use) separately (55-58).

There are also interventions that may not employ family functioning as the mechanism of change however include family-involvement. The National Institute of Health and Care

Excellence (NICE), recommends family-involvement in interventions for young people ranging from 10-19 to promote emotional wellbeing (59); and to prevent clinical levels of alcohol use (60) and substance use (61). Consequently, a broad definition of family interventions is employed for the purpose of this thesis: any interventions including family members in addition to young people.

Most family interventions (with the exception of a minority of family treatment) are not specifically developed or evaluated for young people with co-occurring alcohol use and mental health problems (10). Nor are they based on the literature identifying familial factors specifically associated with co-occurring alcohol use and mental health problems. Finally, they often do not address the interconnections between mental health problems and alcohol use (62). Thus, the outlined evidence suggests the need for preventative family interventions specifically developed to prevent/reduce co-occurring alcohol use and mental health problems.

1.2.5 Intervention development

The Medical Research Council (MRC) of the United Kingdom provide guidelines for the development and evaluation of complex interventions (63). The features characterising a complex intervention include, multiple interacting components, multiple and variability of outcomes, the number of groups and organisational levels targeted by the intervention and the level of problem behaviour of those delivering or receiving intervention (63).

The complex intervention development phase consists of three main steps. First, the identification and evaluation of the current evidence base. The second step includes identifying theory explaining the rationale for the complex intervention, the anticipated changes and how this is achieved (63). This can involve carrying out primary research to inform and develop theory (63). The final stage of intervention development consists of modelling process and outcomes (63). Please note that the previous guidance is referred to here as this was in place whilst carrying out this research. More recently this guidance has been updated (64).

1.2.6 Justification for this research

Despite high prevalence rates of co-occurring alcohol use and mental health problems in young people, associated adverse outcomes and the key influence of family life, there is a lack of family interventions developed and evaluated specifically for young people with co-occurring alcohol use and mental health problems.

This thesis addresses the gap by developing the theoretical basis for a targeted family intervention for co-occurring alcohol use and common mental health problems in young people aged 12-17. Alcohol use was specifically targeted as it is the most widely used psychoactive drug. Twelve years was selected as the lower age cut off as it is the common age of onset for alcohol use and mental health problems. Seventeen was selected as the upper age limit as alcohol purchase consumption in the UK and other European counties are regulated by legislated age-related restrictions until the age of 18 (65).

Exploratory work is necessary to facilitate and inform the development of a complex targeted intervention as suggested by the Medical Research Council (63). This was carried out by systematically reviewing the effectiveness of existing family interventions. Further, insights from young people and caregivers with children experiencing these difficulties were explored in interviews and co-design workshops. This thesis presents and integrates these findings in order to develop the theoretical basis for a prototype intervention, which can be evaluated at scale to inform policy and practice.

1.3 Aims and Objectives

The aim of this research is to conduct exploratory work to help inform the co-design of the theoretical basis for a prototype family-involved preventative intervention, alongside young people and caregivers, with the aim of reducing co-occurring alcohol use and mental health problems in young people aged 12-17.

This aim encompassed three key research objectives:

- To systematically assess the effectiveness of family interventions in preventing and reducing co-occurring alcohol use and mental health problems for young people.

- To explore the views, needs, perceived risk, protective factors, existing management strategies and support of young people experiencing co-occurring alcohol use and mental health problems from their own and caregiver's perspectives.

- To conduct co-design workshops with young people, caregivers and professionals, to discuss potential intervention components derived from the systematic review and qualitative interviews. Resulting in the development of a logic model for the targeted family-involved intervention to reduce co-occurring alcohol use and mental health problems in young people aged 12-17.

1.4 Overview of thesis

This chapter outlined the background and justification for this research.

This thesis consists of a total of nine chapters. The content of each additional chapter is presented below:

Chapter 2: details the philosophical orientation for this research and justifies the theory applied to aid intervention development.

Chapter 3: discusses the methodological approach to the systematic review and meta-analysis along with the specific methods used.

Chapter 4: outlines the results from the systematic review and meta-analyses.

Chapter 5: specifies the methodological approach applied to the qualitative interviews alongside the specific methods applied.

Chapter 6: outlines the results from the qualitative interviews.

Chapter 7: details the methodology and methods used for integrating the mixed-method findings which formed the basis of the co-design workshops. It further outlines the methods used to develop the resulting intervention strategies and associated program theory.

Chapter 8: delineates the co-design workshop findings and resulting outputs; core intervention strategies and associated program theory. This is depicted in a logic model.

Chapter 9: discusses the explorative work, co-design workshops and resulting logic model. This will include a critique of the literature included in the systematic review along with a broader discussion of the strengths and limitations of the research as a whole. Finally, recommendations for policy, practice and future research will be provided.

Chapter 2. Philosophical and Theoretical Orientation

2.1 Chapter introduction

This chapter explores the philosophical orientation underpinning this research. This is followed by the rationale regarding the selected theoretical framework to inform the qualitative interviews and the theoretical basis for the prototype intervention. Finally, a reflexive account will be provided to discuss any potential influence my position may have had on the data and findings within this research.

2.2 Philosophical Orientation

All researchers hold a philosophical position underpinned by assumptions regarding Ontology; that is what constitutes reality, and Epistemology; how we come to understand this reality (66). Philosophical paradigms fall on a continuum, which range from positivist, underpinning quantitative work, to constructionist paradigms, the basis for qualitative work (67). The former places emphasis on empirically investigating and identifying objective facts whilst putting presumptions to one side (67). Whereas the latter stresses the importance of the social construction of the world and reality (67). Pragmatism has emerged as an additional position in which paradigms can be switched, employing qualitative and quantitative methods in order to address complex research questions. However, methodological purists would argue that issues arise when combining dissonant data originating from methods with underpinning conflicting epistemological stances (67). Critical Realism emerged through the work of Bhaskar(68), to consider and specifically address this issue (Fletcher, 2017). The reasons for selecting critical realism will now be outlined.

A key cornerstone of critical realism is that one cannot reduce reality (Ontology) to what we know about reality (Epistemology)(69). This provides clear ontological distinction from both positivist and interpretivist paradigms. Both positivism and constructivism have been critiqued for endorsing this, known as the 'Epistemic Fallacy'. Positivism; limiting reality to what can be 'empirically observable and known' and constructivism; limiting reality to what

is ‘constructed through and within human knowledge and discourse’ (69). Critical Realism prioritises ontology over epistemology, suggesting that there is one objective reality independent of individual perception (ontological realism) and that individuals develop different interpretations of that reality (epistemological constructivism) (66, 67, 70). Thus, multiple methodologies can be applied in order to study this one reality which can lead to a more complete understanding (71). This is in line with the mixed-method approach of this doctoral thesis, utilising both quantitative (systematic review and meta-analysis) and qualitative (interviews) methods. This can be understood as the adoption of multiple approaches or design methods, data collection or data analysis within one study in which the findings are integrated throughout (72).

According to critical realists, reality consists of three ontological levels; the empirical (experiences), the actual (events) and the real (causal mechanisms) (69). The empirical level constitutes events as we see, feel or experience them. The actual is what actually happens irrespective of human experience. The real comprises of the identification of underlying causal mechanisms (69). Critical realists are especially concerned with these underlying causal mechanisms and how they influence the other levels as this enables the ability to move beyond simply documenting to accounting for human behaviour (69, 73). This reflects the main focus of this research, which is to understand key factors and underlying mechanisms linked to co-occurring alcohol use and mental health problems and ways in which to intervene. In relation to this study, the “empirical” reflects the rich accounts of young people and parents/carers regarding the risk and protective factors, along with the areas of need associated with young people’s mental health and alcohol use. The “actual” is the young people’s co-occurring alcohol use and mental health problems. The “real” consists of causal mechanisms linked with co-occurring alcohol use and mental health problems including intrapersonal biology, family, peers, school etc. Another key tenet of critical realism is that the physical and social context in which a mechanism takes place impacts the effects of causal mechanisms (74, 75). Therefore, causal mechanisms may not always have an observable impact on the world (69, 76). Rather, critical realism highlights tendencies known as demi-regularities, as opposed to laws, in relation to events (77, 78).

Critical realism deems the world to be theory-laden. Theory is considered an important tool to develop the understanding of the underlying causal mechanisms of human behaviour along with informing ways in which to intervene (69). Here multiple theories should be drawn upon if this brings one closer to reality; the 'actual' (79). The systematic review and preliminary qualitative analysis guided my selection of potential theories to help facilitate my understanding. The possible theories were considered for the suitability of aiding the interpretation of my fieldwork data along with informing the theoretical basis for the protype intervention, in accordance with the MRC framework (63). The selected theories will now be outlined.

2.3 Theoretical Stance

Ecological systems theory

Bronfenbrenner (80) developed the ecological systems theory highlighting the importance of the multiple layers of the environment in which an individual is situated within and interacts with (Please see Figure 2.1). According to this theory there are five layers to the environment. First, the 'micro system' consists of the most proximal environment in which the individual directly interacts. In relation to this thesis, micro systems for young people consist of for example families, schools and peer networks which can directly affect the young person's co-occurring mental health and alcohol use. Second, the interactions between these 'micro-systems' are conceptualised as 'meso-systems'. These interactions can for example take place between the young person's peers and family or family and school. Third, meso-systems are situated within 'exo-systems' which consist of societal structures in which the young person is embedded, including the education system and health systems. Here the events which occur within these exo-systems impact the young person's environment. Fourth, the 'macro system' encompasses social and cultural norms. The final concept 'chrono-system' incorporates changes over time regarding the young person's interactions with, and responses to, the multiple systems as they develop through childhood to adolescence (80, 81).

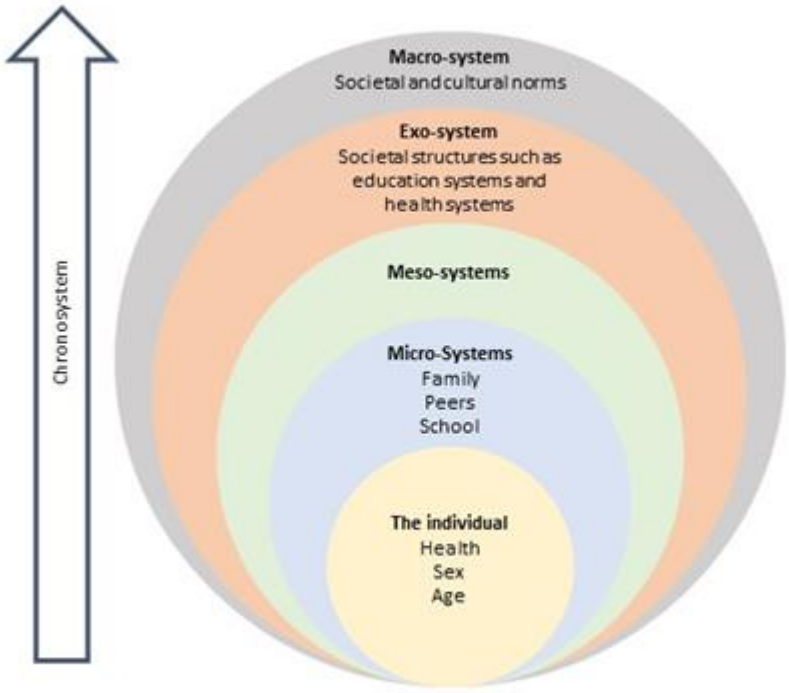

Figure 2.1 Model of ecological systems theory

Thus ecological systems theory highlights a developmental viewpoint, specifies relevant social systems, a multifaceted perspective on these, and establishes how they interact with each other and the developing young person (82). In other words, it is these complex relations within and between the multiple systems which shape the young person's co-occurring mental health problems and alcohol use. As outlined by Bronfenbrenner *'in ecological research, the principle main effects are likely to be interactions'* (Bronfenbrenner, 1977, p.518). This contrasts with family systems theory which stipulates that an individual's co-occurring alcohol use and mental health problems are primarily a result of family system dynamics (83).

The concepts outlined above capture the first two phases of Bronfenbrenner's theory. The second phase (1980-1993) included more of a focus on the individual biological and psychological characteristics along with the introduction of chrono systems. This has been identified as the most appropriate version to inform interventions within the field of public mental health research, as it focuses on both the individual and their surrounding systems along with all interactions (84). This was the version applied within this doctoral work. Whereas the final phase (1993-2006) introduced the concept of process-person-context-time model (PPCT) in which the focus shifted over time from environmental influences to developmental processes (85, 86). The application of the PPCT model, with a heavy focus on the individual, can lead to an emphasis on changing individual behaviour rather than focusing on the social context (84).

Ecological systems theory has been used to explore risk and protective factors for both alcohol use and mental health in young people separately (82, 87). However Eriksson and colleagues have critiqued that most studies applying this theory do not explore the interactions between the systems (84). Rather they often list a range of individual and contextual factors which contribute to mental health outcomes (84, 85). This can result in very broad and unspecific findings which hinder recommendations for policy and practice (84). As such within this doctoral study I paid specific attention to the interactions amongst the social systems.

The majority of theories within epidemiology and public health have a biomedical or lifestyle focus, in which individual level factors are predominantly considered in relation to health, including mental health (88). The ecological systems theory enables the focus of both the individual, family and other social systems in a very broad sense. Subsequently this facilitates it's applicability to a range of health behaviours within public health (89). Consequently, it was used as the overarching theoretical framework. However, it does not identify the specific factors within each system or the mechanisms through which these operate (82, 90). This led to the exploration of additional theories.

Multistage social learning model

Simons and colleagues (91) multistage social learning model outlines the aetiology of substance use (92). This model was selected as it is comprehensive, integrating family factors with individual and peer factors within one model (93, 94). It accounts for interactions amongst the different factors (92)-(Please see **Error! Reference source not found.**). Multistage social learning model can be thought of as a map to facilitate the navigation of the multiple interacting systems within ecological systems theory.

First the model outlines a range of key interacting parenting factors. These include the quality of the parent-child relationship and parental techniques, parental substance use, parental coping skills and parental values (present or long-term oriented goals). These factors can interact with each other. Parenting factors are thought to be influenced by environmental stress and grandparents' parenting techniques. Further, parenting factors can in turn impact the young person's psychosocial outcomes including the young person's self-esteem, social and coping skills, value system and the use of alcohol at an earlier age (91, 92).

In turn these psychosocial factors can impact emotional distress, choice of peers and school performance. As such the multistage social learning model also accounts for risk factors associated with mental health problems (95). Parental rejection, young people's deficient coping skills, young people's low self-esteem, and lack of long-term values are all linked to the child developing mental health problems including tension, anxiety and depression. Although the emphasis on factors and associated mechanisms involved are less developed than for substance use within this model. Four factors impact a young person's choice of peer group; the young person's social skills, parenting techniques, age of initiation and young people's values. Similarly, school performance is predicted by four factors, the value system, parenting techniques, type of peer group and self-esteem.

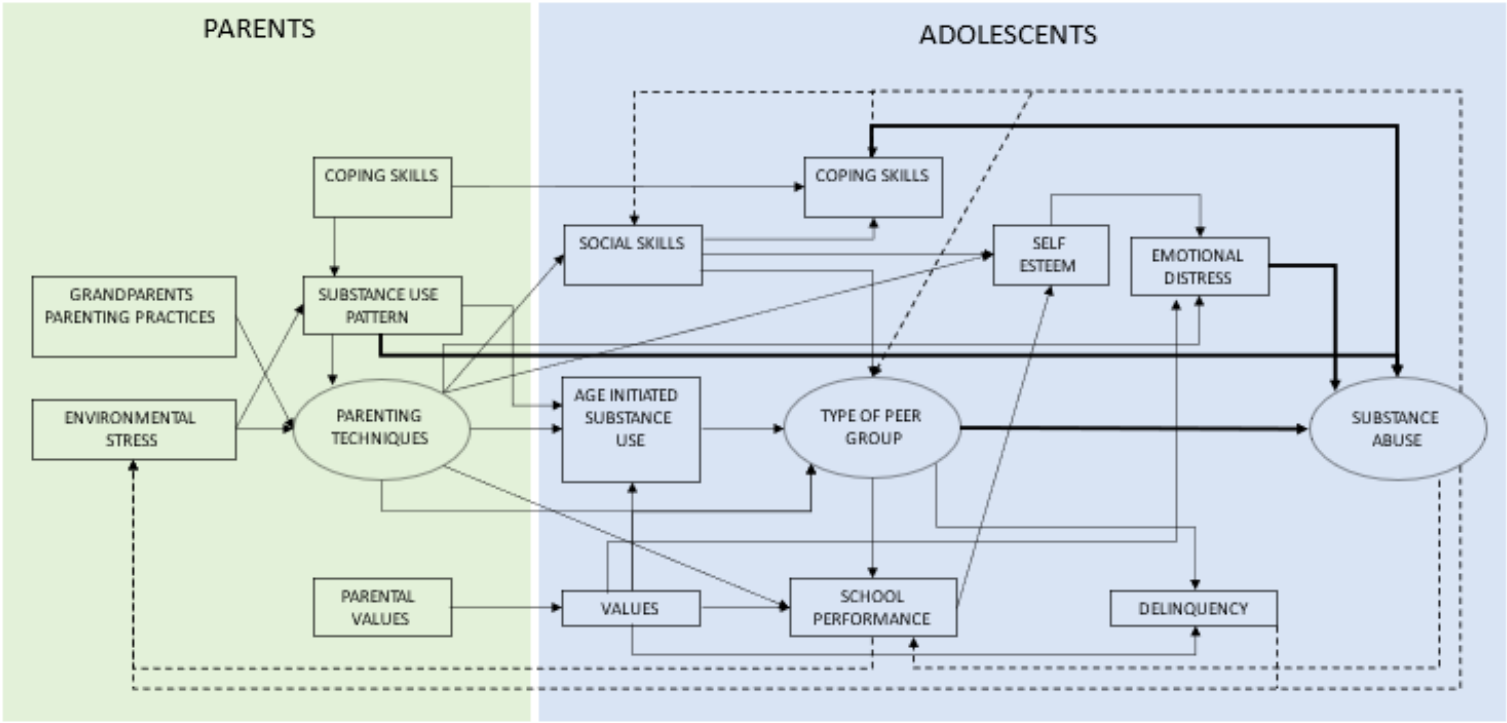

Figure 2.2 Multistage social learning model from Simons et al., 1988

According to this theory there are four factors which are directly associated with increased levels of substance use. These include patterns of coping skills, mental health problems, parental substance use and type of peer group. Thus, the link between mental health and substance use is explored within this model (96). With regards to mental health problems, young people may learn expectancies and experiences from substance use which may be seen to aid their social skills. Substance use may also be negatively reinforced through the perceived reduction in mental health problems resulting in self-medication. Additionally, substance use as a coping mechanism will have an increased reinforcing value for those without other adaptive coping mechanisms. If parents demonstrate substance use as a coping mechanism, then young people are more likely to follow suit. This, along with substance use by peers, can teach young people about psychological and behavioural impacts of use. The model also highlights how heavy substance use is considered to exacerbate stress and inhibit young people from learning to employ more adaptive coping mechanisms and social skills, increasing the likelihood of deviant peer involvement and exacerbating family stress and conflict. School performance can be negatively impacted which in turn effects the young person's self-esteem and further contributes to family stress.

The multistage social learning model has mainly been used to help identify factors linked to the initiation/escalation of substance use in preadolescent children to explore and test within longitudinal studies (92, 93, 96). This has helped identify key areas to target within interventions (96). Although the primary focus is on substance use, it provides a comprehensive model also incorporating emotional difficulties as an outcome along with possible associated factors. This together with its dual focus on individual level and social level factors contributes to its suitability in aiding further insight into the aetiology of co-occurring alcohol use and mental health problems.

Cognitive behavioural model

This model complements the other two theories in that it offers insight into the underlying intrapersonal processes sustaining co-occurring mental health problems and alcohol use. The principles of which will now be discussed.

There are two key tenets underpinning the cognitive behavioural model. First that emotions and behaviours of a young person are considered to be triggered by their thoughts, beliefs and interpretations about themselves or events (97, 98). Second, behavioural psychology (99) has further informed an additional key principle; that behaviour impacts thoughts and emotions. Behaviour can both maintain and change thoughts and emotions, thus changing a young person's behaviour can impact their thoughts and emotions.

Thoughts, emotions, behaviour and physiology of a young person are theorised to interact with each other and with the environment in which the young person is situated (100)- (Please see **Error! Reference source not found.**). In line with ecological systems theory, the environment is understood in its broadest sense and not just including the physical environment. It considers the family, social, cultural and economic environment, consequently encompassing both micro systems and exo-systems. This is however limited to how, at times, the environment can interact with the young people's thoughts and assumptions to then lead to problem behaviour and emotions. As such, little weight is placed on the direct effect of life events and the social systems in which a young person is embedded in. This can place emphasis and responsibility of change on the individual.

The cognitive behavioural model also outlines the importance of problem solving as a coping mechanism. Here young people can develop skills to manage stressors (101). Problems are identified and understood based on young people's thoughts, emotions, behaviour and physiology. This is followed by listing as many solutions as possible and identifying the most suitable one (102).

Finally, mental health problems are not considered to be qualitatively different from normal states and processes and are considered to fall on a continuum (100). Thus, it is

congruent with the focus on targeted interventions, involving young people with sub-threshold levels, within this doctoral thesis.

Aspects of the cognitive behavioural model were drawn upon, with the above limitations taken into consideration. In line with socioecological theory, the cognitive behavioural model provides insight into the interacting thoughts, emotions, behaviour and physiology at an individual level. This helps provide an understanding of how to build problem solving and coping skills for young people. This is a protective factor which emerged as important within the qualitative interviews, also emphasised within the multistage social learning model. It is important to note however that these intrapersonal interactions are then fully understood and embedded with the other ecological systems to form a much broader theoretical understanding within this doctoral thesis.

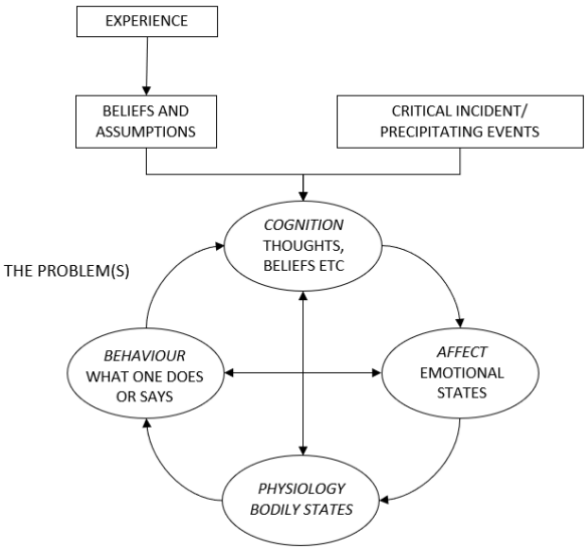

Figure 2.3 Model of cognitive behavioural principles from Kennerley & Kirk, 2016

Consequently, ecological systems theory, multistage social learning model, and the cognitive behavioural model together provide insight into individual and system level factors and how they interact to contribute to a young person's co-occurring mental health problems and

alcohol use. The emerging findings from the qualitative interviews helped select the key social systems (from the ecological systems theory) and key factors (from the multistage social learning model) to target within the intervention. The qualitative interviews also raised important factors to target which were not covered by the included theoretical models.

2.4 My reflexive account

In keeping with the critical realist stance in this research a reflexive account was conducted throughout the research process to illuminate the potential influence my position may have had on the data and findings (103, 104).

I previously worked within inpatient mental health hospitals and my earlier research lies within the field of clinical psychology. Initially, I automatically transferred this treatment lens to my PhD research. My automatic focus and thinking were around how to treat clinical levels of mental health and alcohol use. However, through extensive engagement with the Public Mental Health literature and through conversations with members of my team I was able to shift to a preventative focus. This shift occurred before I started interviewing and conducting the co-design workshops with young people and caregivers. This was important as it meant that I was sensitive to all varying levels of symptoms and difficulties within the participants narratives. Due to my positivist quantitative background, I originally wanted to screen the participants for sub-threshold internalising and externalising symptoms and alcohol use. I felt that this would make my analysis increasingly robust. However, through becoming more familiar and knowledgeable with qualitative methodology, I understood that this approach could have the opposite effect. Imposing such criteria could reduce the emergence of contrasting narratives and the richness of data and place further restrictions on an already hard to reach population group. It may also have resulted in young people, who they themselves felt that they experienced these difficulties, not getting the opportunity to take part.

Upon embarking the interviews, I believed that both risk and protective factors could be present within a family. This view had been shaped by my own and others experiences

alongside the breadth of literature I had engaged with. What quickly emerged from the interviews was the complexity of family life and how family members tried to navigate this as best as they could. Further, not having children myself placed me as an 'outsider' whilst interviewing parents and carers. Taken together this contributed to my non-judgemental and understanding stance. A stance that I brought into the co-design workshops. I felt that I could not begin to understand the pressures and difficulties faced whilst supporting and raising a child (104). Judgement and stigma were voiced as difficulties faced by those carers interviewed. As with young people, my age and student status appeared to put carers at ease both within the interviews and co-design workshops, as it differentiated me from professionals. I paid careful attention to the differences that emerged amongst young people and carers narratives within the interviews. I also considered differences amongst young people, carers and professionals within the workshops. This was to not favour one account over the other. Rather carefully comparing and contrasting accounts, engaging in the wider literature and discussions in 1:1 analysis sessions with one of my supervisors, facilitated a more in-depth understanding of emerging themes.

Whilst conducting the interviews and the co-design workshops I was in my late 20s and I could relate to the pressures of childhood and adolescence. It was however important that I did not make any assumptions of what adolescence was like for the young people I interviewed, and how this could impact their alcohol use and mental health problems. I did not want to impose any assumptions through the questions I asked, through my analysis of the resulting data or the choice of factors to target within the intervention. Thus, I acknowledged throughout that the pressures and how young people experience these are unique to each child. I also recognised that young people now have additional pressures such as social media and educational demands which I cannot easily relate to. During the interviews and co-design workshops my age proved to be a key advantage as young people were able to relate to me as someone who was 'young' which they associated with being 'non-judgemental' and 'understanding'.

Prior to my research, I have always been passionate about working with people across all ages to help manage and improve their mental health. Although my role as a researcher

was not to provide ongoing support, some young people and caregivers took interviews as an opportunity to offload and at times speak to their own agenda. This could lead to emotionally charged interviews, and me wanting to be able to provide help. One interview in particular triggered the realisation that this tension was often present for me. This initially made it difficult for me to lead the direction of discussion as I did not want to come across as insensitive about what the participant chose to share with me. This resulted in at times lengthy but nonetheless rich data. Following conversations with my supervisory team I was careful to adapt the approach I took in the following interviews. I prefaced and reinforced at the start each interview that I was not a mental health practitioner but that I could signpost them to appropriate support and services. This facilitated my ability to be comfortable and confident in maintaining the direction of the interview whilst still being sensitive and supportive at the correct level for a researcher.

2.5 Chapter Summary

This chapter outlined the application of critical realism as a philosophical stance within research. This is followed by the justification of three theories to frame this doctoral thesis: ecological systems theory, multistage social learning theory and cognitive behavioural theory. These theories were selected to help inform the qualitative interviews along with the development of the theoretical basis for prototype intervention. In line with a critical realist stance, I then provide a reflexive account to raise the potential influence my position may have had on the data and findings. The following chapter will discuss the methodology and methods of the systematic review and meta-analysis.

Chapter 3. Methodology and Methods: A systematic review of the effectiveness of family interventions targeting alcohol use and mental health problems in young people

3.1 Chapter Introduction

In the following two chapters, I will present the methods and findings of the systematic review undertaken to assess the effectiveness of existing family interventions targeting co-occurring mental health problems and alcohol use in young people. This chapter outlines the methodology and methods applied within this systematic review. The aims and objectives of the review are presented, followed by a discussion of the methodological considerations underlying a quantitative systematic review. Finally, the methods employed will be detailed.

3.2 Aims and Objectives

The aim of the systematic review was to assess the effectiveness of family interventions in reducing co-occurring alcohol use and mental health problems in young people aged 12-17 across all levels of prevention and treatment.

There were three main objectives:

- To conduct a systematic review that summarises current published evidence on the effectiveness of family interventions in preventing/reducing alcohol use and mental health problems in young people aged 12-17 across all levels of prevention and treatment.
- To conduct a meta-analysis evaluating the effectiveness of family-involved interventions in reducing alcohol use and mental health problems in young people aged 12-17 across all levels of prevention and treatment.
- To identify the theoretical underpinnings and intervention techniques using behavioural change taxonomy dependent on authors providing sufficient information.

3.3 Methodology

3.3.1 Rationale for conducting a systematic review

The first step within the MRC intervention development guidance involves the identification and evaluation of the current evidence base. This involves building an understanding of existing similar interventions and the evaluation methods that have been applied. If a high quality systematic review is not available then one should be conducted in order to evaluate the existing evidence (63).

A systematic review was selected as the review method. This involves pre-defined, transparent and reproducible steps identifying, critically appraising and synthesising relevant evidence in relation to a specific research question (105, 106). These pre-specified steps and methods are often initially outlined in a protocol ahead of commencing the review (107). The explicitly transparent approach can reduce bias which can arise in traditional reviews, due to the informal and subjective methods applied to the collection, analysis and interpretation of studies, potentially influenced by authors preconceived views (108). Furthermore, it provides an efficient way of distilling a vast amount of data facilitating robust conclusions (109). The robust evidence emanating from well conducted systematic reviews informs decisions regarding intervention development, policy changes and future research required (63, 109-112).

3.3.2 Approach in identifying studies

The Population, Intervention, Comparator, Outcome, Study Design (PICOS) tool was selected to aid the development of a well-defined research question, comprehensive search strategy, and inclusion and exclusion, as recommended by the Cochrane collaboration (113). Search strategies should be designed to reach a balance between sensitivity (striving for comprehensiveness) and specificity (concerned with relevance) (114). Multiple databases were searched to ensure that the maximum number of articles were identified whilst reducing selection and publication bias (108). Single electronic searches can lead to reduced sensitivity resulting in a potentially unrepresentative set of articles (115). Mental health and alcohol use of young people intersect a range of disciplines such as medicine, social

sciences, and nursing; databases were therefore chosen to encompass all of these disciplines. Database searches were supplemented with grey literature searches as recommended by the Centre for Reviews and Dissemination (107). The study eligibility criteria were used throughout to support screen/sifting activity to reject non-relevant work and include only trials meeting inclusion criteria (see below). This was to provide an explicit method to aid in the minimisation of bias and errors (107).

3.3.3 Rationale for risk of bias appraisal and data extraction

The Cochrane Collaboration's risk of bias tool was employed as the method for assessing bias within selected studies. This assesses the internal validity of included papers, which is an integral part of conducting a systematic review (116). This process ensures that potential bias introduced by limitations in design or conduct of a study which can impact effects, are considered (107). Furthermore, it provides insight into the strength of evidence encompassed in the review and therefore whether the individual studies are considered sufficiently robust to inform prevention and policy decisions (107). Thus, trials were not excluded based on the risk of bias appraisal; rather it informed critical evaluations of the conclusions of included trials. Two researchers appraised the risk of bias of the trials specifically assessing selection, performance, detection, attrition and reporting bias (117). Frequently data extraction is carried out in conjunction with the risk of bias evaluation. This involves identifying and collecting relevant and comparable characteristics from the included studies. This is facilitated by the use of a data extraction form which enables consistency thereby reducing bias and increasing validity and reliability (107). The data extraction form requires development, piloting and refinement in relation to the research questions.

3.3.4 Selected approach to analysis

The quantitative method, meta-analysis, was used to pool results, statistically, from multiple studies addressing the same research question (107). The synthesis of data, the collation, combination and summary of findings, is central to all systematic reviews (107). Through integrating individual study samples statistically the overall sample size is increased, random

error is reduced and confidence intervals are narrowed, which in turn improves the statistical power of the analysis and the reliability and precision of the estimates of treatment effects (107, 108).

Random error is a form of heterogeneity. It represents the variance which arises by chance in the observed estimates of effect amongst included studies. Other forms of variance beyond this are known as statistical heterogeneity. The level of statistical heterogeneity was explored across all included studies. This encompasses methodological and clinical differences between studies. Clinical heterogeneity includes differences in population and interventions. Methodological heterogeneity includes follow up time points and outcomes (107). The examination of statistical heterogeneity across studies helped inform whether studies were suitable for being statistically pooled (118). Studies can be split according to specific study level characteristics to facilitate less heterogenous groups which can then be meta-analysed (107).

The standardised mean difference (SMD) was chosen as the summary statistic for all outcomes and calculated for each study, highlighting the intervention effect with 95% confidence intervals (108). The mean difference is the most suitable summary statistic for continuous data. In order to enable different outcome measures to be combined the study results required standardisation, resulting in standardised mean difference. Therefore, the use of SMD maximised the number of trials that could be pooled. Hedges' (adjusted) *g* method was used for recording the standardised mean difference method (118), as this is recommended by the Cochrane Collaboration.

Individual studies are 'weighted in inverse proportion to their variance' (standard error squared) (107). This is closely related to sample size. Thus studies with larger sample sizes gain greater weight leading to increased impact on the overall estimate (107). A random-effects meta-analysis was employed as the statistical model due to perceived high levels of heterogeneity between studies and to enable the ability to generalise findings beyond the analytic sample (107). This model accounts for between study variability amongst study

results whilst a fixed effect model only accounts for variability within and not between studies. The pooling of individual summary statistic results in an overall summary statistic.

Sensitivity analyses were conducted to investigate the robustness of the main meta-analyses results. This involved re-running the primary meta-analysis whilst substituting for example alternative decisions that were unclear. This is to ensure that the findings from the systematic review and meta-analysis are not simply a result of these decisions. Some sensitivity analyses can be pre-specified. However, frequently the issues requiring sensitivity analysis emerge during the review process as exemplified in this review (118). Subgroup analysis were also conducted; dividing the data into subgroups to help answer questions regarding particular population groups or intervention strategies. These should be pre-specified and aid insight into factors contributing to intervention effectiveness (107). This is dependent on a sufficient number of studies.

If studies were unsuitable for meta-analysis, these were to be synthesised narratively. This involves moving beyond simply summarising to synthesising and generating new insights, knowledge or recommendations in a systematic and transparent manner (119). It is a recommended alternative mode of synthesis if studies are not deemed suitable for data pooling (meta-analysis), as this method accounts for heterogeneity (107, 120). However, a systematic review need not be limited to either a meta-analysis or narrative synthesis (107).

3.3.5 Rationale for publication bias assessment

Publication bias arises when the likelihood of publishing and citing papers are dependent on statistically significant findings (108). Thus, trials with null findings remain unpublished which can result in a possible overestimation of intervention effects (121).

In an attempt to minimise the effects of publication bias supplementary searches of grey literature, including reports, websites or theses (121) were carried out. Furthermore, all relevant studies were included irrespective of their findings, publication status or publication type.

Thorough searches including grey literature does not, however, eliminate the possibility of publication bias. Therefore where possible, potential publication bias was assessed (107). This can initially be done through the visual examination of funnel plots. The shape of the plot will resemble an inverted funnel if there is no difference in results between small and large studies. Whereas if a plot is skewed and contains gaps this is an indication that smaller unfavourable studies are missing and is suggestive of publication bias (121). However, the shape of the scatter plot can be a result of factors other than publication bias such as other methodological bias or actual clinical differences. Some effect estimates such as the standardised mean difference, as used in this systematic review, are naturally correlated with their standard errors which can produce spurious asymmetry in a funnel plot (116). Thus, the inspection of funnel plots can be subjective and therefore is not deemed sufficient for assessing publication bias alone (122). It should be combined with a statistical test for forest plot asymmetry. This is only recommended if there are more than 10 studies included in the meta-analysis (123) . Otherwise, the power of the test is too low to differentiate chance from true asymmetry. I selected Eggers test which is recommended for continuous data (123). I did not apply this test if there were less than 10 studies of if studies included in the meta-analysis were of similar sizes (116).

3.4 Methods

3.4.1 Review question

A preliminary scope of the literature suggested a paucity of trials examining effects of family-involved interventions on co-occurring alcohol use and mental health problems. This informed the review in two main aspects. First, the review question and search were designed to primarily encompass family-involved interventions targeting co-occurring alcohol use and mental health problems across all levels of prevention and treatment. Second, if the former resulted in an insufficient evidence base, the search was also designed to capture interventions targeting alcohol use and mental health problems separately. The search resulted in a sufficient evidence base for the primary literature for the systematic review and enabled retaining the original review question. A protocol was developed and registered on Prospero- *CRD42016039147* (see Appendix A)**.**

3.4.2 Eligibility Criteria

Studies were deemed eligible for inclusion if they:

1) Targeted young people aged 12-17. Trials that had a broader age range were included if the mean age of participants fell between 12-17 years. A broad definition of family was employed, to include parents, carers, grandparents, aunts, uncles and siblings.

2) Reported on a family-involved intervention in which a young person and a parent/caregiver needed to be included, either separately or together, in at least one session. All levels of prevention and treatment were included to ensure a more thorough evaluation and to enable comparisons between these three levels of family-involved interventions. These levels include: 'universal prevention' targets the entire population irrespective of risk, 'targeted prevention' consists of 'selective' interventions; targeting individuals at risk and 'indicated' interventions; individuals with pre-existing symptoms or pre-clinical diagnoses with the aim of reducing use and mental health problems before it reaches a diagnostic threshold (47) and 'treatment' is aimed at individuals with a diagnosis addressing dependent patterns of use (34). Levels of prevention can be considered to be on a continuum, with the levels merging into one another rather than occurring as distinct alternatives (124).

3) Reported on **both** the primary outcomes: alcohol consumption (including frequency of drinking, binge drinking defined as drinking five or more drinks on any one occasion, regular or problem drinking) and common adolescent mental health problems (Internalising; anxiety, depression and associated symptoms, and externalising: conduct problems; ADHD symptoms). Due to a limited number of studies, composite substance use outcomes were included providing they contained a measure of alcohol use. Here, where substance use was reported, > 50% of young people had to engage in alcohol use/ misuse. Secondary outcomes included other substances and family functioning.

4) Had a robust evaluation design, specifically randomised controlled trials (RCTs), controlled trials, randomised trials (RTs) and quasi-experimental trials. Trials that included active controls (such as a different variant of the same intervention or a different kind of therapy) were defined as RTs and those employing inactive controls (such as no treatment, waitlist control and standard care) were defined as RCTs in this review (125) .

Trials were excluded if:

The trial was limited to young people with specific medical needs e.g. autistic spectrum disorder, learning difficulties or cancer; or with unique environmental circumstances including refugee, war-torn/disaster zone, military families, homeless; or who have experienced trauma such as sexual assault, domestic violence and abuse.

3.4.3 Search Strategy

Advice was sought from an information specialist within the Institute of Population Health Sciences to inform the development of an appropriate search strategy and identification of optimal data bases. The following databases were searched from inception to January 2019 without language, year or publication status restrictions: MEDLINE (OVID), PsycINFO (OVID), Web of Science (EBSCO), The Cochrane Central Register of Controlled Trials (OVID), CINAHL (EBSCO), ASSIA (Proquest) and Embase (OVID). The search strategy included a combination of medical subject headings/thesaurus headings, appropriate key words and free text terms applying Boolean, proximity and truncation operators. These search terms covered the key concepts 'young people', 'drinking', 'mental health', 'family', 'interventions' and 'trials'. Where available (CINAHL, PsychInfo and Medline) validated search filters with the highest level of sensitivity and specificity, were applied to filter for trials. The search strategy was developed initially within Medline and refined based on the initial search results retrieved and subsequently adapted to the remaining databases. For those databases without validated trial filters a comprehensive set of search terms were devised based on the existing validated trial filters and discussions with both information

specialists and the supervisory team. The original search was carried out in May 2016, it was updated January 2019. Due to changes within Psychinfo the original search strategy could not be applied. Amendments were discussed with a specialist librarian from the medical school to ensure that the revised search strategy remained sensitive, precise and in line with the original search strategy. After January 2019 the theoretical basis for the prototype intervention was developed, thus the search was not updated beyond this point. Once papers for inclusion had been identified, journals in which papers were frequently published were selected for hand searching. This was to aid the identification of any relevant studies that may not have been captured in bibliographic databases. These included the Journal of Adolescent Health, Journal of Youth and Adolescence and Journal of Child and Family Studies, Journal of Primary Prevention and the Journal of Child and Adolescent Substance Abuse. Grey literature was also searched including the following websites; Joseph Rowntree Foundation, Young Minds, Alcohol Concerns, NSPCC, NICE, Department of Health and google scholar. Both grey literature and journal searches were conducted using combinations of the key words developed in the search strategy. Citations and references of included trials were also screened. The full database specific search strategy is available in Appendix B.

3.4.4 Study Selection, Risk of Bias Assessment and Extraction

All identified papers were retrieved, exported to and de-duplicated within a reference management software program (Endnote x7). Two independent reviewers screened all titles and abstracts followed by full text review of eligible trials against the pre-specified inclusion/exclusion criteria. One of my three supervisors (EK/RL/RM) or team member (EL) aided me in this process. If an abstract was not accessible whilst screening titles and abstracts, then the full study was always examined prior to any decision regarding exclusion. Two researchers also appraised the risk of bias of the trials using the Cochrane Collaboration's risk of bias tool. (117). A Third researcher resolved disagreements arising at any stage. A data extraction form was developed (see Appendix C), informed by data extraction forms utilized within the team for the trial based studies and the specific research questions. It was trialed on a paper by myself and one other researcher (RM) and refined

accordingly. Data extraction was completed by myself and one of three supervisors (RM/RL/EK) or colleague (EL).

3.4.5 Data analysis

First, a thorough examination of possible clinical and methodological heterogeneity was carried out amongst included studies. This involved in depth discussions with a meta-analyst within the Population Health Sciences Institute. Due to a limited number of studies within each category of prevention, targeted (indicated and selective) and treatment-based trials were deemed appropriate to be pooled together, followed by subgroup analysis. With universal interventions including participants without any level of risk or symptoms these were not pooled together with targeted and treatment-based trials. This minimised clinical heterogeneity. To manage methodological heterogeneity the most frequently reported alcohol and substance use measure was used, the frequency of days of use over the past month, to pool studies. Internalising and externalising symptoms were pooled separately. The longest follow up time point was used for each of the included trials. Due to the variation in 'follow up time points' this potential heterogeneity was explored through sensitivity analysis.

A random-effects meta-analysis using continuous data for each outcome was conducted using Review Manager 5.3. However, it was not possible to conduct a meta-analysis for all included trials due to lack of reported means and standard deviations and statistical heterogeneity including differences in populations and outcome variables. Where possible 'intent to treat data' were used. This is when participants are included within the analysis regardless of whether they received the intervention and regardless of whether they completed the outcome measures. Group differences were examined at longest follow-up time point for the primary outcome measures: 1) frequency of alcohol use (number of days of alcohol use in the past month) 2a) mental health: externalising symptoms 2b) mental health: Internalising symptoms and secondary outcome measures: 3) family conflict 4) frequency of substance use (number of days of substance use in the past month). Data adjusted for potential confounding variables were selected where possible. Youth self-

reporting was prioritised over report by other individuals such as caregivers and teachers. Authors were contacted for any unreported data required. Standard errors were converted into standard deviations using the calculator tool in Revman (126-128). If trials included more than one experimental group, they were combined using the tool in Revman. This was also carried out if trials included more than one comparison group. Levels of heterogeneity and statistical significance were assessed through visual examination of the forest plots, the I^2 value and Chi^2 test, applying the P value of 0.10 (118). In keeping with Cochrane guidance, the following cut offs were applied; 0%-40%: might not be important, 30%-60%: moderate heterogeneity, 50% to 90% substantial heterogeneity and 75% to 100% considerable heterogeneity (118). A narrative synthesis was conducted for those trials that could not be included in the meta-analyses.

Sensitivity analyses were conducted to investigate the effect of omitting trials that did not report on follow-up time points falling within a time band of 3-12 months. This time band was based on three months being the modal time point across all included studies. This analysis examined the heterogeneity introduced by the considerable variation in follow-up time points ranging from post-test to 30 months post baseline. Further sensitivity analyses were applied omitting trials that reported on illicit drug use other than marijuana and specific mental disorders including depression, anxiety and violent behaviour rather than overall internalising or externalising symptom score. Finally, a sensitivity analysis removing outliers was applied. Visual identification of studies with an outlier effect size was conducted using the forest plots. Pre-planned subgroup analysis included levels of prevention, age, and duration of intervention.

3.4.6 Publication bias assessment

It was not possible to assess possible publication bias for any of the meta-analyses. All but one meta-analysis did not include enough studies (10 or more). Although the meta-analysis pooling externalising included 10 studies, they all had similar sample sizes. Therefore, the Eggers test could not be employed to measure funnel plot asymmetry.

3.5 Chapter Summary

This chapter has detailed the methodological considerations alongside the specific methods employed within the systematic review of quantitative literature. Specifically, a discussion is provided regarding the strengths of a systematic review enabling an explicit and predetermined method to ensure maximum inclusion of papers whilst minimising bias. Data were synthesised statistically through pooling the included studies data in a weighted random effects meta-analysis. This resulted in the overall sample size increasing, improving the statistical power of the analysis. The findings from the meta-analysis and narrative synthesis are detailed in the following chapter.

Chapter 4. Systematic review and meta-analysis findings: The effectiveness of family interventions targeting alcohol use and mental health problems in young people

4.1 Chapter introduction

The systematic review findings, both meta-analyses and a narrative synthesis, are outlined in this chapter. This follows on from the methodology and methods presented in the previous chapter. The findings are presented separately for primary and secondary outcomes which are further broken down into levels of prevention and treatment.

4.2 Summary of trials meeting inclusion criteria

4.2.1 Description of included trials

After deduplication the search identified 13445 articles. After title and abstract screening 13110 were excluded and an additional 308 articles were removed after full paper screening. This resulted in the inclusion of 35 articles reporting on 21 unique trials (126-159) (see Figure 4.1). Eleven trials were randomised controlled trials (RCTs) (126, 127, 129, 131, 134, 136, 139, 144, 149, 150, 160). One was a cluster randomised controlled trial (130). Nine trials were randomised trials which evaluated two or more active interventions (128, 141-143, 145, 148, 151, 152). All trials were conducted in the US, with the exception of two trials; one of which was conducted in Australia (128) and one in Poland (130) (see Table 4.1). The latter trial was an adapted US based intervention (see Table 4.1). The 21 trials involved 4983 young people (or families) with the mean age of children being 14.72, (SD= 1.31) and an average percentage of females being 45.78, (SD=14.08). Seven of the 21 trials limited recruitment to specific ethnic groups, specifically Hispanic (131, 136, 139, 141, 142) and African American (129, 161) adolescents. Two studies did not report on ethnicity (128, 130). Five studies had a more even split of Caucasian and minority/multiracial families (126, 134, 150, 152, 154) three a majority of Caucasian families (126, 143, 148) and the remaining trials included a majority of multiracial or minority families.

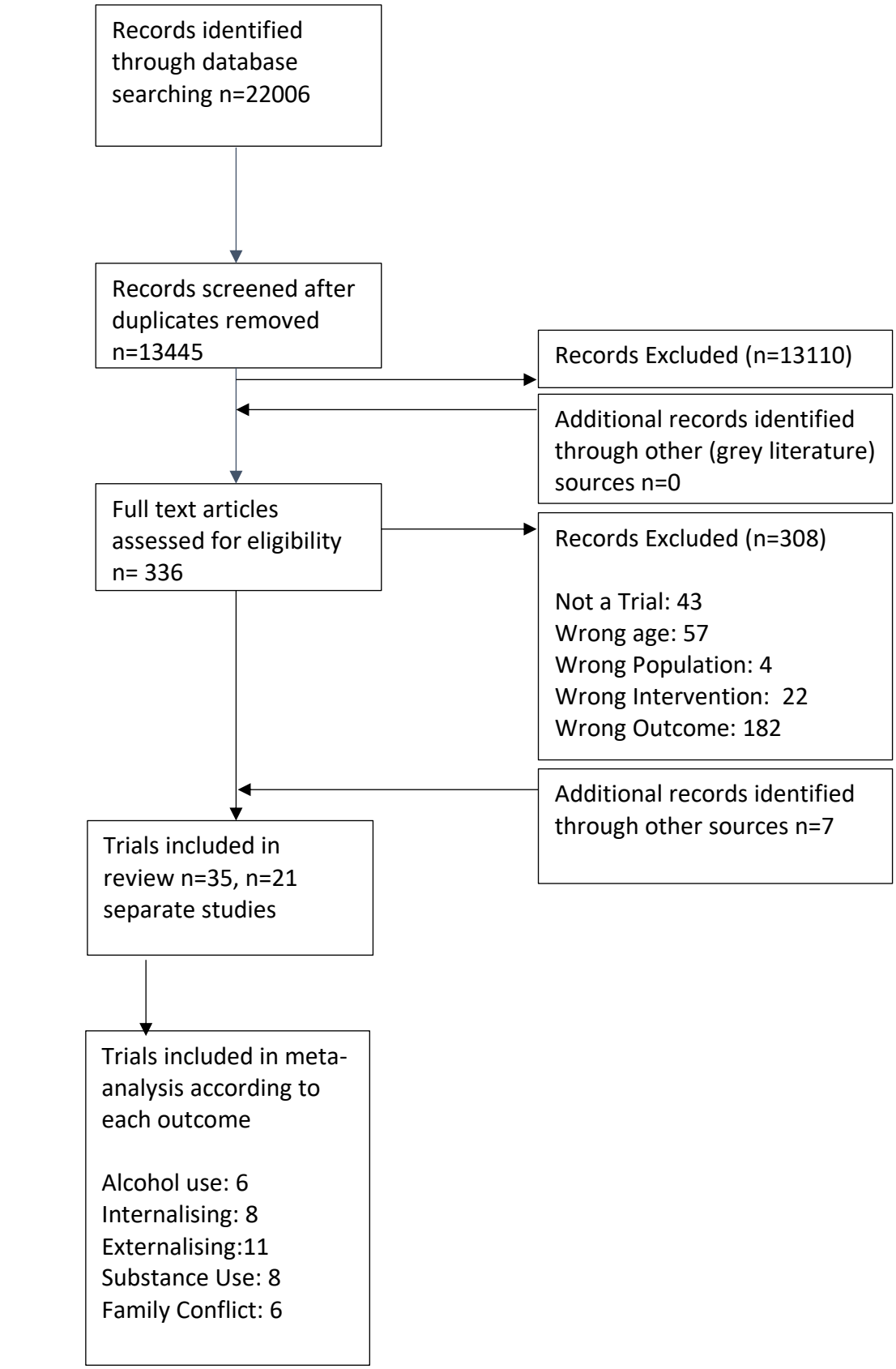

Figure 4.1 Prisma Flow Diagram

Four trials examined the effectiveness of universal interventions (129-131, 134). Seven trials examined Targeted interventions (126, 136, 139, 141, 142, 149, 161). Nine trials evaluated Treatment (127, 128, 143-145, 148, 150-152). One trial presented a multilevel intervention (including universal, targeted and treatment based components)-(154). Two of these trials reported on alternate treatment-based interventions focused on young people but with additional caregiver involvement (as opposed to the interventions primarily targeting family functioning); 'Individual Cognitive Behavioural Therapy' (143) and an 'Abstinence and Monitoring Contract Based Program' (148). Five out of 21 interventions were specifically aimed to prevent and reduce internalising mental health problems (126, 128, 129, 131, 143).

All trials included family functioning and/ parent training. Family functioning components included, strengthening co-parenting alliance, joint problem solving, communication skills, reducing family conflict and behavioural contracting. Parent training included caregiving practices, involving monitoring and setting limits, establishing clear norms and expectations and self-care. Eight trials explicitly outlined, albeit to varying degrees, the addition of components delivered to the young person separately, targeting factors beyond family functioning (126, 129, 142, 143, 151, 152, 154, 161). These components included self-regulation, goal setting, coping efficacy and strategies, problem solving, motivation to change, alcohol and wider substance use refusal skills (126, 129, 143, 151, 152, 154), and the relationship between alcohol (and wider substance use) and depression (126), distress (152) and behaviour problems (161). Some also covered external factors such as peers (126, 142, 154) school, racial, cultural and community related issues (129, 142, 151, 154, 161).

Eleven of the interventions included separate sessions for young people and caregivers alongside whole family sessions (126, 129, 130, 142, 144, 145, 149, 151, 152, 154, 161). Four (128, 134, 136, 139) ran separate parent or caregiver sessions combined with whole family sessions. Two (127, 141) involved whole family sessions only and three did not involve any whole family sessions (131, 143, 148). One intervention did not specify the nature of family involvement (150). Across these interventions, five were group based, delivered with other families/caregivers/young people (128, 130, 131, 136, 139). Four trials

included both caregivers where possible (130, 131, 148, 161). Four trials included other family members beyond caregivers (126, 128, 141, 161).

Interventions were based on a variety of theoretical approaches. Six falling within ecological systems theory (126, 131, 136, 139, 150, 161) and eight within family systems theory (127, 128, 141, 142, 144, 145, 151, 152). Others included social cognitive learning theory (143), social interaction theory (134), developmental psychopathology (126) , home builders family preservation model (144). The remaining trials did not specify. Trial papers did not provide enough information to identify specific BCTs.

Eleven trials were randomized controlled trials (RCTs) (126, 127, 129, 131, 134, 136, 139, 144, 149, 150, 160). One trial was a clustered randomised controlled trial (130). Control groups within RCTs included waitlist control (126, 149), no intervention (126) minimal input (130, 131, 134), attention control (129) and standard care (127, 136, 139, 144, 150, 154). Randomized trials evaluated two or more active interventions (128, 141-143, 145, 148, 151, 152), usually alternate therapy (128, 141-143, 145, 148, 151, 152). For seven of these eight trials, the alternate therapy consisted of a limited form of family involvement (128, 139, 142, 143, 148, 151, 152). Three trials included three arms (144, 145, 152).

Table 4.1 Characteristics of included trial

Identifier	Recruitment	Participants	Interventions	Control	Study design
Universal Interventions					
Brody et al., 2012 USA	Schools	502 black young people and their families Mean age:16 years Female: 51% Caregivers: gender distribution not provided	Strong African American Families-Teen Program Skill building sessions: Caregivers: monitoring and control, clear norms and expectations regarding substance use, joint problem solving, adaptive racial socialisation approaches, academic support Young people: following household rules, self-regulation, academic goal formation, strategies for encountering racism. 5 x 2 hour weekly sessions. 1 hour separate sessions for adolescents and parents followed by 1 hour family session delivered by black intervention leaders.	Attention control Fuel Program- Family centred intervention developed to promote young people's healthful behaviours. 5 x 2 hour school based weekly sessions led by black intervention leaders.	RCT-2 arms
Foxcroft et al., 2017 Poland	Community agencies, schools and via information leaflets and personal contact	511 families (614 young people) Mean age: 11.85 years Female: 40.55% Ethnicity: not provided Caregivers: both caregivers were asked to take part if more than one child per family was included. Gender distribution not provided	Strengthening Families Program Video-based program to develop families understanding and skills 7 x 2 hour sessions. Separate individual and parent group sessions followed by joint family group sessions delivered by trained facilitators.	Received information leaflets for families	RCT-2 arms
Gonzales et al., 2012 Gonzales et al., 2014 Jensen et al., 2014 USA	Schools	516 Mexican American young people and their families. Mean age: 12.3 years Female: 50.8% Caregivers: where possible both caregivers were invited to take part however information on gender was not provided.	Bridges Puentes Caregivers: Supportive parenting, positive reinforcement, appropriate discipline, monitoring, strengthening co-parent alliance, decreasing child-parent conflict, improving parental school involvement	Single session developing family plan to aid school success Parents and adolescents attended a single 1.5 hour workshop together, delivered by group leaders.	RCT-2 arms

			Young people: improving coping strategies, increasing academic engagement 9 weekly separate parent and adolescent evening group sessions delivered by group leaders.		
Mason et al., 2016a Mason et al., 2016b USA	Schools	321young people and their families Mean Age: 13.41 years Female:52% Parents ethnicity(adolescents ethnicity not stated): Caucasian: 48% African American: 26% Asian American: 4% Pacific Islander:4% Native American: 2% Mixed or "other;": 16% Hispanic: 14% Caregivers: 83% female, 73% of which were biological mothers	<u>Common Sense Parenting-Plus</u> Joint sessions: Effective discipline, problem solving and decision making Caregiver sessions: effective discipline, giving reasons, using praise, teaching social skills, using corrective teaching, teaching self-control, having a parenting plan 8 x 2 hour weekly sessions with parents delivered by workshop leaders with two additional sessions involving adolescents. <u>Common Sense Parenting</u> See above for caregiver content 6 x 2 hour weekly sessions delivered by workshop leaders.	<u>Minimal contact control condition</u>	RCT-3 arms
Targeted Interventions					
Hogue et al., 2002 USA	Community based youth enrichment program	124 adolescents and their families who met self-report risk factor screening criteria. The criteria included 'risk factors for drug use and antisocial behaviour in four areas: adolescent drug use behaviour and attitudes, and delinquent behaviour; peer drug use behaviour and attitudes; family drug use history and attitudes, and history of police involvement; and adolescent school attendance, performance, and behaviour' Mean age: 12.5 years	<u>Multidimensional Family Prevention</u> Caregiver sessions: improving limit setting, discipline and monitoring of behaviour and school engagement, managing personal stressors Young people sessions: normative developmental milestones, problem solving skills, involvement in prosocial institutions, behaviour problems associated with drug use, establish an independent voice, addressing racial and cultural issues	<u>Not reported</u>	RT-2 arms

		Female: 56% African American: 97% Hispanic: 1% Other: 2% Caregivers: single biological parent 50%, one biological and one step parent 15%, grandparent(s) 12%, two biological parents 12% and other 11%. Gender distribution was not provided.	Joint: family cohesion, clear communication and roles, problem solving skills, external factors 15-25 sessions over 3-4 months delivered by counsellors. Separate parent and young people sessions followed by family sessions.		
Mason et al., 2012 USA	Health care clinics and therapeutic centres	24 adolescents and their families in which parents were screened for elevated depressive symptoms. 3 sessions involved family members beyond parents/caregivers but did not specify relationship or gender Mean age: 13.9 years Female: 43.5% *Intervention* *Control* Caucasian: 50% Caucasian 36% Minority/multiracial: 50% Minority/multiracial 64% Hispanic: 31% Hispanic: 8% Caregivers: 91% female	Project hope Two interventions, targeting depression and substance use respectively, combined. Caregiver sessions: depression within the family, overview of adolescent development, communication skills, parent-child relationship quality, reduced family conflict, monitoring/supervision, rules and discipline Young People sessions: increase awareness of emotions and coping skills, substance refusal skills Joint sessions: 10 x 50 - 90 minute sessions including separate adolescent and parent sessions alongside joint sessions. Delivered by masters level clinicians.	Waitlist control group	Pilot feasibility RCT -2 arms
Pantin et al., 2009 Prado et al., 2013 Perrino et al.,2016 USA	Hispanic middle schools	213 8th grade Hispanic adolescents and their families rated by their parents as '≥1 SD above the non-clinical normed mean on at least one of the three Revised Behaviour Problem Checklist scales' Mean age: 13.8 years Female: 64% Caregivers: 27 male, 186 female	Familias Unidas Caregiver sessions: Positioning caregivers as experts of adolescent needs and development. Family functioning is the main target with Hispanic related cultural issues incorporated into sessions. Young people involvement limited to family visits	Community control Referrals to agencies providing services for young people with behaviour problems. Study involvement was limited to assessments. Data on service	RCT- 2 arms

			9 x 2 hour group parent sessions, adolescent involvement limited to 10 x 1 hour family visits and 4 x 1 hour booster sessions during the follow up phase. Delivered by Hispanic facilitators.	participation was not collected.	
Prado et al., 2011 Perrino et al., 2016 USA	Through Miami-Dade County Public school system	242 Hispanic adolescents and their families. Adolescents had to be identified as a delinquent youth defined as "having been arrested or as having committed at least one "Level III Behaviour Problem," described by MDCP-S as assault/threat against a non-staff member, breaking and entering/burglary, fighting (serious), hazing, possession or use of alcohol and/or controlled substances, possession of simulated weapons, trespassing, and vandalism" Mean age: 14.7 years Female: 36% Caregivers: gender distribution not provided	<u>Familias Unidas</u> Caregiver sessions: Positioning caregivers as experts of adolescents needs and development. Family functioning is the main target with Hispanic related cultural issues incorporated into sessions. Young people involvement limited to family visits. 8 x 2 hour multi-parent group sessions. Adolescent involvement was restricted to 4 x 1 hour family visits Administered over a 12-week period. Those delivering intervention not reported.	<u>Community practice</u> Standard care services involving referrals to community-based organizations offering e.g. individual and family therapy alongside targeting multiple problem behaviours such as alcohol and drug use. Data regarding type or amount of services received was not collected.	RCT-2 arms
Santisteban et al., 2003 USA	Self-referred or referred by a school counsellor	126 Hispanic adolescents and families with 'parental or school complaints of externalising behaviour problems (e.g., violent or disruptive behaviour, drug use, trouble with police)' Caregivers: All family members who lived in the household or were significantly involved in child rearing were invited to take part. Demographics for these family members were not provided. Mean age: 15.6 years Female: 25% Ethnicity: Cuban: 64 Nicaraguan: 18 Colombian: 12 Puerto Rican:8 Peruvian:4	<u>Brief Strategic family therapy</u> Family sessions: increasing adaptive interactional patterns, communication, respecting authority, all family members to voice concerns 20 x 1 hour weekly whole family sessions (amount dependent on the clinical severity). Delivered by one child psychiatry trainee and 6 clinical psychologists.	<u>The group control condition</u> Participatory learning group with young people involvement only. 6-16 sessions x 90 minutes. Delivered by a facilitator. Group discussions and problem solving. Emphasis on group cohesion, detrimental effects of criminality and drug use and problem-solving in regards to problematic events in lives	RT – 2 arms

		Mexican:2 Other Hispanic nationalities: 18			
Valdez et al.,2013 USA	Field-intensive outreach and street based recruitment	200 young people and their families. Mexican American adolescents (12-17), gang- affiliated and reported current (past month) use of alcohol or illicit drugs on at least six occasions in the past year *Control:* *Intervention:* Mean age: 15.18 years Mean age: 15.33 years Female: 51% Female: 31.7 % Caregivers: 92% female	<u>Adapted Brief Strategic family therapy</u> Family sessions: increasing adaptive interactional patterns, communication, respecting authority, all family members to voice concerns Additional separate parallel sessions: improve school engagement and parental school involvement, gang diversion and awareness, HIV/STD prevention, family resource referral counselling. 12-16 X 1-1.5 hour sessions led by two licensed clinical therapists. Whole family sessions and separate young people and parent/caregiver sessions.	<u>Social and behavioural health services and substance abuse counselling</u> Amount of sessions not specified. Primarily individual psychoeducational sessions with the young person. Some family involvement. Delivered by staff at these services.	RT-2 Arms
Treatment based interventions					
Esposito-Smythers et al., 2011 USA	Inpatient psychiatric hospital	40 families 'Adolescents who had made a suicide attempt within the prior 3 months, reported clinically significant suicidal ideation during the past month (score 41 on the Suicide Ideation Questionnaire; Reynolds, 1985), had an alcohol or cannabis use disorder, and lived in the home with a parent/ guardian willing to participate'. Mean age: 15.7 years Female: 68% Caucasian: 89% Caregivers: gender distribution not provided	<u>Integrated outpatient cognitive behavioural intervention</u> Caregivers: monitoring, emotional regulation, one motivational interviewing session to facilitate treatment engagement, case management calls Young People sessions: problem solving, refusal skills, one motivational interviewing session to facilitate treatment engagement Family sessions: communication, behavioural contracting 24 sessions for adolescents, 12 sessions for parents delivered by 12 therapists, duration of	<u>Enhanced Treatment As Usual</u> Determined by community providers. Alongside a diagnostic evaluation report and medication management provided by the study psychiatrist. Information about available resources for young people and families in the community was available (e.g., mental health, substance abuse, school, family court, and	Pilot feasibility RT-2 arms

			sessions was not reported, frequency of sessions depended on the treatment phase.	vocational services). Sessions with the study psychiatrist facilitated by study staff were also available.	
Henggeler Pickrel & Brondino, 1999 Henggeler Pickrel & Brondino1996 USA	Department of Juvenile Justice in Charleston County, South Carolina	118 adolescents and their families. Juvenile offenders meeting DSM-III-R criteria for substance abuse or dependence and their families. Mean age: 15.7 years Female: 21% African American: 50% Caucasian: 47% Asian: 1% Hispanic American:1% Native American: 1% Caregivers: gender distribution not provided	<u>Multisystemic Therapy</u> Delivered by MST therapists at home or in community settings. Therapy terminated when therapeutic goals have largely been met, as such the length of the therapy was determined by the clinical need. Received on average 130 days, with an average of 40 direct contact hours. In addition participants were provided medication by the team child psychiatrist if required. Family composition for sessions not provided	<u>Usual Community Services</u> Outpatient substance use services. Typically including weekly adolescent group meetings following a 12 step program but could also include inpatient and residential programs. Mental Health services were also available encompassing public and patient outpatient, school based, family preservation, residential and inpatient services. Few received this within the initial 5 months upon recruitment.78% did not receive any services, 7% received mental health services only, 10% received substance abuse services only and 5% received both. Those engaged in services received low quantities.	RCT
Hogue et al., 2015 USA	Community referral network enrolling 63% for primary mental health problems and 37% for	205 adolescents and their families. Adolescents who met criteria for either mental health or substance use problems. Mean age:15.7 years Female: 48% Hispanic American:59%	<u>Non manualised Family Therapy</u> Family sessions: repairing intrafamilial relationships, addressing problems in key extrafamilial systems	<u>Usual Care Other</u> Access to five clinics representing the range of outpatient treatment options available. All provided weekly	RCT-2 arms

	primary substance use problems	African American: 21% Caregivers: gender distribution not provided. 15% sessions included another person but demographics not provided.	An average of 9 sessions delivered by therapists (including marriage and family therapists, social workers with family therapy training or advanced trainees with family therapy experience) . Whole family sessions only. .	treatment sessions and psychiatric support.	
Liddle, 2001 USA	Youths and their families were referred from the juvenile justice system and secondarily through schools and health and mental health agencies	182 adolescents and their families. Adolsecents who were using any illegal substance other than alcohol at least three times per week. Alcohol use could be greater or less than three times per week. Mean age: 15.9 years Female: 20% White non-Hispanic: 51% African-American: 18% Hispanic:15% Asian: 6% Other:10%	<u>Multidimensional Family Therapy</u> 14-16 weekly 90 minute sessions delivered by the therapist in an office based setting. This consisted of both individual(adolescent and parent) and family sessions	<u>Adolescent group therapy</u> 14-16 weekly 90 minute group sessions led by two therapists. Groups consisted of 6-8 therapists. Two initial individual family sessions to gain parental support and co-operation and one individual session. This occurred over a 5-6 month period in a clinic setting. <u>Multifamily educational intervention</u> 14-16 weekly 90-minute group sessions consisting of three to four families for 16 weeks. Delivered by MEI therapists. Individual crisis sessions were also available, 2 sessions available per family. This occurred over a 5-6 month period in a clinic setting.	RCT

Liddle et al., 2018 USA	Referred and approved by the State of Florida Department of Children and Families for state-subsidized residential, dual diagnosis substance use treatment. Received referrals from juvenile justice and child welfare systems (67%) or directly from juvenile justice (18%), child welfare (3%), educational institutions (2%) of the adolescent/family (10%)	113 adolescents and their families. Adolescents diagnosed with a substance use disorder and at least one comorbid psychiatric disorder and who had failed a previous treatment for a substance use disorder, or presenting with severe symptoms warranting a higher level of care either because of safety reasons or because this treatment was ordered by a judge. Mean age:15.36 Female: 25% African American: 18% White, non-Hispanic: 13% Hispanic:68% Caregivers: gender distribution not provided	<u>Multidimensional Family Therapy</u> Youth averaged 3.28 h per week of family, parent and adolescent sessions delivered by MDFT therapists, as prescribed in MDFT for this level of intervention. A psychiatrist was available to provide psychiatric care and medication management throughout.	<u>Residential Substance Use Treatment</u> Youth received individual and group therapy, psychiatric services as needed, vocational training, education and recreational therapy. Family was involved at the assessment and planning stage and informed about the adolescents progress. They were also offered monthly parental support groups. Given the nature of the "therapeutic milieu" the dosage could be considered to be a 24h a day, 7 days a week. A psychiatrist was available to provide psychiatric care and medication management throughout.	RCT
Poole et al., 2018 USA	Public mental health service, schools and community mental health service.	64 adolescents and their families Caregivers: 83% female of which, 73% were the biological mothers. Half of the sessions involved siblings. Gender distribution was not provided. Young people met DSM-IV criteria for' a depressive disorder (Major Depressive Disorder, Minor Depressive Disorder, or Dysthymic Disorder) as assessed on the KID-SCID'. Mean age:15.2 years Female: 73.4% Ethnicity not reported	<u>Best Mood-Behaviour Exchange Systems Therapy for adolescent depression</u> Caregiver sessions: parent self-care, stress management strategies, Increasing parental confidence, family connectedness, family communication Family sessions: behavioural activation, family connectedness and healthy attachments 8 x 2hr multifamily group sessions with the first four limited to parents only and the last 4	<u>PAST (treatment as usual)</u> Parents attended all eight sessions. Young people and siblings only attended the fifth session. Aimed to represent treatment as usual in Victoria, Australia; parenting groups.	RT-2arms

			involving adolescents and siblings. With an additional 2-hour follow-up session at 3 month post-treatment. Delivered by psychologists or trainees		
Slesnick and Prestopnik., 2009 USA	Through one of two runaway shelters in Albuquerque	119 adolescents and their families; adolescents with primary alcohol problem ('for example, alcohol dependence and marijuana abuse but not vice versa'). Mean age: 15.1 years Female: 55 % African American:8% Hispanic:54% Native American:16% Other:5% Caregivers: gender distribution not provided	<u>Ecologically-Based Family Therapy (EBFT)</u> Family sessions: all family members improve communicating needs and expectations, reducing problem behaviour. Additional behavioural, cognitive and environmental interventions depending on needs of family. 16 x 50 minute sessions led by two therapists, Home based, met individually with family members. <u>Functional Family Therapy</u> Family sessions: focus on family functioning and behaviour change, communication skills, behavioural contracting, problem solving regarding triggers of runaway behaviour 16 x 50-minute sessions. Provided by therapists, office based. No individual sessions were conducted.	<u>Service as usual</u> Mainly case management and informal meetings or therapy provided/arranged by shelter staff. If required a counsellor was also available. Participants also received additional support outside of the program	RCT-3 arms

Slesnick et al., 2013 Slesnick et al., 2012 Guo et al., 2014	Runaway shelter	179 young people and their families; adolescents met DSM-IV ('American Psychiatric Association (APA), 2000) criteria for alcohol or drug abuse or dependence'. Mean age: 15.4 years Female: 52.5% African American: 65.9%, White, Non Hispanic: 26% Caregivers: 87% percent of the caregivers were female, 76.4% of which were biological mothers.	<u>Ecologically-Based Family Therapy (EBFT)</u> Family sessions: all family members improve communicating needs and expectations, reducing problem behaviour. Two HIV prevention sessions. Additional behavioural, cognitive and environmental interventions depending on needs of family. 14 sessions EBFT delivered by therapists. Whole family sessions and separate young people and parent/caregiver sessions.	<u>Community Reinforcement Approach</u> (skills training). Offered in 14 sessions by two therapists <u>Motivational Interviewing</u> (motivation as component of change). Offered in 2 sessions by 3 therapists.	RT-2 arms
Stanger et al., 2017 USA	Referred by schools, the justice system, therapists, physicians, or parents.	75 young people aged 12–18 year sand their families; 'reported use of alcohol during the prior 30 days or an alcohol positive urine test; met criteria for alcohol abuse or dependence, or reported one or more binge episode (5 or more drinks) in the past 90 days' 58.7% of families had two parent participation. Mean age:16.1 years Female: 25.35% White: 81% Caregivers: 84% female	<u>Abstinence based fishbowl program, home based incentives and consequences program</u> Young people sessions: incentives and consequences for substance abstinence/use and received additional MET/CBT Caregivers: develop a substance monitoring contract outlining positive consequences for abstinence and negative consequences for use Sessions were delivered by female clinicians however number and duration of sessions was not reported. After 14 weeks, families were offered an additional 12 weeks of urine testing to facilitate parental monitoring. Six additional sessions to review the substance monitoring contract and parenting strategies were optional. Separate sessions with parents and young people only.	<u>Attendance based incentives</u> Sessions were delivered by female clinicians however number and duration of sessions was not provided. After 14 weeks, families were offered an additional 12 weeks of urine testing to facilitate parental monitoring. All young people received additional individual MET/CBT	RCT-2 arms

Tucker et al., 2016 USA	Those referred to a community-based agency	111 young people and their families Referred due to 'problems such as poor grades, truancy, defiant behaviour, delinquency and substance use'. Mean age: 14.97 years Female: 44.89% Hispanic: 73.37% Non Hispanic African American: 23.8% Non Hispanic White:1.96% Asian/Other: 3.7% Caregivers: 91% female	<u>Parent-Child Mediation</u> Family sessions: identifying aspects that contribute to conflict, together finding solutions for needs of family members 3 mediation sessions delivered by the agency's volunteer mediators. Whole family sessions and separate young people and parent/caregiver sessions.	<u>Wait list control group</u>	Pilot feasibility RCT-2 arms
Multilevel intervention					
Connell et al., 2007 USA Connell & Dishion, 2008 Connell et al., 2012 Van Ryzin &, Dishion, 2012 Connell et al., 2016 Stormshak, 2009	Recruited in sixth grade middle schools. Parents of all sixth grade students were approached for participation	998 adolescents (11-17) and their families. All families could receive the intervention. Families of high risk young people, scores of 3 or higher on a screening instrument for problem behaviours or whom teachers suspected of substance use) were specifically offered the intervention in seventh and eighth grades. Caregivers: Biological fathers were present in 585 families (58.6%). Age range: 11-17 Female: 47.3% Ethnicity: Caucasians: 42.3% African Americans 29.1%, Latinos: 6.8% Asian American: 5.2% Other ethnicities (including biracial): 16.4%	<u>The Adolescent Transitions Program</u> All families were offered the universal option. Families would then chose whether they wanted to further engage in the indicated and selective interventions. Delivered in schools. *Universal:* *Young people*- Six in-class lessons Caregivers: Access to a Family Resource Centre. Brief in person or telephone consultations, feedback on child's behaviour, access to videotapes and books. Delivered by a parent consultant. *Targeted*- Selective: (23% engaged) The Family Check Up. Based on motivational Interviewing involving Caregivers only. Three sessions; an initial interview, assessment session and feedback session. Delivered by a therapist. *Targeted- Indicated:* Services selected based on needs of the family. Such as Multisystemic Family Therapy, a behaviourally oriented parent group. Unclear on who attended sessions and number of sessions.	<u>School as Usual</u>	RCT-2 Arms

4.2.2 Risk of Bias

Random Sequence generation

Ten studies were judged as having a low risk of bias (127, 128, 131, 136, 142-145, 148, 151). These studies utilised a computer-generated random number sequence (131, 142), urn Randomization (127, 136, 143-145), block randomisation procedure (128) and minimum likelihood allocation (148). Two trials were deemed to be high risk (130, 134). First, the trial by Foxcroft and colleagues, although most communities names were drawn out of a hat, four communities were not randomly allocated. Second, Mason and colleagues allocated a participant identification number in the order in which consent was provided, grouped by school and gender and then sequentially allocated to one of the three arms, therefore this was not deemed truly random (134). The remaining nine trials were not clear about the method of sequence generation (126, 129, 141, 149, 150, 152, 160-162).

Allocation concealment

Only two trials provided sufficient detail to establish that participant allocation to experimental groups was concealed from those conducting the research; we rated these as having low risk of selection bias for this domain (134, 162). Three studies were considered to be at high risk (130, 149, 161) in which randomization occurred before enrolment. It was not possible to make a clear judgement regarding allocation concealment for the remaining 16 trials and were labelled as unclear (126, 129, 131, 136, 141, 151) (127, 128, 142, 143),(144, 145, 148, 150, 152, 160).

Blinding of participants and outcome assessment

In 16 studies, blinding of participants and program deliverers (performance bias) and blinding of outcome assessment (detection bias) was not achievable due to the nature of the interventions tested and because the outcomes were self-reported; therefore, we rated these studies as having high risk of performance and detection bias. Five studies explicitly stated efforts to blind assessors to group assignment upon outcome assessments (129, 136, 143, 151, 152) and as such these were rated as low risk.

Incomplete outcome data

Thirteen trials (127-131, 134, 136, 143-145, 151, 160, 162) were found to have a low risk of bias for incomplete outcome data, as they reported less than 20% loss of participants and of which seven also showed no differential attrition between experimental groups (127, 129, 134, 136, 144, 151, 162). Whilst five addressed missing data using statistical procedures (128, 130, 131, 145, 160) and were therefore also rated as low risk. Seven studies had high risk of bias due to high attrition rates (> 20%) or had less than 20% loss of participants but unequal attrition between experiment groups (126, 142, 148, 149, 152, 161). Two remaining studies were rated as having unclear risk for incomplete outcome data, as details were insufficient to permit a judgement (141, 143, 150).

Selective reporting

Six studies were deemed at high risk (128, 130, 134, 136, 143, 145). Two of these studies were deemed high risk due to not reporting one (130) or three (128) outcomes outlined in the study protocol. Four studies were judged to be at high risk due not providing direct comparison for the experimental and control group (134, 136, 143, 145). It was not possible to make a clear judgment regarding selective reporting for the remaining 18 studies.

Other Potential Sources of bias

We assessed 14 trials (127-131, 134, 142, 144, 145, 148, 150-152, 161), as low risk to other forms of potential bias. We judged seven studies to be at high risk (126, 136, 141, 143, 149, 160, 162); one, due to recruiting participants once clusters were already randomised (130); three, due to issues with reporting; lack of follow up assessments (141), lack of reporting results for control group and incorrect labelling of follow up time points (126); four due to offering additional services and interventions alongside the intervention and/or control being assessed (136, 143, 149, 162). Full tabulated risk of bias assessments are available in Figure 4.2.

Additional risk of bias domains for cluster randomised trial

The included cluster randomised trial required assessment based on a further five domains:

Recruitment Bias

We considered the trial to have high risk of bias due to individuals being allocated to clusters once randomisation had occurred (130).

Baseline imbalance

For baseline imbalance this trial was deemed to have low risk of bias, as this was accounted for within analyses (130).

Loss of clusters

The trial was rated as low risk of bias for loss of clusters.

Incorrect analysis

The trial was considered to have low risk of bias as it provided adequate adjustment for the effect of clustering(130).

Comparability with individually randomised trials (herd effect)

The trial was rated as unclear as it was not possible to judge the herd effect (130).

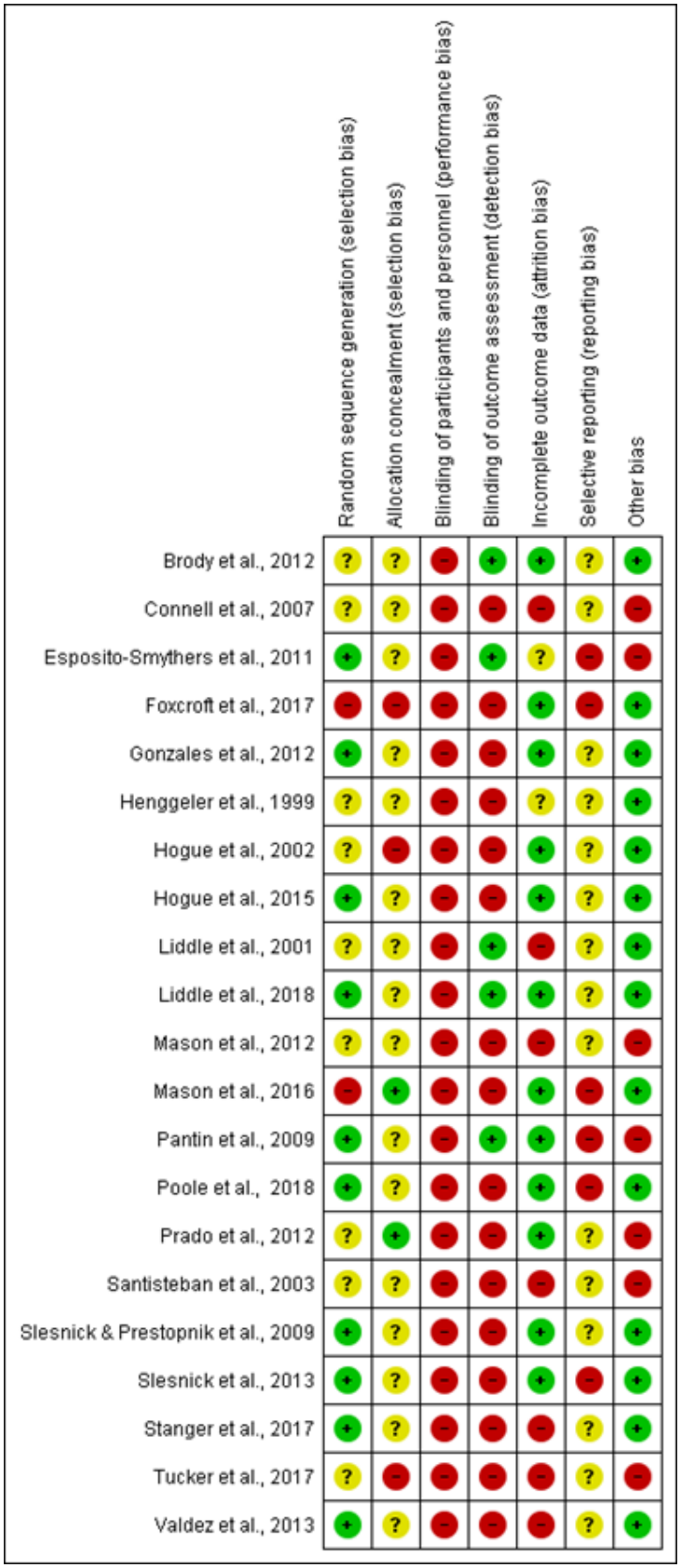

Figure 4.2 Risk of bias summary table

4.3 Analysis of findings

4.3.1 Meta-analyses

The meta-analysis for each outcome are now presented. Where there were sufficient numbers of trials to carry out sub-group analysis, this will be presented. Sub-group analysis for age was only possible for internalising symptoms. Sub-group analysis examining the impact of intervention duration was not possible for any of the outcomes.

Primary outcomes

(1) Alcohol use: Frequency of use in the past 30 days (n=6 trials; 3 targeted and 3 treatment)

Effectiveness of family interventions

There was no significant difference between the family interventions and the control groups at the longest follow up time point (SMD -0.60; 95% CI -1.58 to 0.37; *p*=0.23; 6 trials; 591 participants). There was considerable and significant heterogeneity between studies (I^2*=97%, p<0.10)* - (see

Figure 4.3).

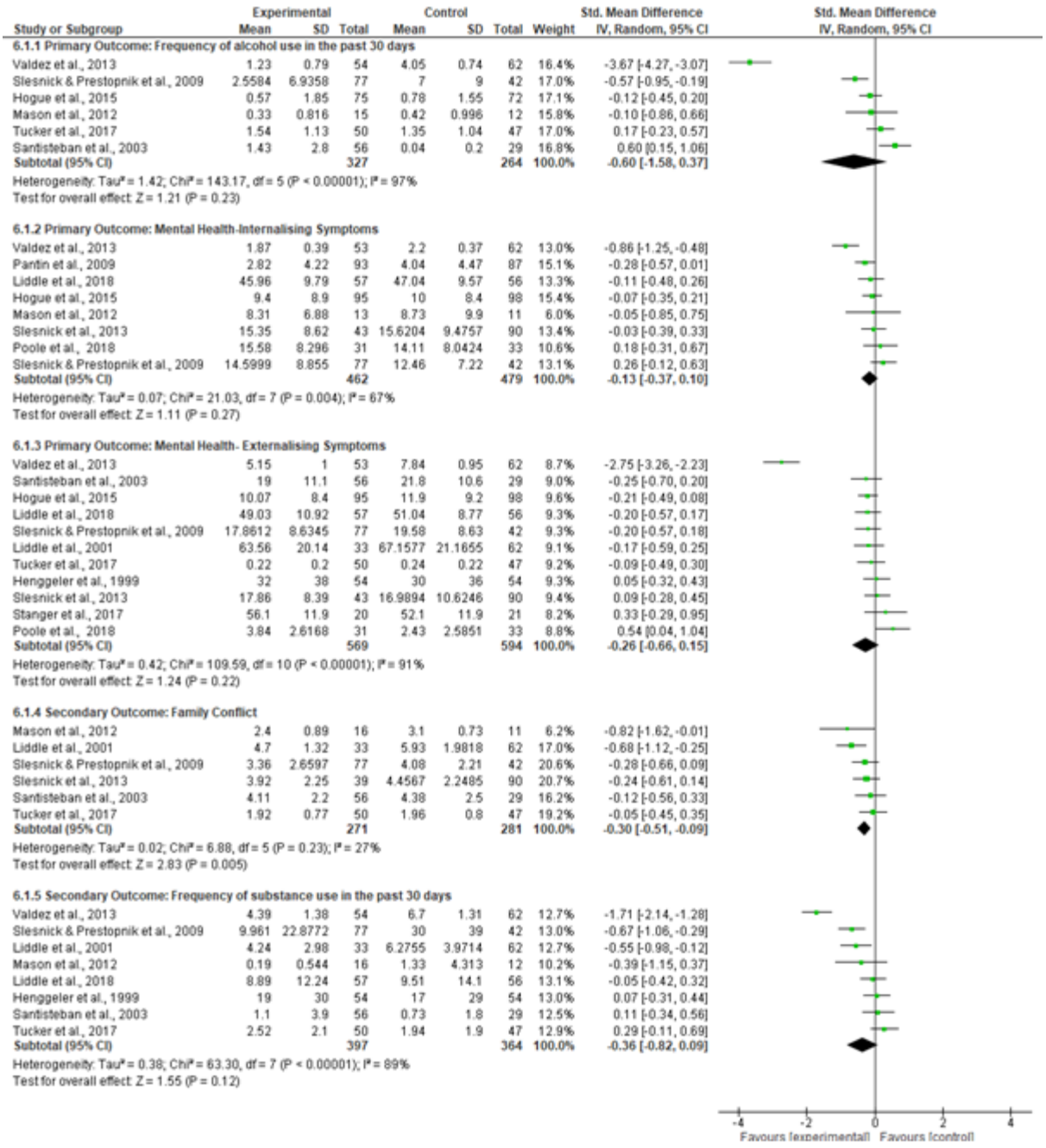

Figure 4.3 Impact of family interventions on primary and secondary outcomes

Impact of level of prevention and treatment

The effects of the intervention upon frequency of alcohol use were examined by level of prevention and treatment, analysing separately targeted interventions and treatment-based

interventions. Results remained non-significant; neither targeted nor treatment-based family interventions reduced the frequency of alcohol use. See Figure 4.4 & Figure 4.5.

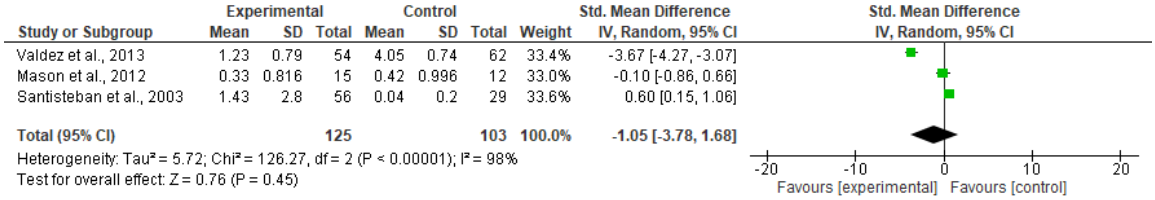

Figure 4.4 Targeted interventions: frequency of alcohol use

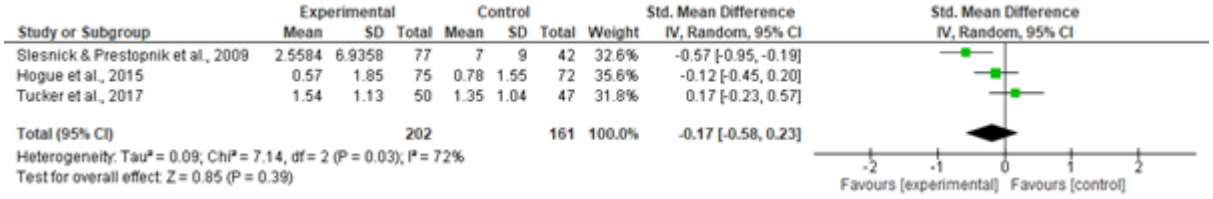

Figure 4.5 Treatment: frequency of alcohol use

(2a) Mental Health: Internalising Symptoms (n=8 trials; 3 targeted and 5 treatment)

Effectiveness of family interventions

No significant difference was found in between group analysis of family interventions and the control groups at the longest follow up time point (SMD -0.13; 95% CI -.37 to 0.10; p=0.27; 8 trials; 941 participants). Heterogeneity levels demonstrated substantial and significant heterogeneity (I^2=67% p<0.10) - (see

Figure 4.3).

Impact of level of prevention and treatment

The effects of the intervention upon internalising symptoms were examined by level of prevention and treatment, analysing targeted interventions and treatment separately. Results remained non-significant; neither targeted nor treatment-based family interventions reduced the internalising symptoms. Please see Figure 4.6 & Figure 4.7.

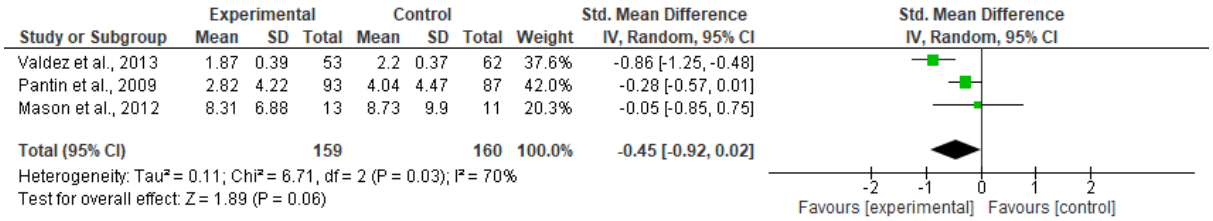

Figure 4.6 Targeted: Internalising symptoms

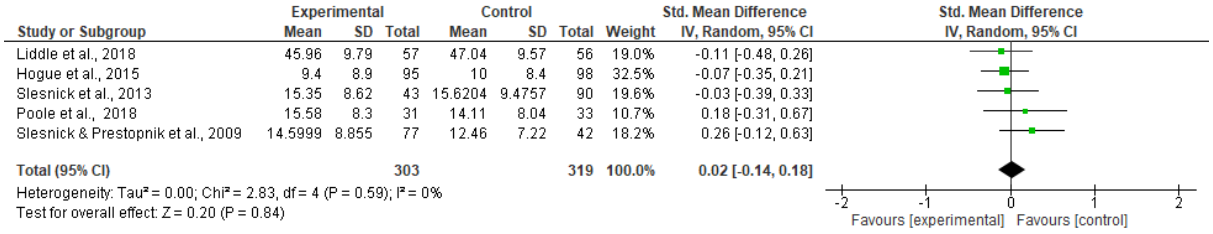

Figure 4.7 Treatment: Internalising symptoms

Impact of young person's age

The effects of the intervention upon internalising symptoms were examined by age of the participants, analysing separately those interventions aimed at young people aged 12 to14 and those aimed at young people aged 15 to17. Results remained non-significant; neither the interventions aimed at the lower age range or upper age range reduced the internalising symptoms. Please see Figure 4.8 & Figure 4.9.

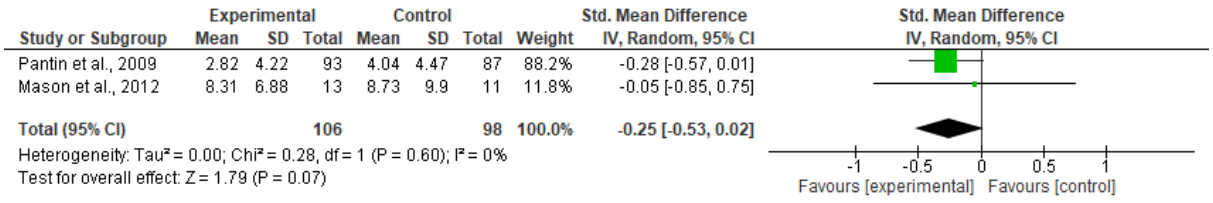

Figure 4.8 Young people aged 12 -14: Internalising symptoms

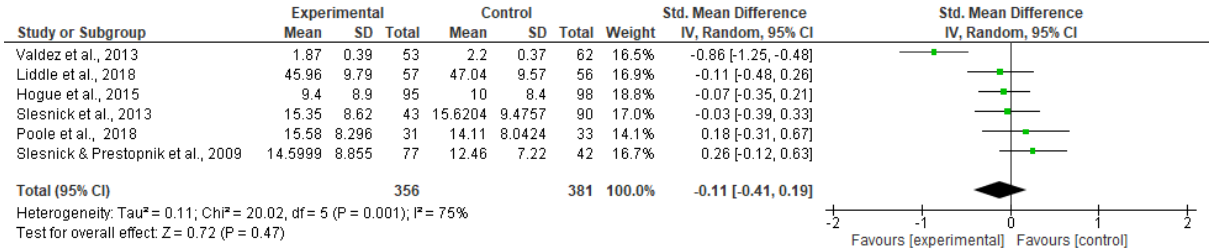

Figure 4.9 Young people aged 15 -17: Internalising symptoms

(2b) Mental Health: Externalising symptoms (n=11 trials; 2 targeted and 9 treatment)

Effectiveness of family interventions

There was no significant difference between the family interventions and the control groups at the longest follow up time point (SMD -0.26; 95% CI -0.66 to 0.15; *p*=0.22; 11 trials; 1163 participants) -(see

Figure 4.3). There was considerable and significant heterogeneity (I^2=91% p<0.10).

Impact of level of prevention and treatment

The effects of the intervention upon externalising symptoms were examined by level of prevention and treatment, analysing separately targeted interventions and treatment-based interventions. Results remained non-significant; neither targeted nor treatment-based family interventions reduced externalising symptoms. Please see Figure 4.10 & Figure 4.11.

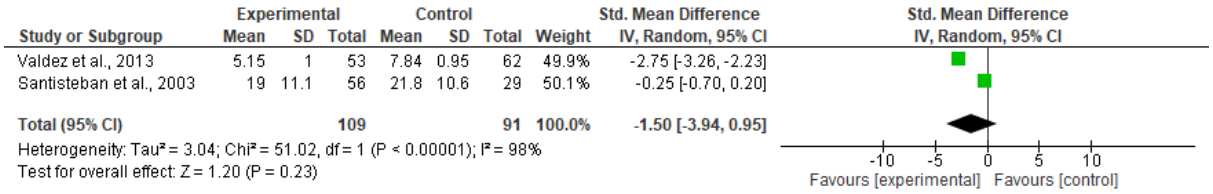

Figure 4.10 Targeted Interventions: Externalising symptoms

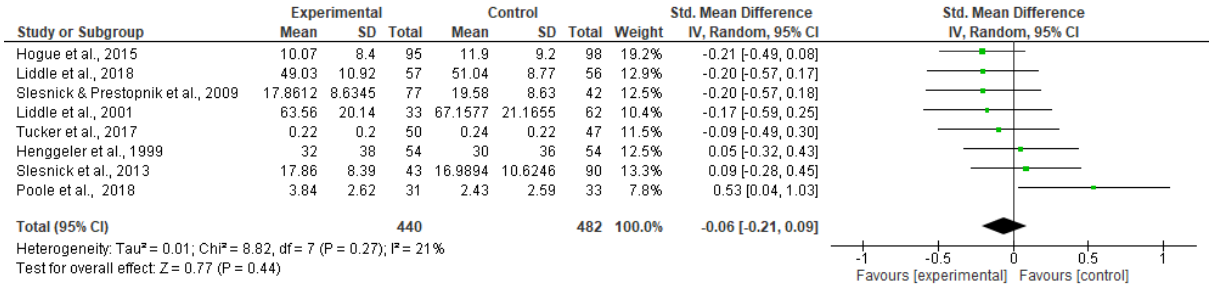

Figure 4.11 Treatment: Externalising symptoms

Secondary Outcomes

(3) Family -conflict (n=6; 2 targeted and 4 treatment)

Effectiveness of family interventions

Family interventions reduced family conflict with a small effect compared to control groups (SMD -0.30; 95% CI -0.51 to -0.09; *p*=0.005; 6 trials; 552 participants) - (see

Figure 4.3) with low heterogeneity (I^2=0% *p*=0.55*)*.

Impact of level of prevention and treatment

The effects of the intervention upon family conflict, were examined by level of prevention and treatment, analysing separately targeted interventions and treatment-based interventions. Results showed that treatment-based interventions were associated with reduced levels of family conflict (SMD -0.30; 95% CI -0.51 to -0.06; *p*=0.02;4 trials; 440 participants), with no significant heterogeneity (I^2=35% *p=0.20)*. Targeted interventions did not significantly reduce family conflict. Please see Figure 4.12 & Figure 4.13.

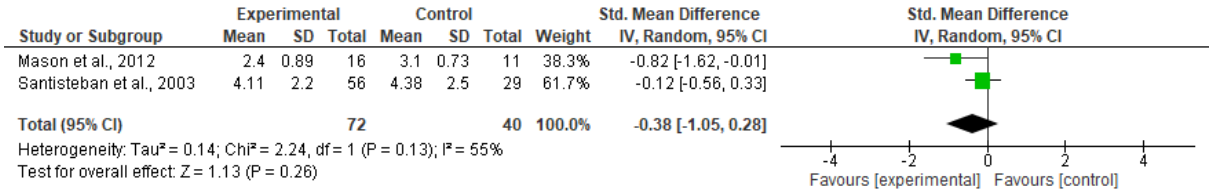

Figure 4.12 Targeted Prevention: Family Conflict

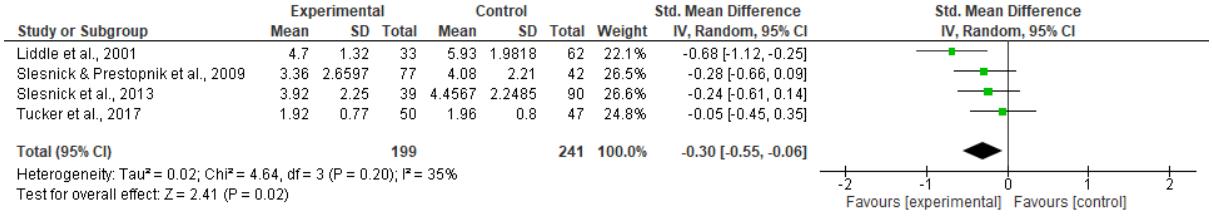

Figure 4.13 Treatment: Family Conflict

(4) Frequency of substance use in the past 30 days (n=8 trials; 3 targeted and 5 treatment)

Effectiveness of family interventions

There was no significant difference between the family interventions and the control groups, at the longest follow up time point (SMD -0.36; 95% CI -0.82 to 0.09; *p*=0.12; 8 trials; 761 participants- (see

Figure 4.3). There was considerable and significant heterogeneity (I^2*=89% p<0.10)*.

Impact of level of prevention and treatment

The effects of the intervention upon the frequency of substance use were examined by level of prevention and treatment, analysing targeted interventions and treatment-based interventions separately. Results remained non-significant; neither targeted nor treatment-based family interventions reduced the frequency of substance use. Please see Figure 4.14 & Figure 4.15.

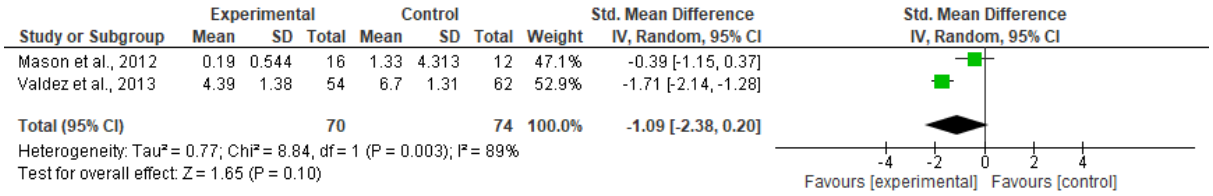

Figure 4.14 Targeted: Substance use in the past 30 days

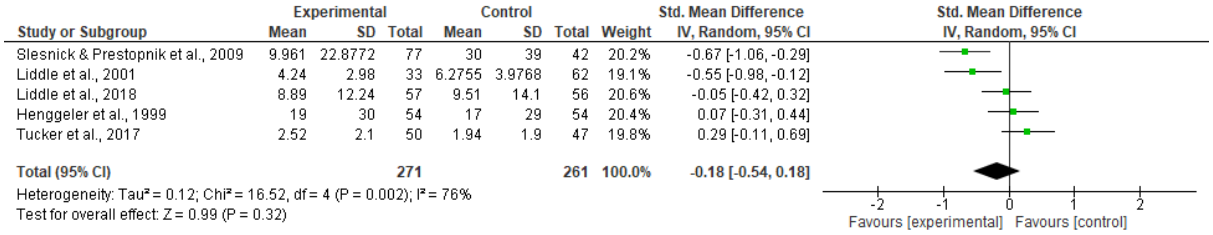

Figure 4.15 Treatment: Substance use in the past 30 days

4.3.2 Sensitivity analysis

Time band of 3-12 month follow-up

Omitting trials that did not fall within a time band of 3-12 months did not change the results for any of the primary or secondary outcomes, apart from increased levels of heterogeneity for all outcomes. Please see the findings for each of the sensitivity analysis in Appendix E.

Outcome measures

Omitting trials that reported results on specific mental health problems such as depression, anxiety and violent behaviour, rather than overall internalising or externalising symptom score (the most frequently used measure), did not impact the findings. However, heterogeneity was then no longer significant for internalising symptoms (I^2=19%, *p=0.30)* or externalising symptoms (I^2=0% *,p=0.67).* Similarly, omitting trials that reported on illicit drug use (rather than marijuana alone) and family functioning rather than specifically family conflict also did not have a significant effect. There were however slightly reduced levels of heterogeneity for family conflict.

Intervention content

Removing selective trials did not impact the findings apart from increased heterogeneity for Internalising symptoms. Removing trials containing alternate interventions including additional involvement of caregivers did not impact findings. However, levels of heterogeneity increased for externalising symptoms.

Outliers

Outliers were identified through visual inspection of the forest plots. Omitting outliers did not have a significant impact on any of the remaining primary or secondary outcomes. However, heterogeneity was no longer significant for internalising symptoms (I^2=0%, *p=0.44)* or externalising symptoms (I^2=15%, *p=0.31).*

4.3.3 Publication Bias

Publication bias was not investigated for any of the meta-analyses due to insufficient numbers of trials in each. Although there were 10 in the externalising meta-analysis, the sample sizes of the included trials were similar and therefore according to the Cochrane handbook it was not deemed suitable to test for publication bias.

4.3.4 Narrative synthesis

The trials that could not be included in a meta-analysis, which varied for each outcome, have been synthesised narratively. To remain consistent with the meta-analysis reporting, the overall summary will be provided for targeted interventions and treatment together. The findings for the targeted interventions and treatment will then be reported separately.

(1) Primary Outcome; Alcohol Use

Universal

All four universal trials (129-131, 134), could not be pooled due to lack of suitable data (mean and standard deviations (SD)). Trials reporting on a composite measure of substance use (including alcohol) are outlined in the substance use section.

One trial examining the 'Strengthening Families Program', targeting parenting skills and family functioning with a group based format, did not find significant intervention effects at 12 or 24 months follow up for any of the alcohol outcomes. The outcome measures included alcohol use, alcohol use without parent permission, drunkenness and binge drinking in the past 30 days (130).

Targeted and Treatment

Eleven trials examining targeted intervention and/or treatment could not be meta-analysed for alcohol use. This was due to lack of reporting suitable data and to the use of composite measures of substance use (128, 136, 139, 143, 145, 148, 150-152, 154, 161). Trials reporting on a composite measure of substance use are outlined in the substance use section.

Targeted

Two trials examined the intervention 'Familias Unidas', focusing on aiding caregivers to increase family functioning with no content aimed at young people alone. Another trial included multi-dimensional family therapy, improving parenting skills, family cohesion and additional separate sessions for young people directly targeting behavioural functioning. All trials reported nonsignificant results for alcohol use frequency four months after pre-test (136, 139, 161). However, the trial on multidimensional family therapy did find the percentage of youth with an alcohol dependence diagnosis significantly decreased from 15.8% to 5.4% in the intervention group compared to community practice control which increased from 6.6% to 8.1% (139) over time.

Treatment

The three trials on family treatment, 'Integrated Outpatient Cognitive Behavioural Intervention', 'Home-Based Incentives & Consequences Program' and 'Best Mood Behaviour Exchange Systems Therapy', reported mixed findings. Two of the interventions 'Integrated Outpatient Cognitive Behavioural Intervention' and 'Home-Based Incentives & Consequences Program', addressed both family functioning and separate sessions for

caregivers and young people focusing on individual functioning. These two interventions reported significantly reducing alcohol frequency over time ($p<0.007$), up until 18 months and 36 week follow up respectively (143, 148). Neither found significant group differences for alcohol abstinence over time (143, 148). Further, 'Integrated Outpatient Cognitive Behavioural Intervention', did not find significant intervention effects for alcohol problems, or psychiatric diagnosis (143). The remaining trial 'BEST MOOD', focused on parental coping, family functioning and the young person's individual functioning. None of the content was aimed at the child alone. This trial did not find significant between group differences for problematic alcohol consumption over time (up until three months follow up)(128).

Multilevel

One trial reported on a multilevel intervention. Adolescent Transitions Program (ATP), improving parenting strategies and family functioning whilst also providing separate sessions for young people on individual functioning and addressing extrafamilial factors. This trial found significant effects for alcohol use. For those who completed the universal intervention and then chose to further engage with the targeted intervention, 'Family Check Up', this inhibited growth in the frequency of alcohol use in the past month over time from ages 12-17 ($p<0.05$) in young people. There were however no significant differences across treatment and control groups for lifetime alcohol abuse/dependence.

(2a) Primary Outcome; Mental Health, Internalising

Universal

Two universal studies reporting on internalising symptoms (129, 131), could not be pooled due to lack of suitable data (mean and SD's).

The two trials 'Strong African American Families-Teen Program' and 'Bridges Puentes', reported on internalising symptoms with mixed findings. The two interventions targeted parenting skills and family functioning whilst also providing separate sessions for young

people. The youth focused sessions targeted young people's individual functioning and extrafamilial factors. 'The Bridges Puentes trial' was delivered in a group-based format. The 'Strong African American Families-Teen Program' reduced depressive symptoms 4.5% (p=0.01) more than the control over time, up to 22 months follow up (129). The 'Bridges Puentes' trial significantly reduced internalising symptoms (p<0.05) at 12 month follow up compared to the controls (131). The significant findings were limited to teacher reporting of young people who had higher levels of internalising symptoms at baseline (131) and effects did not remain at five years post-test. Further no intervention effects were found for mother and father reports at 12 month or five year follow up (132).

Targeted and Treatment

Two trials, examining targeted intervention and/or treatment, could not be pooled for internalising outcomes (139, 161) due lack of suitable data.

Targeted

Two trials 'Multidimensional Family Therapy' and 'Familias Unidas' reported on internalising symptoms with mixed effects (139, 161). The 'Familial Unidas' intervention focused on improving family functioning, with no content aimed at young people alone. This trial reported a significant intervention effect with a greater reduction in internalising symptoms compared to the control condition (p = 0.013) over time (up to 30 month follow up) (139). The 'Multidimensional Family Therapy' trial focused on improving parenting skills, family functioning and additional separate sessions for young people directly targeting behavioural functioning. This trial found non-significant intervention effects at post-test, four months after pre-test (161).

Treatment

One trial of 'Integrated Outpatient Cognitive Behavioural Intervention' targeted both family functioning and separate sessions for caregivers and young people targeting individual functioning. This trial reported on both anxiety and depression. Significant between group differences were reported by adolescent (p=0.03) but not parent reporting for young

people's anxiety symptoms. Whilst for depressive symptoms there were no significant between group differences (143). There were also no significant intervention effects for psychiatric diagnosis over time, from baseline to 18 month follow up.

Multilevel

One trial reported on a multilevel intervention. 'Adolescent Transitions Program', improving parenting strategies and family functioning whilst also providing separate sessions for young people on individual functioning and addressing extrafamilial factors. This trial found significantly less growth of depressive symptoms for high-risk young people compared to the control group in the past month, over time from ages 12-17, with large treatment effect (Cohen's d = 1.35; $p<0.05$). High risk young people were identified through scoring 3 or higher on a screening instrument for problem behaviours or young people whom teachers suspected of substance use. Mothers also reported significantly less growth in internalising symptoms compared to the control group, a large treatment effect (Cohen's d = 1.35; $p<0.05$) (154).

(2b) Primary Outcome; Mental Health, Externalising

Universal

The four universal trials reporting on internalising symptoms (129-131, 134),could not be pooled due to lack of suitable data (mean and SD's).

Four trials of universal interventions 'Strong African American Families-Teen Program', 'Bridges Puentes Program', 'Strengthening Families Program', 'Common Sense Parenting Plus', reported on externalising behaviours with mixed findings (129-131, 134). Both the 'Strong African American Families-Teen Program' and 'Bridges Puentes' program targeted parenting skills and family functioning whilst also providing separate sessions for young people. These youth focused sessions directly targeted young people's individual functioning and extrafamilial factors. Although the 'Bridges Puentes' program differed in that it was group based. Both found significant intervention effects on externalising

symptoms. 'Strong African American Families-Teen Program' reduced the frequency of conduct problems 36% more than the control over time, up to 22 months follow up (129). However, did not find intervention effects for whether conduct problems had occurred or not during the reporting period or not at 22 month follow up (129). 'The Bridges Puentes' program reduced mother (d=3.49, $p<0.05$) and father reports (d=3.49,$p<.05$) of externalising symptoms at 12 month follow up. This was for those with low baseline levels of externalising symptom (131). For the 'Bridges Puentes' program, which differed in that it was group based, results were dependent on the reporter and family acculturation *('adopting norms, language and values of host country here determined by the proxy measure of language spoken').* Significant adverse intervention effects were found for sub groups of the participants, at 12 month follow up (131). The two remaining trials 'Strengthening Families Program' and 'Common Sense Parenting Plus' did not find between group effects for externalising symptoms or conduct problems at 12 or 24 month follow up (130, 134).

Targeted and Treatment

Four trials, examining targeted intervention and/or treatment, could not be pooled for externalising outcomes (136, 143, 154, 161) due lack of data.

Targeted

The multidimensional family therapy targeted parenting skills, family cohesion and includes additional sessions for young people directly targeting behavioural functioning. 'Familias Unidas' focused on aiding caregivers to increase family functioning with no content aimed at young people alone. Neither found significant intervention effects on externalising symptoms at post-test, 4 months after pre-test (127) or over time (up until 30 month follow up) (136). Although for 'Familias Unidas' there were significant between group differences ($p<.03$) for incidence of externalising disorders over time (up until 30 month follow up) with 32% incidence rates in the intervention group compared to 61.3% for the Community Control.

Treatment

The trial 'Integrating Outpatient Cognitive Behavioural Intervention' improved parenting strategies and family functioning whilst also providing separate sessions for young people addressing individual functioning and extrafamilial factors. This trial examined intervention effect on externalising symptoms. It did not find significant results for parent reported conduct problems or psychiatric reported diagnosis over time (up until 18 month follow up (143).

Multilevel

One trial reported on a multilevel intervention. 'Adolescent Transitions Program', improving parenting strategies and family functioning whilst also providing separate sessions for young people on individual functioning and addressing extrafamilial factors. This trial reported that the intervention inhibited growth in antisocial behaviours in the past month, for those in the engagers class (those within the experimental condition that chose to receive the intervention), over time from ages 12-17 (154).

(3) Secondary outcome; Substance use

Universal

Four trials, 'Strong African American Families-Teen Program', 'Bridges Puentes', 'Common Sense Parenting-Plus' and 'Strengthening Family Program', reported on substance use with mixed findings. Two of the trials 'Strong African American Families-Teen Program' and 'Bridges Puentes', targeted parenting skills and family functioning whilst also providing separate sessions for young people. These youth focused sessions directly targeted young people's individual functioning and extrafamilial factors. 'Strong African American Families-Teen Program' significantly reduced substance use (marijuana and alcohol use) 32% (and 47% for those young people with substance use at baseline) more than for the control (P=0.001) over time, up to 22 month follow up. There were, however, no intervention effects on whether substance use had occurred during the reporting period or not (129). Whereas for the Bridges Puentes intervention, which had a group based format, significant

intervention effects were found for substance use (marijuana, alcohol and other illegal substances) for those adolescents who engaged in high levels of substance use at baseline ($p<0.05$) compared to the control at one year post intervention (131), but not at five year follow up (132). The two trial remaining trials 'Common Sense Parenting-Plus' and 'Strengthening Family Program' targeted parenting skills and family functioning. These were not effective in reducing past year substance use (alcohol, cigarettes and marijuana) at 12 or 24 month follow up (134) or life time, past year and past month cigarette, or past year of drug use at 12 and 24 months (130).

Targeted and Treatment

Five trials, examining targeted intervention and/or treatment, could not be pooled for substance use outcomes (126, 136, 143, 145, 148) due lack of suitable data.

Targeted

Two trials examined the intervention 'Familias Unidas', focusing on increasing family functioning with no content aimed at young people alone. One trial included 'Multi-Dimensional Family Therapy' which addressed parenting skills, family cohesion and additional separate sessions for young people. These youth focused sessions included directly targeting behavioural functioning. All three trials reported on substance use with inconclusive findings (126, 136). The 'Familias Unidas' trial aided caregivers to increase family functioning with no content aimed at young people alone, reported significant between group difference in past 90-day substance use (alcohol use and illicit drug use) ($p=0.02$), illicit drug use only ($p=0.04$) but not for marijuana dependence between 'Familias Unidas' and Community Practice ($p = 0.02$) (139). Whilst the other trial also reporting on this intervention found a steady increase in substance use (alcohol and marijuana) in both groups, however at a significantly steeper rate in the control group, at 30 month post-baseline ($p=0.02$)(136). For the remaining trial, 'Multi-Dimensional Family Therapy' addressed parenting skills, family functioning and additional separate sessions for young people directly targeting behavioural functioning, reported nonsignificant findings for a

count of the number of substances used (alcohol, tobacco, marijuana and prescription drugs) at post-test (161), and frequency of marijuana use in the past six months (161).

Treatment

Three trials reported on substance use with inconclusive findings. The two interventions, 'Integrated Outpatient Cognitive Behavioural Intervention' and 'Home-Based Incentives & Consequences Program' both targeted family functioning and separate sessions addressing individual functioning. Both trials reported significant intervention effects. The 'Integrated Outpatient Cognitive Behavioural Intervention' found significant intervention effects, with a 60% reduction in expected number of marijuana use days over time (up until 18 month follow up) (p= 0.007) with a stronger effect at later follow up. The trial additionally found intervention effects over time for marijuana problems (p=0.048) (143) and psychiatric diagnosis for substance use disorder (p = .005) but this was not found for the rate of diagnosis for cannabis disorder (143). Similarly, for the 'Home-Based Incentives & Consequences Program', (for those with cannabis use at baseline), the mean percentages of days of cannabis use was significantly lower in the intervention group compared to control at 36 week follow up (p<0.0001). However, there were no intervention effects on likelihood of reporting complete abstinence (148). The trial on ecologically-based family therapy focused on family functioning without sessions for young person alone, found no significant group differences over time (up until 24 month follow up) on substance use (including alcohol and drug use but not tobacco), or clinical change in substance use (145).

Multilevel

One trial reported on a multilevel intervention. 'Adolescent Transitions Program', improving parenting strategies and family functioning whilst also providing separate sessions for young people on individual functioning and addressing extrafamilial factors. Assignment to treatment was significantly related to the slope parameter for the engager's class (those within the experimental condition that chose to receive the intervention), for tobacco and marijuana use (p<0.05). Within engagers class the intervention inhibited growth in the frequency of tobacco and marijuana use in the past month. There was however no significant

differences across treatment and control groups for lifetime nicotine and marijuana abuse/dependence (154).

(4) Secondary Outcome; Family functioning

Universal

Only one trial, 'Common Sense Parenting-Plus', targeting parenting skills and family functioning reported on family outcomes. There were no significant between group differences for child or parent reported family interaction including parent involvement, parent- child affective quality or family conflict at 12 or 24 month follow up (134).

Targeted

The three trials, 'Familias Unidas', 'Brief Strategic Family Therapy', and 'Multi-Dimensional Family Therapy', reporting on family related outcomes reported mixed findings. 'Familias Unidas', aided caregivers to increase family functioning with no content aimed at young people alone. This trial led to significant improvements in positive parenting (p<0.05), parent-adolescent communication (p<0.004) and parental monitoring of peers (p<0.01) however not for parent involvement or family support compared to the control at six months follow up (136). The remaining two trials included content aimed at parenting skills, family functioning and sessions for young people. The youth focused sessions directly targeted behavioural functioning and extrafamilial factors. There were no significant between group differences over time for parent reported family adaptability and cohesion at six month follow up *(142)*, family cohesion or parental monitoring at post-test , 4 months after pre-test (161).

Treatment

There were no additional trials reporting on family functioning beyond those meta-analysed.

Multilevel

The adolescent transitions program trial did not report on family functioning

Table 4.2 Summary of primary outcome results for studies not pooled in meta-analyses

Identifier	Alcohol Use Outcomes	Mental Health Outcomes	
		Internalising	Externalising
Universal Interventions			
Brody et al., 2012	*Only composite measure of alcohol use reported* *Adolescent Report (controlling for sociodemographic risk, adolescent gender and pre-test levels of outcome)* *Substance use (Frequency of alcohol use, 3 or more drinks at one time, marijuana and cigarette use over the past three months)* At 22 months follow up: the Intervention was associated with a 32% decrease in substance use compared to control (100*[1e$^{-0.637}$*])*(***p*<0.001**). *Substance use problems during the past 12 months* At 22 months, for those engaging in substance use at baseline, 47% decrease in substance use problems compared to control (100*[1- $^{-0.442}$]) (***p*=0.001).** No intervention effects of the binary data indicating whether the outcome occurred during the reporting period or not	*Adolescent Report (controlling for sociodemographic risk, adolescent gender and pre-test levels of outcome)* *Depressive symptoms* At 22 months follow up: Significant intervention effect; intervention associated with a 4.5% decrease in depressive symptoms **(*P*=0.01**). No intervention effects of the binary data indicating whether the outcome occurred during the reporting period or not	*Adolescent Report (controlling for sociodemographic risk, adolescent gender and pre-test levels of outcome)* *Conduct problems* At 22 months follow up: Significant intervention effect; intervention was associated with a 36% decrease in the frequency of conduct problems (100*[1 – e$^{-0.442}$]) (***p*=0.001**) No intervention effects of the binary data indicating whether the outcome occurred during the reporting period or not
Foxcroft et al., 2017	*Adolescent Report* *Alcohol use, Alcohol use without parent permission, drunkenness and binge drinking in the past 30 days* At both 12 and 24 months follow up: No significant between group differences	Not Reported	*Externalising symptoms* At both 12 and 24 months follow up: No significant between group differences for total externalising score and Aggressive and Destructive Conduct
Gonzales et al., 2012 Gonzales 2014 Jensen, 2014	*Only composite measure of alcohol use reported* *Adolescent Report (Controlling for baseline score on the outcome, gender, and language variables)*	*Teacher Report* At 12 month follow up: There was a significant intervention effect for adolescents with high baseline internalising symptoms (d=2.35, ***p*<0.05**).	*Externalising Symptoms* *Teacher Report*

	Substance use (Lifetime use of tobacco, alcohol, marijuana, and other illegal substances) At 12 month follow up: No significant between group differences. For adolescents who engaged in high levels (85th percentile) of baseline Substance Use there was a significant intervention effect (d=3.65, *p*<0.05) with reductions in the intervention group compared to the control. *Clinical significance* The significant intervention effect (d=3.65) at the 85th percentile on baseline Substance Use indicated that, experimentation with at least 1 substance by 7th grade, estimated lifetime use in 8th grade was 1.1 substances for the intervention group compared to 2.18 for the control group. At five years follow up (*Controlling for* mother-adolescent conflict, adolescent gender, and baseline score on the outcome): No significant between group effects	*Adolescent, mother and father reports* *At 12 month follow up:* No significant between group differences At five years follow up (*Controlling for* mother-adolescent conflict, adolescent gender, and baseline score on the outcome): there were no significant between group differences	At 12 month follow up: There was a significant iatrogenic intervention effect for English adolescents with low baseline externalising symptoms (d=3.13,*p*=0.05). *Adolescent Report* At 12 month follow up: there was a significant iatrogenic intervention effect for Spanish adolescents with higher baseline externalising symptoms: (d=2.96, ***p*=0.05**). Young people in the intervention group reported higher levels of externalising difficulties than those in the control. *Mother report* At 12 month follow up there was a significant intervention effect, with reductions compared to the control (d=3.49,***p*<0.05**) Father report: At 12 month follow up there was a significant intervention effect for young people with low baseline levels of externalising symptoms with reductions compared to the control (d=3.49,***p*<.05**). At five years post-test (*Controlling for* mother-adolescent conflict, adolescent gender, and baseline score on the outcome): there were no significant between group differences
Mason et al., 2016	*Only composite measure of alcohol use reported* *Adolescent Report (Controlling for youth gender and parent ethnicity)* *Substance use -: Dichotomous measure of any substance use (Past year use of alcohol or marijuana and, past month use of cigarettes)* At both 12 and 24 months follow up: there were no significant between group differences.	Not Reported	*Parent and adolescent Report (Controlling for youth gender and parent ethnicity)* *Conduct problems* At both 12 and 24 months follow up: there were no significant between group differences for conduct problems
Targeted Interventions			
Hogue et al., 2002	*Adolescent Report* *Frequency of Alcohol use over past 6 months*	*Parent and Adolescent report:*	*Parent and Adolescent report*

	At Post-test: there were no significant between group differences for alcohol use.	At Post-test: there were no significant between group differences for externalising behaviour. However there were significant declines in symptoms in both groups (Wilks' ^ =.06, ***p* <.001**)	At Post-test: There was no significant between group differences. However there were significant declines in symptoms in both groups (Wilks' ^ =.05, ***p* <.001**)
Pantin et al., 2009 Prado et al., 2013 Perrino et al.,2016	*Adolescent Report (Controlling for baseline levels of outcome*) *Substance use (Ever used alcohol, cigarettes or marijuana in the past 30 days*) Over time (measured at 6, 18 and 30 month follow up): Significant differences between Familias Unidas and Community Control (b = 0.53, z =2.42, ***p* < .02**; d = 0.25). Both associated with increased rates but with steeper increases in the control. The proportion of youth at 6 month post baseline reporting substance use in Familias Unidas increased from 15% at baseline to 21% and to 25% at 30 months post baseline whereas in the Community Control condition at baseline, 13% of youth reported using a substance, whereas 34% did at 30 months.	Pooled in meta-analysis	*Parent Report (Does not report on controlling for covariates)* *Percentage of youth externalising behaviour* Over time (measured at 6, 18 and 30 month follow up): There were no significant between group differences *Clinical significance* *Incidence of externalising disorders* Over time (measured at 6, 18 and 30 month follow up): Significant between group differences $\chi2(1) = 4.76$, ***p* < .03**; w = 0.29.with 32% incidence rates in the Familias Unidas group compared to 61.3% for the Community Control.
Prado et al., 2011 Perrino et al., 2016	*Adolescent Report* *Any alcohol use during past 90 days* Over time (measured at 6 and 12 month follow up): There were no significant between group differences. Although there was a trend favouring Familias Unidas in regarding current alcohol use. *Alcohol or drug use (Does not report on controlling for covariates)* Over time (measured at 6 and 12 month follow up): Significant between group difference in past 90-day substance use between Familias Unidas and Community Practice (b = −0.67, ***p* = 0.02**,δ = 1.06) . With reductions of 44.4% to 33.3% of youth reporting use in Familias Unidas compared to an increase from 38.85% to 45.5% in the control. *Alcohol dependence (Controlling for baseline levels of outcome)* Over time (measured at 6 and 12 month follow up): Significant difference in the percentage of youth with an alcohol dependence diagnosis over time between Familias Unidas and	*Parent Report (controlling for age, gender, baseline parent–child communication, as well as the latent intercept for internalising symptoms)* Over time (6 month and 12 month follow up): Significantly, greater reduction in internalising symptoms across time for youth in Familias Unidas compared to the control condition over time (*b* = 0.191, SE = 0.077, ***p* = 0.013**, 95% CI: 0.041, 0.341). The effect size was 0.48..	Not reported

	Community Practice (b = −1.16, ***p* = 0.02**, δ = 0.93). with a decrease from 15.8% to 5.4% in the Familias Unidas group compared to an increase from 6.6.% to 8.1% for community practice.		
Treatment based interventions			
Esposito-Smythers et al.,	*Adolescent Report (Controlling for baseline levels of outcome)* *Days of alcohol use, abstinence over the past 30 days and alcohol problems over the past 3 months:* Over time (measured at 3, 6, 12, and 18 months post-enrolment): There were no significant between group differences. *Days of heavy alcohol use over the past 30 days* Over time (measured at 3, 6, 12, and 18 months post-enrolment): Significant intervention effects over time with I-CBT associated on average with a more than 50% reduction in the expected number of heavy drinking days and the effect became stronger at later follow-ups (***p*<0.007**). *Psychiatric Diagnosis* At 18 month post-enrolment: There was no significant between group differences.	*Adolescent report- depressive symptoms (Controlling for baseline levels of outcome)* Over time (measured at 3, 6, 12, and 18 months post-enrolment): No significant between group differences *Adolescent report- Anxiety* Over time (measured at 3, 6, 12, and 18 months post-enrolment): significantly greater effect on anxiety over time in the I-CBT condition than E-TAU (***P*<0.03***)* *Parent report-Depressive symptoms* Over time (measured at 3, 6, 12, and 18 months post-enrolment). There was a significant main effect of treatment *p*=0.01 however there was not significant between group difference over time *Parent report- Anxiety symptoms* Over time (measured at 3, 6, 12, and 18 months post-enrolment): No significant between group differences *Psychiatric Diagnosis* From baseline to 18 month follow up: No significant between group differences for psychiatric diagnoses.	*Parent reported conduct problems (Controlling for baseline levels of outcome)* Over time (measured at 3, 6, 12, and 18 months post-enrolment): No significant between group differences *Psychiatric Diagnosis* From baseline to 18 month follow up: No significant between group differences.

Henggeler Pickrel & Brondino 1999 Henggeler Pickrel & Brondino1996	Composite substance measure pooled in meta-analysis	Not reported	Pooled in meta-analysis
Poole et al., 2018	*Adolescent Report* *Problematic Alcohol Consumption* Over time (measured at post treatment, 3 months follow up): There was no significant between group differences.	Pooled in meta-analysis	Pooled in meta-analysis
Slesnick et al., 2013 Slesnick et al., 2012 Guo et al., 2014	*Adolescent Report (Controlling for percent of sessions attended, ethnicity, gender and age),* *Substance use: Total percent days of Alcohol Use and drug use (except tobacco)* Over time (measured at 3, 6, 9, 12, 18 and 24 months post-enrolment): No significant between group differences however with reductions in all groups over time. *Clinical significance of alcohol Use and drug use (except tobacco)* Over time (measured at 3, 6, 9, 12, 18 and 24 months post-enrolment): No significant between group differences however with reductions in all groups over time.	Pooled in meta-analysis	Pooled in meta-analysis
Stanger et al., 2017	*Adolescent Report (Controlling for socioeconomic status and cannabis dependence as covariates)* *Frequency of alcohol use, percentage of days of use during past 12 weeks* Over time (until 36 week follow up) there was no significant between group differences for complete alcohol abstinence. There was a significant intervention effect for, the mean percentages of days using alcohol $x^2(2) = 7.41$, ***p*=0.007**). Similar results were obtained when restricting analyses to participants with substance use data on at least 25% of days.	Not reported	Pooled in meta-analysis
Multilevel intervention			
Connell, et al., 2007 Connell & Dishion, 2008 Connell et al., 2012 Van Ryzin &, Dishion, 2012 Connell et al., 2016	*Adolescent Report* *Frequency of alcohol use during the past month assessed at ages* 11,12,13,14, and 16-17 Assignment to treatment was significantly related to the slope parameter for the engager's class (those within the experimental condition that chose to receive the intervention and where data was	*Adolescent Report 7th,8th,9th grades* *For high risk youths* (scores of 3 or higher on a screening instrument for problem behaviours or whom teachers suspected of substance use), young people receiving the intervention reported significantly less growth in self-reported depressive symptoms compares to youths in the control	*Adolescent Report* *Antisocial behaviour within the past month* Assignment to treatment was significantly related to the slope parameter for the engager's class (those within the experimental condition that chose to receive the intervention and where data was provided for controls),

Stormshak, 2009	provided for controls), for alcohol use (***p*<0.05**). Within engagers class the Family Check Up inhibited growth in alcohol use from ages 12-17. *Adolescent report* *Lifetime Alcohol abuse or dependence at 19 years of age* No significant differences across treatment and control groups.	condition, a large treatment effect (Cohen's d = 1.35; ***p*<0.05**) *Mother Report assessed at 7th,8th,9th grades* Mothers of high risk young people receiving intervention reported significantly less growth in youth internalising symptoms than did the mothers of youths in the control group, a large treatment effect (Cohen's d = 1.07; ***P*<0.05**).	for antisocial behaviour (***p*<0.05**). Within engagers class the Family Check Up inhibited growth in antisocial behaviour from ages 12-17.

4.4 Chapter Summary

This chapter has presented the findings from the systematic review in two forms. First a meta-analysis followed by a narrative synthesis. The narrative synthesis consisted of those studies that could not be pooled statistically. The meta-analysis found that despite significant reductions in family conflict, representing the primary mechanism of change, family interventions did not significantly prevent or reduce alcohol use or wider substance use, internalising or externalising problems. This suggests that primarily addressing family processes may not be sufficient. However, this finding should be interpreted with caution as the risk for type II error rises with increased statistical testing. The narrative synthesis tentatively suggests that the addition of components addressing individual functioning and extrafamilial factors may increase intervention effectiveness and requires further exploration. It also raised the potential adverse effects of group delivery (young people with other young people) of intervention sessions.

This review further highlights the paucity of family-involved interventions explicitly developed for co-occurring alcohol use and mental health problems. Only three of the trials were specifically developed to target co-occurring alcohol use and mental health problems and only three of these interventions included components targeting the relationship between mental health problems and alcohol use. One of these studies was a pilot trial and assessed to be at high risk for many of the risk of bias domains, limiting the conclusions that can be drawn. This could further explain the non-significant effects and emphasises the need for the development and evaluation of family interventions specifically developed to target co-occurring alcohol use and mental health problems in young people.

The addition of youth focused components may increase intervention effectiveness. Youth focused components consisted of those aimed at the young person separate from the family. However, the contents of the youth focused components varied, including individual functioning, external factors ranging from peers and education to racial and cultural issues.

The majority employed specific theories within Family Systems or Socioecological theory. Behaviour change theories from health psychology were rarely drawn upon with the exception of one explicitly underpinned by Social Cognitive Learning theory. This is partly as behaviour change theories do not aim to alter mental states (163). Further, family-involved interventions attempt to support and improve the young person's functioning in the context of their environment, particularly family, and not internal capabilities and motivation in isolation, which is often the focus of health psychology (164).

Few interventions involved caregivers other than mothers, dual parent participation or family members beyond significant caregivers such as siblings, grandparents, aunties or uncles. This does not reflect the common current family structures within which young people are embedded (165). Equally, few studies considered the impact of a parent's own mental health or substance use in relation to young peoples related outcomes and intervention effects, despite strong evidence of such an impact (36, 166). Further only one intervention was developed outside of the US. With considerable social and cultural differences compared to Europe this may hinder successful translation of these interventions to other countries (167).

Consequently, the systematic review identified a range of areas in need of further research. First, the exploration of mechanisms at play and how best to involve family members in relation to co-occurring alcohol use and mental health problems. Second, the development of intervention content linking alcohol use to mental health problems. Third, the consistent use of a specific outcome measure for the co-occurrence of alcohol use and mental health problems. Finally, interventions need to expand beyond targeting externalising problems and include internalising problems. A full discussion of findings along with a critique of included studies will be provided in the final discussion chapter. The following chapter presents the methodology and methods of the qualitative interviews which explored the views of end users, young people and caregivers, on the needs of young people with co-occurring alcohol use and mental health problems.

Chapter 5. Qualitative Interview methodology and methods: Exploration into the needs of young people with co-occurring alcohol use and mental health problems.

5.1 Chapter Introduction

In the following two chapters, I will detail the methods and findings of the qualitative interviews exploring the needs of young people with co-occurring alcohol use and mental health problems. This chapter provides the justification and implications of the chosen methodology for the qualitative semi-structured interviews and subsequent analysis. This is followed by a detailed account of the methods for the recruitment of participants, carrying out the interviews and analysing the data.

5.2 Aspects informing qualitative interview methodology

Systematic review

There are multiple rationales for utilising a mixed method approach including 'development' in which results from one component inform the development of the next (168). This was applied within this doctoral work. Consequently, the findings from the systematic review and the meta-analysis helped inform the qualitative interviews. This was in three main ways. First, the systematic review helped identify the need to explore factors other than family dynamics and functioning in relation to co-occurring mental health and alcohol use within the interviews. As such young people were asked broadly about what they felt influenced their alcohol use and mental health. Second, due to mainly mothers participating within the interventions, specific efforts were made to recruit fathers and other caregivers such as grandparents. Third, it helped identify the ecological systems theory, which was applied to further interpret the qualitative analysis.

Public involvement

End user, public involvement was drawn upon to help inform the field work methodology employed within this study. Public involvement includes gaining insight from individuals who have knowledge and experience in the area being studied in order to help inform methodological decisions (169). Here individuals are not considered participants in the

research, rather are considered lay advisors in the research process (170). As such ethical approval is not required for PPI.

To inform the qualitative interviews I consulted the Young Persons Advisory Group: North England (YPAG: NE) on two separate occasions. This consisted of ten 12 to 18 year olds. I also consulted professionals. The first public involvement sessions with young people and professionals helped shape both the recruitment strategies and research methodology. The second sessions assisted the refinement of the topic guides developed for the qualitative interviews. As for the workshops eight young people accessed through a youth group, were consulted regarding the techniques and activities to be utilised within the co-design workshops. The way in which PPI consultations informed the qualitative interview methodology will be discussed within this chapter. Whereas implications for the co-design workshop methodology will be discussed within the co-design workshop chapter.

5.3 Interview and data analysis methodology

5.3.1 Rationale for Semi-Structured Interviews

According to MRC guidelines primary research is recommended to inform and develop theory to ultimately inform intervention development (63). Inductive qualitative exploration has been found to provide an in-depth understanding of the health outcomes of interest (171) along with exploration of participants views, needs and experiences (172). Semi-structured interviews were adopted as the method of investigation to help generate a rich and in depth understanding of the views, needs, perceived risk, protective factors, existing management strategies and support of young people experiencing co-occurring alcohol use and mental health problems from their own and caregivers perspectives (173). Interviews facilitated detailed personal narratives regarding this sensitive subject matter, which focus groups would not have enabled. Also, the private setting of an interview facilitated the ability to discuss the topic which is inherently confidential and sensitive in nature (174).

5.3.2 Approach in conducting interviews

A semi-structured approach was employed in which interviews were seen as a 'conversation with a purpose' (175). Here the key areas, informed by the research aims, are covered whilst not limiting participants discussions. Whilst semi-structured interviews are not normal conversations they are still social interactions. Thus the richness of the resulting data was dependent on my personal qualities and professional skills (176). I had to listen attentively to the participant and respond efficiently and sensitively through the use of probes and follow up questions. This can help the participant open up, clarify or expand on what they said or provide further information (177). This was further aided by building rapport and a good working relationship with each participant. I would often attempt to establish this rapport prior to the interview as this is known to facilitate the subsequent development of the interview (178). The option for young people to meet me ahead of the interview was deemed important by the young people consulted during PPI. Throughout the interview I tried to create a trusting climate in which empathy and understanding was promoted (179).

For safeguarding purposes young people were interviewed at the place of recruitment, in a room with a window and a professional nearby in the building (180, 181). To help caregivers feel comfortable in participating in the interviews they were allowed to choose, where possible, the interview venue. This was frequently at the participants homes or in private rooms at the university. This can help create a relaxed environment resulting in a more productive interview (178, 182).

The young people and caregivers interviewed could be members of the same family or not. This methodological decision was based on flexible, sensitive, and practical considerations. With studies of a sensitive nature, as was the case in this study, it can be difficult to include more than one participant from the same family (183). However interviewing multiple family members from the same family enables family members views, 'realities' to be compared and contrasted (184). In cases where young people and caregivers from the same family were interviewed, they were interviewed separately. This was informed by PPI with young people, voicing that this would make them feel most comfortable and would

therefore be more honest and open. If more than one caregiver from the same family wanted to be interviewed, they were interviewed separately. This allows them to express their views freely without concern of being criticised by their partners and without one partner possibly dominating the conversation (183).

Topic guides were developed to inform the semi-structured interviews (see Appendix K and Appendix L). They were designed to guide me and ensure that the main areas of interest were covered whilst not constraining the interviewee (185). Discussions were not restricted to the specific structure of the predetermined guide, allowing emergent issues to be explored (185). PPI with young people helped inform the structure of the topic guide and language used ensuring it was understandable and appropriate. Young people suggested that the section on emotions be explored prior the part regarding alcohol use. Therefore, I restructured the topic guide so that 'easier' topics were discussed prior to increasingly sensitive topics. This helped participants to feel at ease, increasing their confidence and rapport building (178, 186). The topic guides consisted of two parts. The main part covered questions were more **explorative** about their lived experiences. A sub-section focused on possible **intervention content** and practical considerations for intervention development. The topic guides were adapted throughout to reflect emerging themes. The topic guides used with carers were developed to align and be comparable with the young person's topic guide.

Some young people interviewed may struggle to express themselves particularly due to the sensitivity of the topic area (187). The use of stimulus material, 'emotion cards', were employed with young people to help stimulate and structure conversations with regard to potentially sensitive topics and to make the interview process more interesting (see Appendix M). Similar aids have been utilised successfully in related areas of investigation (188). To accommodate for different preferences, competencies and experiences, young people could share their ideas in writing through the use of a spider diagram as an alternative or in addition to verbal discussions. This also allowed young people time to reflect on the topic of discussion.

5.3.3 Sampling Strategy

A purposive sampling approach was adopted, in which participants were selected based on a range of key characteristics related to the research questions. Maximum variation of these sample characteristics was sought. This facilitates a diverse range of perspectives and in turn the comparison of contrasting accounts, which aids the development and testing of arguments (189). This contributed to a richer, more nuanced and well-founded understanding of the factors influencing young people's co-occurring alcohol use and mental health problems, along with areas of need

Young people were sampled for maximum variation according to the following characteristics: (1) Age; (2) Gender; (3) socio economic status (SES); (4) whether young people had accessed services or not; (5) Ethnicity. SES was determined by the location from which the young person was recruited rather than individual level socio economic status data. The area postcode was entered into the Index of Multiple Deprivation (190). This is based on income, employment, education, health care, disability, crime, housing and living environment. An ecological indicator as opposed to an individua level one was used due to the established difficulties in gaining SES indicators for young people. In addition, parental income or occupation as a proxy measure of SES for young people is often deemed as inappropriate for research purposes (191). Sampling young people who had accessed services/received a diagnosis in addition to young people who had not, provided insight into what help could have put in place prior to reaching this point.

Carers were sampled for maximum variation in regard to: (1) Their relation to the young person; (2) Socioeconomic status (3) the gender of their child (4) The age of their child (5) Ethnicity. To aid consistency, the SES of parents and carers was also based on the location from which they were recruited, inputting the postcode into the Index of Multiple Deprivation (190).

The interviews were conducted until data saturation was considered to have been achieved. This is when one no longer identifies new emerging themes from the data during analysis. Analysis commenced during data collection and continued throughout the write up process.

This iterative approach facilitated the identification of emerging themes and provided insight into when data saturation had been reached (192). This determines the sample size and facilitates a deep understanding of issues explored (173).

5.3.4 The nature of semi-structured interview data

Within this study I played an active part within the semi-structured interviews (176, 193). Data generated arose from the interactive discussions between me and the participant (176). I further developed the meaning of the data through interpreting participants accounts (182). The chosen methodological approach was aimed to generate the most in-depth understanding of young people´s needs, areas of support and associated risk and protective factors of co-occurring mental health and alcohol use (176, 194).

5.3.5 Approach to Data Analysis

Thematic analysis was employed to analyse the semi-structured interviews (195). This analytical approach consists of identifying, analysing and interpreting themes within the data. A theme '*captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set' (195).* The data from caregivers and young people from the separate families, were analysed together in order to contribute to the understanding of the needs of families in supporting young people with co-occurring alcohol use and mental health problems. Thematic analysis enables a compatible and flexible analytical tool (195). Grounded theory principles, including inductive and constant comparative methods were drawn upon throughout thematic coding (196, 197). An inductive 'bottom up' approach was employed, with analysis being data driven, as much as possible, as opposed to the researcher pre-imposing theories onto the data (195). Constant comparative methods involved continuously comparing the similarities and differences within and between the sources, data and categories (196). This method was applied to every level of analytic work in order to develop initial codes into a more analytic ones. This method was applied to facilitate a more in-depth analysis (196). Analysing the caregiver data and young person data of separate families together, along with data from family members from the same family aided the comparisons and

contributed to a holistic understanding of the needs of young people with co-occurring alcohol use and mental health problems.

Writing was carried out throughout analysis, as it enabled further opportunity for analysis, reanalysis and reassessment (198). In the earlier stages this took the form of written notes and annotations. Whilst at the final reporting stage this process further contributed to exploration, interpretation and explanation (195, 198, 199). Themes were presented to the supervisory group to challenge the thematic structure and allow a deeper understanding and interpretation of the data (195, 198, 199).

Thematic analysis is compatible with the critical realist stance of this research as this method is not associated with any specific epistemological or ontological stance. Rather, emphasis lies on the researcher explicitly outlining the philosophical orientation of the study, (195, 200). In keeping with the critical realist orientation it is understood that analysis is mediated, often subconsciously, by the restrictions of researchers knowledge and the assumptions of their culture and norms from their social setting (103). Consequently, this was continuously explored through reflexivity and presented in section 2.4.

5.3.6 Ethical considerations

Although participants were not recruited through NHS services, NHS ethics was deemed most appropriate due to the sensitive nature of the study and the young age of the participants and associated possible vulnerability. Due to the sensitive subjects being discussed with both young people and caregivers, participants were reminded of the voluntary nature of the study throughout. If there were any signs of distress, paying particular attention to non-verbal cues, the participants were offered to either take a break or to end the interview at any point (201, 202). In addition, I expressed to the participants that they did not have to answer if there was anything they did not feel comfortable to share. This was in an effort to avoid participants experiencing perceived intrusion into their personal lives (203). These efforts were also put in place to address the unequal power distribution which can arise between researchers and participants (181, 204). For young people additional measures were taken into consideration in regard to power dynamics.

Young people were consulted throughout to ensure their involvement and inclusion in shaping the research during the PPI sessions (205). Based on discussions with the PPI group it was deemed essential to provide a gift voucher in order to thank them for their time and involvement. However, the appropriateness of paid compensation for young people is seen to be conflicting in the literature with concerns regarding how this may contribute to the already unequal power distribution (206). Thus, young people were informed prior to the interview that they would receive a gift voucher regardless of whether they took part in the interview or not.

Further consideration was required when more than one family member from the same family, (young person or caregiver) were interviewed. Confidentiality was maintained throughout, meaning that I had to ensure not to disclose any information from the first interview with one family member to other family members in the second or third interview (204, 207). If family members specifically enquired about information discussed by their family member it was explained that this could not be shared (204).

Involving young people in research can cause increased ethical concerns compared to other areas of research, thus requires further attention to their safeguarding whilst enabling them to participate in research (208). As such, according to the MRC guidelines written consent ,together with assent, is required from young people under the age of 16 (209). Although it is recognised that maturity is not defined by a chronical age, research has highlighted that young people, from the age of 14, have decision-making capacity and therefore should be allowed to take part in minimal risk research without parental consent (210) . Requiring parental consent, can lead to some young people being unable to participate which can then impact the validity of studies. This can be due to not wanting parents to provide consent or parents being unable to (210) . Furthermore, requiring parental consent minimises young people's autonomy and consequently the potential benefits of the research. This is particularly an issue with at risk groups, including the population approached in this study, young people experiencing mental health problems and alcohol use, and leads to underrepresentation of this population. This together with the study being purely exploratory and did not involve an intervention, led to the decision that

parental consent was required for those aged 12 and 13 but not for those aged 14 to 17 (211). This decision was approved by the NHS ethics committee. The ethics committee suggested applying Gillick competence guidelines to further gauge whether the 14 to 15 years old demographic were competent in being the sole provider of consent. These guidelines, applicable to public health research, were originally established in order to gauge whether a young person aged 16 or younger is competent to consent to their own treatment, without parental knowledge or permission (212). I completed recommended reading and online training regarding Gillick Competence entitled 'Informed Consent in Paediatric Research' as recommended by the Clinical Research Network. As requested by the NHS ethics committee I had telephone access to a member of the supervisory team throughout the entirety of the interviews. This was to ensure that if any safeguarding disclosures arose, they could be discussed immediately with the social worker, paediatrician or a paediatric psychiatrist, which form part of the supervisory team.

5.4 Interview Methods

5.4.1 NHS Ethical Approval

Ethical approval was gained from West Midlands-Coventry & Warwickshire Research Ethics Committee in December 2016 (reference 16/WM/0454) (see Appendix F). The application covered both the qualitative interviews and the co-design workshops. I also gained Disclosure and Barring Service (DBS) approval in December 2016 (see Appendix H).

5.4.2 Eligibility Criteria

Young people aged 12-17 or caregivers with children aged 12-17, from the Northeast of England, who had experienced or were currently experiencing mental health problems (internalising and externalising) and engaged in alcohol use simultaneously were included.

For the following individual's additional conversations took place with gatekeepers and the possible participant in regard to the appropriateness of them taking part:

- Individuals, with severe mental health problems, determined through the proxy measure of the individual having an associated healthcare professional such as a psychiatrist or a psychologist.

- individuals who had a cognitive impairment, determined through the proxy measure having a statement of special educational needs (SEN) such as a learning difficulty.

- individuals with any associated safeguarding concerns, examined through the proxy measure of the individual having an associated social worker.

Interviews were to be rearranged if individuals were visibly grossly intoxicated or were unable to provide informed consent.

5.4.3 Recruitment Strategy

Young people were recruited through a range of settings in the North East of England. These included schools, alcohol and drug services, charities, youth offending services and local youth clubs. A working title for the field work was developed; **STAR**: **ST**udy exploring **A**lcohol **R**isks and mental wellbeing to aid the recruitment procedures, ensuring that the study title was simple and memorable and was used in all study documentation. Young people were recruited through three main alternative methods.

1. Gatekeepers informed of the eligibility criteria approached young people and discussed the study with them and provided an information leaflet. Most frequently the gatekeeper would then arrange a convenient time for the young person to meet me to discuss the study. Alternatively, the young person provided their contact details and assent to be contacted to discuss participation with the myself.

2. I visited recruitment settings and informed young people directly about the study and provided information leaflets. The gatekeeper then arranged a time convenient for the interview to take place at their service for those young people wishing to take part. Again, young people could provide their contact details and assent to be contacted to discuss participation directly with me.

3. Posters and/or brief summaries on, for example social media platforms, detailing the STAR study could be displayed within different recruitment settings. This approach enabled potential participants to contact me directly rather than going through a gatekeeper. If they were interested in taking part after speaking with me an information leaflet was sent to them.

It was ensured that all participants had a minimum of 24 hours to make an informed decision to take part or not, allowing time to discuss their decision with their carers if they so decided.

Similar recruitments techniques were employed with caregivers. Method one was the most frequently employed. Settings included schools, alcohol and drug services, Newcastle University, charities, and community centres. Young people who were interviewed could take an information leaflet for their caregiver who could then contact me if they were also interested in taking part. It is important to note caregivers recruited did not have to be the specific caregivers of the young people interviewed.

During recruitment, participants from higher SES proved to be harder to access. In regard to young people this was addressed by increasing recruitment through schools in higher SES areas or covering a broad catchment area encompassing higher SES areas. The same methods were applied for caregivers. In addition, information regarding the study was distributed on the Newcastle University staff homepage, Newcastle University parents network group page and to the parents network group mailing list. There were also difficulties in recruiting minority ethnic participants. However, the recruited demographic reflects the predominant population of the Northeast of England.

5.4.4 Interview Process

Most interviews were conducted on a one-to-one basis. Only three young people and caregivers were members of the same family. The remaining young people and carers were not related to each other. All young people were interviewed within the recruitment setting whilst carers were interviewed in either the recruitment setting, private university rooms, or their home, depending upon preference. Young people had the option of bringing a trusted

adult as an observer to the interview. None of the young people opted for this. Although two young people asked to bring a friend as an observer, in one case the friend left part way through.

Prior to the interview I explained the study to the participants and answered any subsequent questions. I explained clearly what confidentiality and anonymisation entailed. It was explained that they would not be identifiable in subsequent publications or reports. It was also explained that if they disclosed that they or any other person was at a serious risk of harm then confidentiality would be breached. Assent/ Consent was sought dependent on age. All participants agreed to the interviews being audio recorded. The questions were structured using the topic guide. Twenty-two emotion cards, along with blank cards, were introduced at the appropriate section of the topic guide. Young people had some time to go through the cards and select the emotions they felt they experienced most frequently. The selected emotion cards were then used to prompt conversations and I probed around factors that had led to those feelings, support and strategies that helped with those feelings and whether these emotions were linked to alcohol use at all. All participants received a £10 gift voucher as a thank you for their time and participation.

5.4.5 Data Analysis

The data from caregivers and young people, were analysed together. To ensure that I gained an understanding of the data and remained reflexive, I completed comprehensive field notes reflecting on the interview content. All interviews, except for one which I transcribed, were transcribed by a professional transcription company. All verbatim interview transcripts were cleaned (spelling) and anonymised. This together with repeated reading of the transcripts further facilitated my familiarity with the data. I also conducted informal preliminary analysis, by hand, on a subset of transcripts from the earlier interviews. This enabled the identification of patterns within the data which aided the development of emergent themes to guide exploration in subsequent interviews. However, it was not possible to carry out in depth data analysis throughout data collection due to the nature of

recruitment. Recruitment was a very time-intensive process and resulted in gatekeepers providing sporadic groups of participants.

NVivo software 11, was used as an organisational tool to aid analysis. The topic guides, research questions and codes from the initial transcripts contributed to a preliminary coding framework. For organisational purposes, the caregiver data and the young people's data was analysed within two separate NVivo files, using the same initial coding framework. This facilitated comparisons between the data. Initial stages of analysis involved applying the coding framework to aid the coding of each transcript individually. Codes represent basic aspects of the data which relate to the overarching research questions (195) Within Nvivo, codes are visualised as nodes, which stores the coded text. To organise and categorise the nodes, in line with the coding framework, these were structured according to overarching categories, categories and subcategories. Coding consisted of a balance of 'bucket coding' (broad brushed) and 'coding in detail'. 'Bucket coding' involves coding the transcripts according to broad aspects of the data. Whereas 'coding in detail' encompasses increased reflection and exploration. The combination of both enabled an efficient way of initially approaching the complex and rich set of data (213). This involved an iterative process of creating new nodes and merging existing ones where needed whilst coding each transcript.

As analysis progressed this evolved into more detailed and in-depth coding and re-coding **within** each node, resulting in the refinement of each node. This is referred to as 'review and revival' and involved recoding content from one node to another, merging nodes, creating new ones and removing nodes. Approaching analysis in this way enabled me to recontextualise the data within concepts as opposed to the specific transcripts. This facilitated an understanding of what each concept entailed and to move away from individual case analysis to theorising (213). Nodes were rarely deleted rather were labelled 'retired' (213). As such they were no longer in use but were there as a reference point to keep a record how the analysis had evolved.

Further methods were employed to deepen analysis and aid theorising. Constant comparative methods consisted of comparisons which were made between for example

age, gender and levels of difficulties, often based on whether the participant had accessed treatment services or not. This facilitated understanding the influence context had upon experiences and issues associated with co-occurring alcohol use and mental health problems (6). Negative case analysis involved exploring deviant cases which challenged my theorising and aided the exploration of alternate theories to help build a deeper understanding of the underlying mechanisms of the phenomenon in question.

Notes were written throughout analysis to aid the development of key emerging ideas; enabling progression to a higher analytic level (33). This included reflective thoughts regarding codes and associated concepts, how codes were associated with other and how they could be combined to create themes and sub themes, along with ideas for further analysis (213). These consisted of both handwritten notes and the use of the annotation and memo function in Nvivo. Annotations were used to illuminate a specific piece of text within a transcript. Whilst memos were used in relation to specific nodes and handwritten notes were regarding both single transcripts and nodes. Further, a visual representation was used, in which codes were jotted down onto post it notes, which could then be grouped, further facilitating the understanding of the relationship between codes and the formation and refinement of themes (195). The emerging themes helped further identify suitable theories. Subsequently, emerging themes were contrasted with the theories and the wider literature. Data analysis sessions with a member of my supervisory team helped develop my conceptualisation throughout analysis and provided further opportunity for reflexivity. This was alongside less frequent discussions with the wider supervisory team.

Analysis continued throughout the write up process. Whilst writing up each theme, I refined each one to ensure coherency, consistency, and distinctiveness. This process was aided by questioning each themes meaning and underpinning assumptions. I also checked that together the themes all contributed to the same overarching picture.

5.5 Chapter Summary

This chapter has discussed the methodological considerations alongside the specific methods employed for the qualitative semi-structured interviews and analysis. The following chapter will present the findings for the qualitative interviews

Chapter 6. Qualitative interview findings; Exploration into the needs of young people with co-occurring alcohol use and mental health problems.

6.1 Chapter Introduction

This chapter presents findings from the qualitative interviews carried out with young people and caregivers. As outlined in chapter five, interviews explored young people and caregiver's views on what factors/influences contributed to young people's co-occurring alcohol use and mental health problems. They were also asked to reflect on existing management strategies, support and any areas of need. In a sub-section of the interviews, participants were asked to consider possible content for an intervention. The findings formed four main themes: (1) Relationship between mental health problems and alcohol use for young people; (2) Socioecological factors associated with co-occurring mental health problems and alcohol use; (3) Individual and Familial resources in support of the young person;(4) Intervention principles. Each theme is explored with emphasis on the relationships between them. Quotes are provided to illustrate the themes presented.

6.2 Participant demographics

A total of 37 participants consisting of 25 young people and 12 caregivers were interviewed. The characteristics of participants are presented in the table below.

Table 6.1 Characteristics of participants interviewed

Young People		N (25)
Age	12	3
	13	4
	14	6
	15	3
	16	4
	17	5
Gender	Female	16
	Male	9

Ethnicity	Black British	1
	White British	24
Diagnosis or engaged in a treatment service	Yes	7
	No	18
Socio-economic status	Low socio-economic status	20
	Medium socio-economic status	5
	High socio-economic status	0
Caregivers		**N (12)**
Relation to child	Mother	9
	Father	2
	Aunt	1
Age of their child	12	2
	13	3
	14	4
	15	1
	16	0
	17	2
Ethnicity	Black British	0
	White British	12
Their child has a diagnosis or is engaged in a treatment service	Yes	5
	No	7
Socio-economic status	Low socio-economic status	8
	Medium socio-economic status	2
	High socio-economic status	2

The findings will now be presented. The first three themes reflect the exploration of risk and protective factors, existing management strategies, support and areas of need. The final theme presents the practical considerations of what an intervention 'could look like'. Whether participants had a diagnosis or received treatment, is noted alongside the quotes. Please see Figure 6.1 for the visualisation of the four themes and Table 6.2 for the linked sub-themes.

Figure 6.1 Visualisation of Themes

Table 6.2 Summary of themes and sub-themes

Themes	**Sub-themes**
1. Alcohol is my friend: mental health problems and alcohol intertwined	*No sub-themes*
2. My family, my life, and my world: the context of alcohol and mental health problems	**2.1** Intrafamilial factors **2.2** Extrafamilial factors

3. Individual and familial resources in support of the young person	**3.1** Young person's resources and strategies **3.2** Caregiver's resources and strategies **3.3** Receptiveness of the young person to familial support
4. Intervention Principles (preliminary intervention ideas)	**4.1** Raise awareness and management of problems **4.2** Flexible family involvement **4.3** Mode of delivery

6.3 Theme 1: Alcohol is my friend: mental health problems and alcohol intertwined

Young people drank alcohol for a variety of reasons, including socialising and having fun with friends. However most young people also expressed the role alcohol played in coping with a range of difficult emotions. This was mainly for young people over the age of 14 and included both those in treatment and those who were not. These psychological symptoms including anxiety, low mood, stress, loneliness, anger, disruptive behaviour and low self-esteem were associated with a range of difficulties they were facing in their lives. Whilst young people aged 12 and 13 also expressed these difficult emotions and behaviours, alcohol use was mainly introduced and monitored by their parents or other family members. As such, they did not drink in reaction to their mood or to socialise with friends.

Most young people aged 14 and over reported that alcohol use, and at times other substances, helped them forget, escape, relieve stress and manage emotions and psychological symptoms. Whilst others talked about alcohol offering an opportunity to enhance positive emotions such as feeling carefree and happy. The role of alcohol in managing these emotions was not driven by conscious considerations. Rather, for most young people, drinking was simply an automatic reaction to their emotional difficulties. This was often inferred when talking about the positives and negatives of drinking. The positive effects of alcohol were only deemed temporary, with the difficult emotions quickly

returning. At times already during a drinking session and others when they were no longer intoxicated. Despite effects being short-lived alcohol was **considered an ally**.

> *'It [alcohol] calmed me, relieved me and took the pressure of me. It was sitting there and I was just like, "Yes, I like this. You're going to be my friend." ', Participant 16, Female, Aged 17*

> *'In the grand scheme of things, it is just an hour of me being happy, and then the rest of the day being sad again' Participant 17, Male, Aged 17, attends CAMHS*

In contrast, most caregivers did not raise the possible link between the child's mental health problems and alcohol use when probed around possible factors associated with their child's alcohol use. This may be suggestive of many caregivers being unaware of this potential link for their child. Rather caregivers invariably attributed alcohol use to peer influence with the belief that this was typical behaviour for young people their child's age. This can be understood as social and developmental norms. Several caregivers drew upon their own experiences to help navigate possible reasons for their child's use. This approach seemingly reinforced the view that it was simply a part of growing up.

> *'If I'm totally honest, I honestly think teenagers and alcohol come hand in hand. They're going to go out, and they're going to try it…I was 14/15/16, and I used to go out and do it, and there was nothing the matter with me. I didn't have any issues going on and things like that. It was just part of growing up.' Participant 32, Mother of daughter aged 14*

This was further corroborated by a small number of caregivers who explicitly expressed that they did not think their child used alcohol as a coping method for difficult emotions and psychological symptoms. This included both caregivers whose children were in treatment and those who were not. Nevertheless, they acknowledged that this relationship may be present for 'other young people'. These caregivers acts of 'othering' could be indicative of the difficult and upsetting nature of considering the possibility that their child was drinking due to being unhappy and experiencing difficult emotions. Although this was not explicitly discussed by these caregivers, it was voiced by those caregivers who felt that their child was using alcohol as a coping mechanism.

'It's not very nice for me to think my daughter is having to do that at 13, to get rid of her feelings. If she was going to do it I would rather she did it just like normal teenagers do, but not to the extent where [Daughter 1] does it.'. Participant 31, Mother of daughter aged 13

Only a minority of caregivers expressed that they thought that their child's increased alcohol and drug use was, in part, a result of their child's internalising and externalising symptoms. In these instances, their children were often accessing treatment services, displaying higher levels of overt or known symptoms including anger, antisocial behaviour and anxiety.

'I think it [alcohol use] is linked to… elements of always wanting just to put everything behind and forget everything.' Participant 30, Mother of daughter aged 13

Young people's narratives reflected that not only did their emotions influence their alcohol use but also that alcohol use could in turn negatively influence their emotions. Many accounts demonstrated that drinking was associated with their emotions and actions becoming enhanced, unpredictable and unmanageable whilst intoxicated. On many occasions, it led to increased upset and anger, arguments and fights, all of which could further compound negative emotions. A minority of young people discussed long lasting effects on mood. These young people had received professional support, which may have lead to an increased awareness of effects. Here, alcohol was thought not only to impact mood and anger but changes in their personality and identity.

'So, if I drink when I am like, on a down low, it is just like, sad drunkenness, like crying, upset. But, sometimes, I can like, start off on a really happy and I am jumping and dancing around, having a nice time, and then like, I will get a phone call off a certain person, or something and that like, it is like, I have hit the top of the rollercoaster and then all of a sudden, it is a massive drop down and then it is like, either anger, or screaming and tears at the bottom. You just don't know how you are going to react.' Participant 10, Female, Aged 16

'I was quite good at hiding it [alcohol use], but then it kind of affected everything. I was always angry, and I always felt, like, low moods and stuff. I was just so, I don't know, it changed who I was.' Participant 15, Female, Aged 16, Attends CAMHS

A minority of young people did not think that alcohol affected their own emotions negatively, they suggested that letting alcohol impact your emotions was a choice.

> *'They're both split up for me, because whenever I drink alcohol, I don't get angry or anything.' Participant 23, Male, Aged 14*

These young people were typically not in treatment, with lower levels of psychological symptoms. They explained how they took their mood into consideration before drinking, thereby avoiding becoming an *'angry drinker or a sad or that type of thing'* (*Participant 1, Female, Aged 16*).

Despite this awareness of the short-term psychological impacts of alcohol use, young people were less aware of long-term psychological consequences of alcohol use. For those young people who received treatment, this did appear to raise awareness and facilitate the adoption of new coping mechanisms instead. Neither short-term nor long-term psychological effects were considered by caregivers when discussing possible negative consequences of their child's alcohol use. Rather, for caregivers, the short-term physical consequences were overwhelmingly the area of concern.

> *'That's the risks I'm more worried about. I know you should think more about, obviously, damaging your body and things. That's not my first thought. When she's drunk, it's more about her not being aware of what her surroundings are. Not being able to get home. Getting attacked like she did the other day at the Metro.' Participant 37, Mother of daughter aged 15*

Young people discussed a range of short-term negative physical consequences including hangovers, passing out, throwing up or getting hurt and injured (such as falling over). For many participants, these negative consequences did make them feel worse, leading them to momentarily want to change their drinking habits. Nevertheless, they generally returned to their original drinking behaviour. For some young people intoxication and the negative physical consequences shared the same desired effect; distraction from the difficulties being faced and the psychological symptoms they were experiencing. This was mainly for young people in treatment, with increased severity of symptoms. One boy explained how the

negative physical consequences of alcohol use could provide the same desired effect as self-harm, distraction and relief. Therefore, he often saw intoxication as an alternative to self-harm. Here, self-harm would mainly take place when alcohol was not accessible.

> *'Then the next day I wouldn't even be thinking about him or the group of people that I fell out with, I would just be too focused on my hangover. Then that night I would drink again.' Participant 13, Female, Aged 13, attends Alcohol Treatment Service*

> *'It was either that [drinking], or like I said, hurting myself. Hurting myself, drawing the pain away mentally to physical pain, which again, is a short-term effect.' Participant 17, Male, Aged 17, attends CAMHS*

All young people and caregivers were aware of the long-term physical health consequences of alcohol use. However, caregivers were not as concerned about these risks as compared to the short-term physical risks. Most young people did not actively consider them in their day to day lives. There were some exceptions for younger participants, exemplified in the quote below from a 12 year old. She had never drunk alcohol, voicing that this was due to physical health risks involved.

> *'It's bad [alcohol use] and I don't want to end up with, like, an illness when I'm older or something.' Participant 12, Female, Aged 12*

6.4 Theme 2: My family, my life, and my world: the context of alcohol use and mental health problems

Young people and caregivers discussed a range of intrafamilial and extrafamilial factors which influenced co-occurring mental health problems and alcohol use. Young people and caregivers emphasised different factors and associated mechanisms. Certain factors appeared to directly influence either mental health, alcohol use or both. Other factors would impact mental health which would in turn drive alcohol use, or vice versa. Across the narratives, it was clear that these factors could interact with each other and with mental health and alcohol use. Please see Figure 6.2 below, which depicts the bidirectional relationship between alcohol use and mental health embedded within and interacting with the multiple ecological systems.

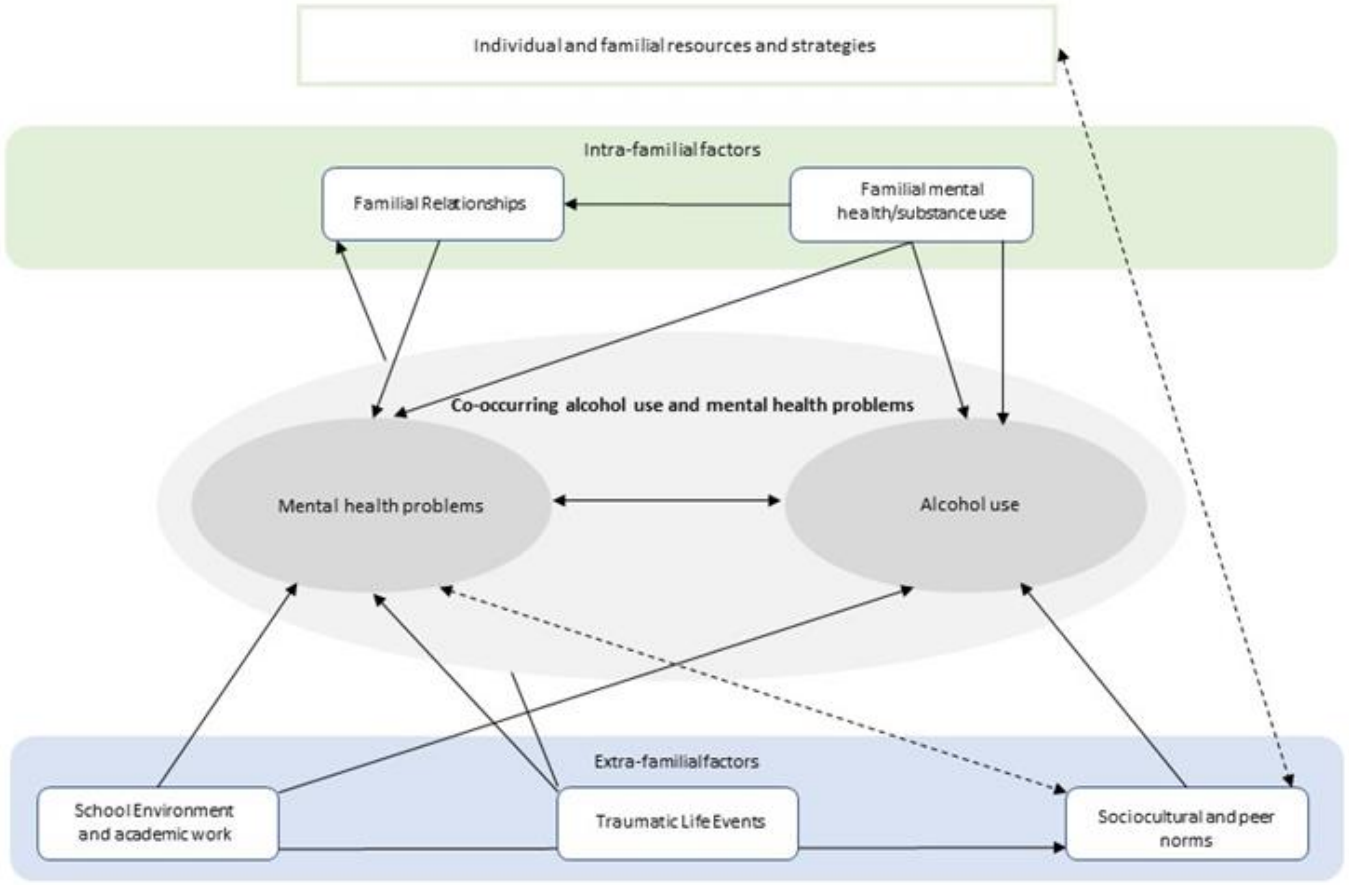

Figure 6.2 Socio-ecological factors linked to co-occurring alcohol use and mental health problems

6.4.1 Intrafamilial factors

Familial relationships

Some young people discussed how relationships across nuclear and extended family members, encompassing experiences of conflict, parental divorce and family illness could directly influence emotions such as low mood, anger and disruptive behaviour. Young people expressed how alcohol could in turn be used to cope and escape from these difficult relationships and associated emotional challenges. Caregivers did not discuss familial relationships as a possible risk factor, but focused heavily on associated extrafamilial factors, discussed in the next section.

In relation to divorce, most young people reflected on the resulting reduced contact and at times absence of a caregiver (mainly fathers). In these instances the relationships were not perceived to be nurtured by the caregiver, sometimes extending to feelings of rejection. Some participants further discussed conflict which could arise from their caregiver's new partners.

> *'Leading up to the weeks of going camping my mates were like, "We should all take drink." I was like, "I am not drinking." Then my dad started telling us off more and my mum started telling me off. Then it got worse and worse and then my sister…My sister and my dad started arguing again and I was caught right in the middle. I thought, "If they [friends] are going to drink I will just drink to make myself feel okay again." So I started drinking again.' Participant 9, Female, Aged 14*

> *'Because I only see him [Father] once a week, and I want to see him a bit more. He doesn't understand. He's mostly listening to her [step mum], not me, about what I want to do, and all that…[It] makes me feel a bit angry and distressed.' Participant 4, Male, Aged 17, Received Diagnosis*

Family illness and disability impacted young people both directly and indirectly. There was direct upset and worry caused by seeing a family member unwell and in pain. At times, this led to bereavement and further distress. Indirect effects including a fear of themselves becoming ill in the future were evident. Furthermore, it could also lead to new or increased caring responsibilities. This could involve not only caring for the ill family member, but also for younger siblings.

> *'I think, when all this stuff happened with my stepdad [diagnosed with cancer], I did go through quite a horrible stage. I didn't mean to, but I just found myself biting easily and flipping. I was being quite negative about everything. It was upsetting. I would go and see my mentor, and I'd be like, "I don't know what's wrong. I feel so negative. I don't feel myself." I was hurting, arguing with people I cared about most.' Participant 22, Female, Aged 14*

Many young people also spoke about positive and strong relationships with family members. This was not always with their caregivers and could often include family members such as grandparents, aunts and uncles, siblings and step-parents. The narrative of young people touched upon feeling loved and safe, being able to communicate, be open with, feeling supported by and spending quality time with these family members. At times, the positive relationships with these other family members could act as a 'replacement' for poor relationships or absent caregivers, often linked to divorce or bereavement. However, this did not always counteract the negative impact of poor relationships with caregivers.

> *'I think because my dad has not been there my nanna has always been there for me and obviously for my mum more as well.' Participant 2, Female, Aged 17*

Familial Substance Use and Mental Health

Caregivers and young people expressed multiple mechanisms in which familial substance use impacted co-occurring alcohol use and mental health problems. Some young people and caregiver narratives suggested that the frequent use of alcohol use by family members including caregivers, aunts, grandparents and siblings, introduced a sense of normalcy. It also introduced accessibility and opportunity to engage in alcohol use.

> *'Normally when my mum and dad aren't in, and [Older Brothers] friends ask if I want one, a drink. I normally say yes, but I deliberately don't have that much, because obviously I don't want to get like found out by my mum and dad that I have had a lot to drink.' Participant 8, Male, Aged 14*

Young people and caregivers also discussed how higher levels of parental alcohol and substance use was directly linked to mental health problems. Parental substance use could cause distress within the family and then impact on familial relationships. This in itself could

further influence young people to drink to relieve distress. A minority of caregivers felt that family member's use of alcohol could be a deterrent for children under the age of 13. However, this effect was only seen as temporary. As peer behaviour became more influential, young people still engaged in alcohol use.

> *'Yes, so she always wanted her dad. When he disappeared [using substances]- he used to go for days on end, and she'd be crying her eyes out, playing up for me, saying she didn't want to be with me. She wanted her dad.' Participant 32, Mother of daughter aged 14.*

The above quote is from a mother whose partner was interviewed separately. Interestingly there was a stark contrast in their narratives regarding the possible reasons for their daughters drinking. Whilst the mother talked about the impacts of her partners substance use, this was not raised by the father. Rather he discussed the influence of peers.

> *'If your friends drink, you do. If your friends don't, then you don't. It depends on who you are with.' Participant 35, Father of daughter aged 14*

This highlights the different realities experienced by each family member but also potentially the difficult nature of considering the impact of one's own substance use on one's child.

A minority of young people discussed family members' mental health problems, in relation to their own mental health but not in relation to their alcohol use. Young people and caregivers expressed that family member's mental health problems could impact the home environment, resulting in feelings such as loneliness and disruption to the rest of the family, impacting relationships and contributing to conflict.

> *'yeah, like, when she is unhappy I feel like the whole house is. Because It's only like me and my mam and my dad so if she is unhappy then she is not really speaking to my dad or me very much.'. Participant 1, Female, Aged 16*

6.4.2 Extrafamilial influences

Most young people and caregivers attributed the young person's co-occurring mental health problems and alcohol use to an array of risk factors external to the family rather than intrafamilial factors. At times this was alongside familial risk factors but quite often these familial factors were not discussed at all.

> *'It's not her [mother] that's really doing it, it's people from the outside.' Participant 13, Female, Aged 13*

Peer, Social and Cultural norms

Young people and caregivers strongly believed that alcohol use was typical for young people of their child's age within their peer groups, immediate neighbourhood and society. This seemingly masked alternative reasons for drinking amongst young people. In fact, most caregivers felt that young people drinking alcohol was an inevitability, due to it being socially and culturally accepted. This attribution of their child's alcohol use to peer and social norms could inhibit caregivers to reflect on how they themselves contributed to this drinking culture, through their support and management strategies. This is discussed in depth in the sub-theme 6.4.5.6.4.5

> *'It was, like, everyone done it, binge drink… It's just more about what your friends are doing. If your friends drink, you do. If your friends don't, then you don't. It depends on who you are with.' Participant 35, Father of daughter aged 14*

Young people expressed how the need to alleviate these symptoms and cope with difficult life events were embedded in and interacted with social and peer norms. Consequently, the mental health problems of young people appeared to increase their susceptibility to social norms and peer influence in relation to alcohol and other substances. Drinking with their peers could inadvertently introduce drinking as a coping mechanism for the young person. The alcohol could provide an unexpected relief from their symptoms, negatively reinforcing alcohol use. Some young people explained how they would then instigate social opportunities to drink with their friends when they were upset, stressed or feeling low. Some young people may have also learnt that alcohol can be used as an act of alleviating

difficult emotions through seeing their friends reactively drink alcohol when they were low or angry. Whilst a minority voiced that although they would always drink with their friends, their own reasons for drinking differed from that of their friends. They believed that their friends purely drank to socialise with peers whilst they themselves would drink to cope. Although they did not always think their friends were aware of this. This was another example of how the norms surrounding adolescent drinking could mask drinking to cope.

> *'Then, I don't know. I would go to that if I needed to. If I was stressed out, it was like, "Let's just go out."' Participant 22, Female, Aged 14*

Young people talked about how alcohol provided an opportunity to socialise with friends. Socialising gave them the opportunity to hang out, have fun and an opportunity for bonding. This could lead to momentary feelings of happiness and provide an escape. Beyond facilitating an opportunity to hang out with friends, young people also liked the effects of disinhibition. It helped young people feel more comfortable in socialising with their peers and made it easier to meet new people as it made them feel more relaxed, confident and less self-conscious.

> *'It gives you confidence, that's it….when you are drunk, you are just like … you are not shy, or anything.' Participant 25, Male aged 15*

It was not until the young person's alcohol use was perceived to starkly contrast perceived age and peer related norms that peers would question the young person's alcohol use. Peers would then consider other possible reasons for their friends drinking. Even in these instances it was difficult for family members to recognise this. Young people would often strategically and successfully hide it from them. Rather, this was often noticed by their friends, boyfriends or girlfriends who had a better insight into their drinking habits.

> *'Yes, and then my friends were like, "What are you doing?" [in relation to drinking] I don't know, they were just like, "You can't, it's just not right," and I was like, "Well, what do you mean?" They were like, "Well, look how old you are.," 'Participant 15, Female, Aged 16, Attends CAMHS*

School environment and Academic work

Young people and caregivers talked about how aspects of school could influence both their mental health and alcohol use directly. The pressure of school work, deadlines and exams and conflict with teachers were often discussed as causing stress, low mood, anger and anxiety. This was across both those receiving treatment and those who were not. A minority of young people talked about how caregivers often did not understand the pressures they faced at school which could further exacerbate these difficulties.

> *'Yes. I really get angry when the teacher's having a go at me. I just want to hit the teacher sometimes, but I know I'd get kicked out'. Participant 4, Male, Aged 17.*

Many young people discussed how these school stressors could influence their alcohol use, in which drinking could help manage the stresses and pressures of school. Young people and caregivers also recounted an additional direct pathway to alcohol use. Young people had the opportunity to socialise with older peer groups across school years when they transitioned from low/middle to high school. This introduced an unbalanced power dynamic and norms associated with older peers, which in turn could influence young people's alcohol use and disruptive behaviour for both boys and girls.

> *'she's the oldest in her year, so when she was going to youth club, she was able to go the older one and stuff and then she got hanging around, with this boy… and they started drinking.', Participant 10, Father, Daughter aged 14*

Academic work emerged as a protective factor for some young people in relation to alcohol use and externalising behaviours. This was mainly the case for girls. A small group of young people and caregivers also talked about how school, especially at GCSE level, could influence their desire to do well for their future, motivating them to change the amount they would drink and influence behaviour. Many young people, and some caregivers, explained how their engagement in extracurricular activities and hobbies such as sports, music and horse riding, resulted in less time and opportunity for drinking. This was across both boys and girls. Young people were less likely to drink, in order to avoid being hungover for these activities. Furthermore, young people expressed how these activities provided an

alternative form of stress release than alcohol use to manage their emotions. These activities may have also reduced the boredom that a few young people and one caregiver raised as leading to drinking and antisocial behaviour. These activities were at times quickly dropped by the young person when they were struggling with their emotions.

> *'Not so much now [drinking], because I am really focused on sport and my revision. I want to do well.' Participant 22, Female, Aged 14*

Challenging and Traumatic life events

Young people of all ages and caregivers often spoke about a range of challenging events and situations that young people faced and needed to navigate which could cause significant distress. Young people explained how this would in turn impact a range of emotions including their mood, anxiety and self-esteem often leading to alcohol use to distance themselves and escape these life events.

Many young people discussed frequent arguments, fall outs and bullying amongst friends and wider peer groups. The resulting upset and anger were often directed at family members which could often in turn, contribute to tension and conflict within the home. Further, caregivers would often attempt to intervene, encouraging the young person to seek new peer groups, however young people often feared that this would result in not having any friends at all. This could also lead to arguments and contribute to the young person feeling unable to seek support from their caregivers regarding friendships and wider peer difficulties.

> *'He's a very angry child, very. If somebody upsets him, so, if he's getting called or bullied because he's been added to a few group chats and they've called him and called his face and everything. That's when he turns round and takes that out on me', as well.-Participant 34, Mother of son aged 14*

> *'Because say, if, she says that, she says that she wants to go and say something to this girl that she feels like is bullying me, and I say, "Mam, please don't." I said, "Because it'll make me feel like I want to do something again to myself. Because I feel like I'll lose all my friends." Participant 19, Female, Aged 14, Attends CAMHS*

A range of young people talked about traumatic life events or experiences. This was associated with increased anxiety, low mood and distress. This was particularly evident in interviews with girls. Some young people discussed having experienced attacks such as being beaten up and/or jumped on by peers. Others talked about difficulties with relationships including, threats from their boyfriend or girlfriend and more rarely incidents of non-consensual sex. A minority of young people also discussed witnessing interpersonal violence between caregivers. At times this led to the involvement of police and social services which at times provided additional distress.

> *'my dad was really drunk, and he threatened to shoot my dog, Merlin. Then my dad basically punched my mum, she fell to the floor, and then my dad stamped on her face.' Participant 18, Female, Aged 13*

Caregivers rarely discussed traumatic experiences faced by their child. This may be suggestive of distancing from the sensitive and upsetting nature of these experiences. It could also reflect that the caregiver does not recognise this traumatic event and co-occurring alcohol use and mental health problems as related. This is reflected in two contrasting interviews, with a parent and their child, in which only the young person discussed the traumatic incident she had experienced expressing that she had shared this with her mother, whilst the mother did not raise this in her interview.

> *'it [non-consensual sex] obviously is affecting me in some way, since then my anxiety has got worse.' Participant 13, Female, Aged 13, Attends Alcohol Treatment Service*

6.4.3 Theme 3: Individual and familial resources in support of the young person

All caregivers wanted to support their child/family member with the varied challenges they faced. However, there was a clear variation in how well-equipped caregivers felt they were to do so. This can be understood as resources, including knowledge and supportive skills in relation to the young person's co-occurring alcohol use and mental health and their own emotional and instrumental capacity. Young people themselves also varied in their own resources to help themselves cope, highlighting not only the importance of developing their own internal coping skills but also galvanising familial support.

6.4.4 Young person's resources and strategies

Both boys and girls across all ages often found it difficult to understand the challenging emotions they were experiencing. This is exemplified in the quote below in which a young girl was experiencing difficulties over a long period which she could not initially put into words, wondering whether she was going 'mad' (*Participant 13, Female, Aged 13*). This was further demonstrated by often needing help in understanding these emotions and behaviours they were experiencing through the help of peers or family members. Professional input often only took place once symptoms had become unmanageable and overt and, more rarely, when an incident of self-harm or suicide had taken place. This was partly due to being unaware of when or even whether to seek support.

> *'At first I didn't really think much of it [anxiety symptoms] but as it started getting worse and worse, I was thinking, "Well no, this isn't right." ' Participant 13, Female, Aged 13*

> *'Yes, and I think that's probably not really helped, because I don't really do anything until after something's happened, because obviously we don't know whether to come and speak to someone.' Participant 20, Female, Aged 15*

Young people developed coping mechanisms themselves to manage their emotions. Whilst a minority were taught methods from school mentors and other professionals. These included creative outlets, 'alone time', physical outlets, goal setting, and seeking informal support from friends, family and school staff and, more rarely, specialist support. Some of

these strategies, including going to gigs, engaging in exercise and a 'golden half hour' of time to yourself, enabled the same desired level of distraction, relaxing/ de-stressing and forgetting, as alcohol use. These approaches could represent alternative coping methods to alcohol and other substance use. The chosen activities and techniques varied between young people and were very specific to the particular young person's interests and personality and socioeconomic status.

> *'With the alcohol, I knew it wasn't helping, obviously if I was still getting upset. That's when I came to the realisation, "I just don't need to be doing this." Then, I turned to the gym'. Participant 22, Female, Aged 14*

> *'After I started seeing a therapist. It changed a lot…they found different ways for me to cope.' Participant 17, Male, Aged 17, Attends CAMHS*

Although at times less helpful strategies were adopted, as discussed by both young people and caregivers. These coping strategies ranged from withdrawing self from others, over-eating, distraction, denial, bottling up, aggression, gang affiliation, disruptive behaviour and routine use of alcohol and, at times, wider substance use.

> *'Like, either talking to someone or just letting your anger get out. What I do is I punch the wall, then it hurts but…calms me down.' Participant 23, Male, Aged 14*

6.4.5 Caregiver's resources and strategies

Caregivers and young people frequently attributed the child's emotional difficulties and alcohol use with their child's developmental stage. As such, this was often seen as a normal part of development that would naturally pass over time. This was epitomised in the frequent discourse of he/she is just a 'typical teenager'. At times this resulted in early signs and symptoms often going unrecognised, until higher levels of symptoms were reached. In other instances, a minority of caregivers and professionals actively did not want to label a young person's difficulties as it was then perceived as problematising the young person's symptoms.

> *'I think, by the time people recognise the problem, even, because some changes in behaviour, put it down to hormones, you put it down to, oh, it is*

just teenagers, oh she has had a falling out with somebody, or there is a boy on the scene, or… and I think, quite a lot of it can go past, as just normal teenage stuff.' Participant 30, Mother to daughter aged 13.

'It just doesn't … mental health and trying to get a child to think about are they depressed, are they this, are they that? I don't know it just doesn't sit right.' Participant 35, Father of daughter aged 14

Caregivers tried to do what they thought was best for their child. Strategies specifically used in relation to mental health included emotional support and practical support which involved listening and offering advice, providing space for the young person to calm down, intervening in circumstances causing distress (such as bullying), breathing techniques, rewards, writing letters as a method of communicating concerns, monitoring. However, this was often not felt to be enough and they did not always feel well equipped. Many voiced that they needed guidance and support for their child. Caregivers felt that it was not clear where to turn for advice and support, with a small set of caregivers explicitly expressing that they felt that there was no suitable support out there for co-occurring mental health problems and alcohol use. Consequently, caregiver's strategies were informed by what they perceived to be the key influences of mental health problems and alcohol use. As most caregivers perceived mental health and alcohol use as separate from one another this then translated into separate strategies. Whereas young people expressed the need to explore what they were experiencing and why they were drinking.

'There is no help for teenagers who are drinking and who are going out of control.' Participant 32, Mother of daughter aged 14

Due to the perceived sense of inevitability of their child's drinking, caregivers mainly aimed to manage the short-term physical risks associated with intoxication rather than preventing alcohol use altogether. Caregivers provided alcohol within the home, ranging from sips, to being allowed their own alcoholic drink, and at times with their peers. This was sometimes restricted to special occasions and holidays. This strategy was used across all ages. For most young people under the age of 14, this was their only source of alcohol and drinking experiences. It was believed that this would make alcohol seem less exciting and that they would be less likely to drink with their peers. Inadvertently, it may possibly reinforce this drinking culture.

'I think if it's a definite, "No, no, no," then they're going to do it anyway, or try it. So, at Christmas- On holiday, we got them, it was only like a little Malibu and Coke – perhaps I shouldn't be admitting to this-…. So then I think, if you make it like that then they're going to go behind your back and drink.' Participant 33, Mother of son aged 12

These techniques were heavily socially informed, influenced by the past experiences of the caregivers as children. Caregivers expressed how their own parents had used the same techniques and that they themselves 'turned out okay'". Sometimes caregivers strategies were in direct opposition of their own parent's alcohol use habits which resulted in them taking a completely different approach with their children.

'Yeah, that's what my mam did for us [provided alcohol in the home], but we were, I think we were probably about sixteen, but it would be shandys, a couple of shandys each, with your friends. But, that deterred me from wanting to drink on the streets'. Participant 28, Aunt of niece aged 12

Young people often recognised their caregiver's attempts to prevent 'drinking on the streets' and to ensure that their children's drinking was monitored, supervised and safe. However, young people's narratives indicated that these strategies rarely reduced or prevented them from drinking with their peers, particularly for the older adolescents. This may be due to the overriding need for the short-term consequences of alcohol use, and the opportunity to use it as a method of coping, and opportunity for socialisation.

'She still doesn't realise that I drink behind her back, now. Like, she will only give me alcohol, if she knows I am going to a party, she knows there is adults there…but, if we are like, out on the streets and we fancy a drink, I will still do that, but I never… because, she doesn't want us drinking on the streets.' Participant 10, female, Aged 16

Often the range of techniques outlined above were not believed to be sufficient with half of the caregivers expressing a sense of helplessness, and at times failure. This could be exacerbated by feeling blamed and judged by other parents for their parenting and for the difficulties their child was facing. Taken together this could lead to caregivers feeling at a loss and alone, not knowing what more they could do.

'You feel undervalued. You feel like, sometimes, you feel like you're letting your child down all the time, because you don't know what's best.' Participant 26, parent of son aged 14

'I don't know which- grounding her for six months, is that the right thing to do? I just feel lost because I've never, as a mum of a 14-year-old, I've never experienced having a daughter who is drunk before.' Participant 32, Mother of daughter aged 12

However, some caregivers reported eventually being able to access support for their child, including support in schools, young people alcohol services, Child and Adolescent Mental Health services, The Youth Offending Team, Early Help and Social Services. Some caregivers expressed that the support not only aided their child but also enabled them to voice their own concerns, feel listened to and less alone. Many caregivers reported that they would have wanted preventative support earlier. Although, a minority of caregivers expressed how support was mainly directed at their parenting and disciplinary skills. This could lead to feeling judged and blamed for their parenting and the difficulties their child was facing. At times this further contributed to the feelings of helplessness and frustration, as often these disciplinary techniques, such as grounding and clear consequences, were felt to have already been implemented but without any success.

'They always blame the parents. But, it's not always the parents.' Parent 29, Mother of daughter aged 17, Received Diagnosis

'We do everything we can, if she refuses, if she storms out the house, what can we do? Without physically tying her up?' Participant 30, Mother of daughter aged 13

The emotional and physical resources of the caregiver also affected the support they were able to provide to their child. Some caregivers were managing competing demands of work and caring for other family members. Especially in cases where there was a child with additional needs in the family. This could result in caregivers experiencing high levels of stress and lead to reduced emotional resources. These factors often led to caregivers feeling overwhelmed and lacking the time needed to support their child. The child's mental health problems and alcohol use could in itself also deplete the caregiver's emotional resources, leaving them feeling worn out. However, young people expressed that other

family members, beyond caregivers, can provide a source of support which was particularly valuable where support was not thought to be provided by their caregivers.

> *'Sometimes it can get… like I say, if I'm up a height and stressed out as well, it can… I don't recognise it as much then it ends up where I'm definitely not perfect at handling it.' Participant 37, Mother to daughter aged 12*

> *'Then she's obviously dealing with- she's got a lot of brothers and sisters as well, so she probably doesn't get one-on-one time with me that she needs. 'Participant 32, Mother of daughter aged 14*

6.4.6 Receptiveness of the young person to familial support

Support strategies by caregivers were not always deemed to be supportive by the young person. Young people often expressed that caregivers punitive approaches, including grounding and limiting pocket money, were unhelpful. Particularly if caregivers did not explore the reasons for the young person drinking. This could leave the young people feeling unsupported. This led to young people further hiding their alcohol use, the difficulties they faced, and at times not wanting support from caregivers.

> *'Not when it comes to drinking, because they don't know I am doing it. So, if I tell them, then I will get shouted at.' Participant 10, Female, Aged 16*

The majority of young people expressed that their caregivers were lenient, with the aim of an open, honest, relationship, to partially aid monitoring of risks, teaching their children how to navigate these risks and caring for them. In these circumstances young people expressed feeling able to be open, particularly in regard to alcohol use, and as such were less apprehensive regarding seeking support from their caregivers. Notably, this could at times result in the undesired effect of continued and increased alcohol use.

> *'Because I just feel like, with them [caregivers] being so supportive and I know I can always ring if there is anything wrong, I can tell them. I don't really have to like keep anything from them. Because they not them type of parents that would be like well negative towards anything that I want to do.' Participant 1, Female, Aged 16*

Caregiver practices were deemed to be supportive by young people when they involved open communication and enabled the young person to feel listened to whilst also setting clear boundaries. At times though, supportive practices were thought to be overly protective and cautious which was not considered helpful and led to young people not wanting to seek support from caregivers

> *'I didn't want to say stuff in front of my grandma, because I didn't want her to smother more. I keep using the word smother, but you know when it's just like, "Are you okay? Are you alright? Oh, how are you?" It's nice to be asked, but…'Participant 15, Female, Aged 16, Attends CAMHS*

Young people expressed concern and care for their caregivers. Evidently, young people were not simply recipients of support, many were concerned regarding how utilising their caregivers support would impact them. Young people spoke about how seeking support could cause caregivers upset, distress, worry, guilt and even possibly experiencing blame with regards to what the young person was experiencing. Some young people also felt that certain caregivers were more likely to be negatively impacted than others. This included caregivers with characteristics such as frailty or worry. Therefore, even where the young person knew their caregivers would be supportive, the concern for their wellbeing could at times override this. Young people also expressed how they themselves could feel guilty for experiencing these difficulties despite the love and support of their caregivers. This could also prevent them from opening up about what they were facing.

> *'I knew that they would understand, and be there for me, but I just couldn't. I couldn't, because it was an effect on them, too. It wasn't just me who was getting damaged.' Participant 15, Female, Aged 16, Attends CAMHS*

> *'If I told her something like, "I have overdosed." She would be so upset. I don't want her to be upset, because she is my mum and I love her. I don't want her to be upset.' Participant 17, Male, Aged 16, Attends CAMHS*

Most caregivers did not express an insight into the caring roles young people perceived they themselves had, or how this could impact their willingness to seek or receive support from their caregiver. This may be suggestive of the caregiver's inherent assumption that they themselves are responsible for providing the care and support. This was also reflected in all

caregiver's wanting most help and support directed at their child. One parent wanted all of the support and resources directed to her child and not 'wasted' on her. This seemed in line with other caregivers in that all she wanted was for her child to be in a better place. Although some acknowledged that it would be beneficial for caregivers to also receive support in relation to the needs of their child.

> *'So, if everybody gets her right, you don't need to waste time with me. You can't support me, if it doesn't help her. You know, being a shoulder for me to cry on, doesn't help her. It doesn't stop her doing what she is doing, or feeling the way she is feeling 'Participant 30, Mother of daughter aged 13*

> *'It helps to talk. For just advice because sometimes you just hit, you think you know something then you hit another brick wall and you're like, two options here and then you think you're right, and then you speak to some people that are maybe a bit more in the know about stuff and it does alter your mind…, "Maybe we shouldn't do that."' Participant 27, Father of son aged 17*

6.5 Theme 4: Intervention Principles (preliminary intervention ideas)

In a sub-section of the interviews, all young people and caregivers were asked to discuss possible content and practical considerations for the development of a family-involved intervention. This led to the development of three intervention principles; (1) Raise awareness and management of co-occurring alcohol use and mental health problems (2) Flexible family involvement; and (3) Mode of delivery.

6.5.1 Raise awareness and management of co-occurring alcohol use and mental health problems

The need for improved knowledge and skills around managing co-occurring alcohol use and mental health problems emerged from the narratives. This included the need for both caregivers and young people to understand causes, signs and symptoms along with coping strategies for both mental health and alcohol use. Young people, but less so caregivers discussed the need to understand why one drank alcohol and how this could be linked to one's mood and emotions.

Participant 17: I would say again, awareness of what alcohol does with depression. Yes, it makes you happy.'

Interviewer: Okay, you think the link between?

Participant 17: 'The link between, "If you are feeling like this, don't drink alcohol. Yes, you may get happy for the first hour, but what has it done to you?"'

Participant 17, Male, Aged 16, Attends CAMHS

Caregivers largely emphasised the importance of raising awareness regarding the risks associated with alcohol use. Although young people acknowledged the importance of young people being aware of the risks and health consequences linked to alcohol use, they explained that this would not be sufficient in reducing young people's alcohol use. Some caregivers and one young person felt that the main method of being able to impact a child's alcohol use was through a 'scare experience'. As such, some caregivers felt that someone who had experienced alcohol misuse should be brought in to speak to the young person.

'When you think alcohol does make you happy for that time, it is hard to reduce the amount people have, because I'm a realistic thinker. I don't think if you say, "That's bad", they are going to stop, because they are not. If you say, "Alcohol is really bad for you, and it is going to destroy your liver", they'll be like, "Okay", and keep drinking. It's extremely hard to get them to stop.' Participant 17, Male, Aged 16, Attends CAMHS

'Best thing I think is to have people that have used, ex-alcoholics, ex-drug takers. I think they're the best people to have for any kind of session because they've been there, seen it, done it. They know, they know all the tricks of the trade. They know what happened with their own families and I think, just that knowledge, that experience getting put across, especially with kids because they'll be looking, thinking, "Well that's what my school teacher, what my parent taught them." Christ, this is someone who has been there, seen it, done it.' Participant 27, Father of son aged 17

Beyond the causes and symptoms, it was felt essential that young people learn coping strategies regarding mental health problems, alcohol use and the co-occurrence of the two. Young people and caregivers could not specify what exactly these would entail. The few suggestions included relaxation/ stress release techniques and a diary/tally of alcohol use

and feelings. This was in conjunction with the opportunity of emotional support from a professional.

> *'They could give you, like, if you feel like you're ever going to be angry, feel like you're going to do something stupid, give you something that would help you calm down, like a stress ball or something.' Participant 23, Male, Aged 14*

> *'Stuff that they can do other than drink, and there are other ways to relax.' Participant 20, Female, Aged 15*

Caregivers and young people expressed a need for caregivers to gain an insight into the difficulties their children were facing and the associated causes (both intra-familial and extra- familial). It was felt by young people and caregivers that recognising and understanding the key signs should be coupled with the tools for caregivers and other family members to apply to support the young people. It was also considered to be beneficial for the family to have insight into the coping mechanisms that the young people were taught. Some caregivers felt that they wanted all the support directed to the child, whereas others raised the need to also receive emotional support.

> *'eeehm I feel like it's just finding out a bit more about that child. [Interviewer: okay yeah] and a bit of an insight on how their child is actually feeling and not an assumption of how they are feeling. So [Interviewer: that's really important isn't it] because you a child could be sat on their room and em a mam or a dad could assume they are fine there is nothing wrong with them, a typical teenager sat in their room, but you could go to counselling so again you could actually see how they are really feeling [Interviewer: yeah] and ah well all this time actually I just thought you were fine but really you were just feeling, hiding how you felt.' Participant 1, Female, Aged 16*

> *'What's that parent going to take away from that to practice at home?' Participant 28, Auntie to niece aged 12*

6.5.2 Flexible Family Involvement

Throughout the narratives, young people and caregivers were unanimous regarding the need for the intervention to be youth led, and as such, the young person should decide to what extent the family and specifically which family members should be involved.

Caregivers stressed that they wanted the most effective and well received support for their child. Accordingly, the intervention should be tailored to the young person's needs.

> *'Possibly. But, again, it is understanding it from the child's perspective. I would say, I can't say what support is needed. I think, that has to come from the child.' Participant 30, Mother of daughter aged 13*

It was recognised by both young people and caregivers that some young people and caregivers would not feel open and honest in front of each other. For all caregivers, and some young people, it felt important that young people and parents could have separate sessions followed by joint sessions.

> *´Usually, people don't want that (joint sessions with family), because they don't want their family to know.´ Participant 4, Male, Aged 17*

> *'I think it should be separate, so that the kids can have a chance to speak to somebody without the parents being there. And, I think, by joining them together, and having somewhere else, I would walk in with my niece, and we would sit down and listen, and talk.' Participant 28, Auntie to niece aged 12*

The majority were more open to this if they could choose which family members to involve. This could include grandparents, aunts, uncles or siblings. Caregivers also agreed that this was a good option. Some expressed that having a professional, or an individual of one's choice, there to mediate would resolve some of the concerns. A minority of young people expressed that they would still not feel comfortable involving the caregivers.

> *'On her terms, yes, who she wanted in, and then we can work on that. For example maybe she'd want me in and not [partner], or she might want [partner] in on something that she wouldn't want me in on.' Participant 32, Mother of daughter aged 14*

6.5.3 Mode of delivery

The majority of participants expressed the need for an intervention delivered to the young person and their chosen family members separately. A minority discussed using a group-based format, with the premise that it would help young people and family members feel

less targeted, understand that there are others experiencing similar difficulties, and to gain different perspectives.

> *'We learnt from each other. Sometimes, even in English, when I write something I don't see the mistakes in it, but if someone else reads it they can point them out straight away. I just think it's really beneficial in a group.' Participant 20, Female, Aged 15*

All caregivers felt that self-management was not a suitable option, in which young people and caregivers would be provided with supportive material in which to engage in their own time, without direct professional support. Their concern was that young people and families would not adequately engage. It was expressed that having a fixed session with a professional would ensure that time was set aside for it. Young people felt that strict self-management could contribute to the young person feeling increased pressure, thereby exacerbating their symptoms. It was highlighted that professional support enables guidance and emotional support, which would not be available through self-management. Young people preferred direct support provided by a professional coupled with coping strategies that they could later apply on their own at home.

> *'It could, but I feel like if someone else like another human could see the emotion, they could compare and give you better advice than a sheet. They could have been through similar things and tell you what you could do about it, and how they dealt with it instead of a piece of paper.' Participant 22, Female, Aged 14*

> *'They should have options, because if people rely on other people for too much, for too long, they'll feel like they need help. They won't feel that they can survive on their own.' Participant 17, Male, Aged 16, Attends CAMHS*

Participants referred to specific professionals who could deliver the intervention, which varied based on personal preference. Their suggestions included youth workers, police, school mentors, school nurses, counsellors, and people with personal experience. More commonly, the individual characteristics and therapeutic styles of the professional were deemed more important than their professional background. The individual characteristics included a "young professional" (they were considered to be more relatable), non-

judgemental, approachable and possessing good communication skills. Whilst therapeutic styles included remaining neutral, flexible, solution-focused and maintaining confidentiality. All of which aided the development of a therapeutic relationship with the young person and their family. Different professions were however associated with certain characteristics. For example, caregivers felt that teachers, school mentors or social workers were less likely to maintain confidentiality. Some young people also shared this concern regarding teachers and further felt that delivering an intervention would result in conflict with their teaching roles. It was suggested that this could be resolved through using mentors or teachers who did not teach them personally.

> *'They're teachers, they teach, they're not mental support, you know, they don't do support in that time sense.' Participant 5, Male, Aged 17'*

Equally, the characteristics of the environment in which it took place was key. Characteristics included familiarity, safety, neutrality, privacy, comfortableness, convenience, and informality. Certain environments were associated with specific characteristics although these were quite individual. Schools were often associated with education, with a minority feeling that difficulties outside of school should not be brought into schools. Whilst some participants felt that the home could lend itself to familiarity and safety, others felt that it could become heated in this environment and impact their refuge. Informal, neutral settings such as coffee shop, park, beach, sports centre, football field were thought to facilitate activities, which both young people and caregivers considered an efficient way to help the young person feel comfortable, and to build a therapeutic relationship. It was believed that it could be used as a platform on which to delve into more sensitive topics.

> *'Yes. I think you feel more comfortable in your own home don't you? Like with you, I've just offloaded to you, and it's because I feel comfortable with you. I think with [daughter 1] as well, if it's in her environment, it's her say-so.' Participant 32, Mother to daughter aged 14*

> *'You could leave it there, you put the right head on. Right, we are going for counselling. This is what happens here, this isn't where I go to school, it is not where I live, it is not where my friends are, this is an isolated place,*

where it is designed for that, all the professionals are there.' Participant 30, Mother of daughter aged 13

With regard to the length of the intervention. Most caregivers believed that this should be tailored to everyone's personal needs, with some feeling that there should not be a time limit. Young people suggested between 2-10 sessions and most importantly, it was raised that there should be enough sessions to ensure that each could focus on one specific component of the intervention.

'Yes, an hour session, six hours of a child's life, who has been through what [daughter 1]'s been through, how can they time limit to anything?' Participant 32, Mother to daughter aged 14

6.6 Chapter Summary

In this chapter, participant characteristics and findings from semi-structured interviews with young people and caregivers have been presented. The link between mental health and alcohol use was raised consistently by young people. However, the relationship between alcohol use and mental health problems was not often recognised by caregivers. This may be due to caregivers often perceiving social norms and peers to have an overriding influence on their child's alcohol use. This could have masked the identification of other possible factors.

Participant's narratives highlighted how the link between alcohol use and mental health problems interacts with young people's social systems. Most young people and carers discussed the impact of extrafamilial factors, as opposed to familial factors on young people's co-occurring alcohol use and mental health problems.

Rather, what became apparent across the participants accounts was the importance of familial support in relation to extrafamilial factors and the co-occurrence of alcohol use and mental health problems. This was alongside the need for individual coping strategies for the young person. However, most caregivers did not always feel equipped to support their

child. This meant that carers often relied on socially informed strategies and targeted what they perceived to be the key risk factors. Further, it emerged that young people were less likely to seek support if they thought this could negatively impact their carer. Caregivers and other family members need help in galvanising their knowledge, skills, emotional and practical resources to feel better equipped in order to support the young person's co-occurring mental health problems and alcohol use.

The importance of building familial resources to support their child was irrespective of whether familial risk factors were present or not. Only a small subset of participants expressed needing additional help with aspects relating to familial relationships and familial mental health and substance use. See Figure 6.3 below, depicting these familial areas of need.

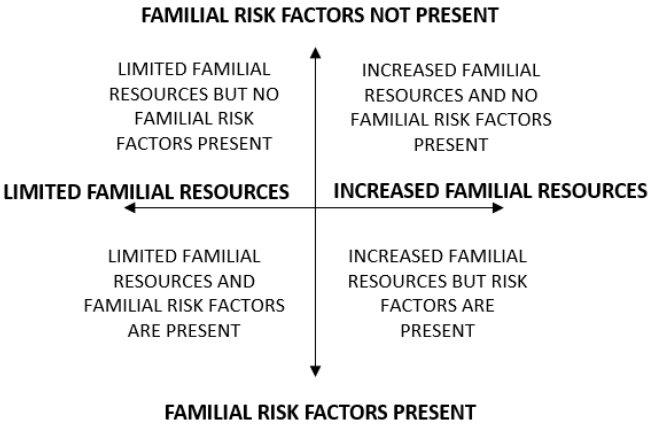

Figure 6.3 Model depicting familial areas of need

The first steps towards practical considerations of intervention development have also been outlined within this chapter. This included possible intervention content focussing on raising awareness and management in relation to co-occurring alcohol use and mental

health problems. The need for the intervention to be youth led, in which the young person gets to decide the level of family involvement. Finally, some suggestions were provided regarding the individual delivering the intervention, the location and session lengths.

The following two chapters will detail the co-design workshops, which formed the final stage of integrating and shaping the theoretical basis for the prototype intervention.

Chapter 7. Co-Design Workshops: Methodology and Methods

7.1 Chapter Introduction

The following two chapters will present the methods and findings for the co-design workshops, which aim to develop the theoretical basis for a prototype intervention. In this chapter the rationale for the chosen methodology to aid the co-design of the theoretical basis for the intervention will be discussed. The specific methods involved in integrating the mixed-method findings to form the content for the co-design workshops will be outlined. This is followed by detailing the specific methods involved in recruitment, running the co-design workshops and developing the resulting outputs.

7.2 Methodology

7.2.1 Rationale for Co-design workshops

The importance of end user and stakeholder involvement in the development of interventions is well established (63). This often involves a mixed method design which can facilitate both a deductive (as used within the systematic Review) and an inductive (as used in the qualitative interviews) approach to producing an evidence base for a novel intervention (214). What is less clear is how best to integrate the evidence from a systematic review and qualitative interviews effectively, whilst also integrating end-users' preferences and needs throughout that process. To address this, O'Brien and colleagues developed methodological guidance on how to integrate evidence, involving co-design workshops (214). This was designed to complement the MRC guidance for the development of complex health interventions (63). As such aspects of the methodological co-design process developed by O'Brien and colleagues informed this research.

The guidance consists of a seven-step systematic process. These steps can be modified and tailored to a specific intervention context and target population (214). For the purpose of this thesis, developing the underlying theoretical basis for a prototype intervention, steps one to four were used to guide the process. This formed two stages. Stage one involved developing the co-design workshop content and consists of step one and two. Stage two

encompassed the running of the workshops and presenting the resulting theoretical basis of the prototype intervention, and associated logic model. This is in accordance with the final step within the MRC intervention development guidance, of modelling processes and outcomes (63).

7.2.2 Approach to developing workshop content: integration of mixed-method findings

The integration of mixed-method findings can be challenging particularly if the findings conflict (215). 'Evidence statements' consist of summaries of key findings from the systematic review and qualitative interviews. (214). This technique was employed to form the basis of the workshop content. This allowed for any possible conflict to be discussed with the public and stakeholders during the co-design workshops (214).

A pragmatic decision was taken not to carry out the initial workshop to develop intervention principles (initial intervention ideas) as carried out by O'Brien and colleagues. Intervention principles were already derived from the second half of the qualitative interviews. This involved discussions regarding what an intervention 'could look like'. The use of qualitative interviews to explore practical considerations of intervention content have been utilised ahead of workshops within similar intervention development studies (216). Furthermore, an authenticity check of the evidence statements could still be provided within the main workshops which were carried out (214). The development of evidence statements and intervention principles within this research represents step one of O'Brien's guidance.

Together, the 'evidence statements' and 'intervention principles' informed the development of the initial intervention strategies (tangible features of the intervention content). This was to ensure that initial intervention strategies were grounded in the context, issues and needs of the end user, the young people and caregivers (214). This approach is recommended as it can sometimes be challenging for participants to think of specific intervention strategies (217). As was found to be the case within the subsection of the qualitative interviews considering 'what an intervention could look like'. Together this reflects step two of O'Briens guidance.

7.2.3 Approach to the running of co-design workshops and resulting outputs

Running the co-design workshop

Co-design workshop are a suitable method for involving end users and stakeholders in the co-development of interventions as they do not involve discussing personal experiences. Rather they focus on the practical and tangible aspects of intervention development (214). The running of co-design workshops enabled an authenticity check for the research findings from the systematic review and qualitative interviews. The workshops were an opportunity to explore the acceptability and feasibility of the intervention strategies and develop them further, leading to core intervention strategies. This reflects step three of O'Briens guidance (214).

Workshops were delivered separately for young people, caregivers and professionals. Further, age specific workshops were planned for young people due to the considerable age range of 12-17. These considerations are important in helping participants feel comfortable and able to contribute to discussions (218). However if those recruited were peers or classmates age specific workshops would not be required, as this is also known to facilitate discussions (219). The workshops took place in convenient and neutral locations for all participants, as this has been found to be important for the success of the delivery of a workshop (218).

Activities were used to aid the delivery of co-design workshops. This required my ability to be flexible and patient, enabling new ideas to be explored whilst ensuring that activities remained productive and in line with the objectives of the workshop (214, 218). Two main techniques were employed. First, personas were utilised. These are fictitious examples of end users, providing tangible and engaging images to refer to whilst developing an intervention (see Appendix R and Appendix S). This enabled the developmental process to remain end-user focused (220). The personas were based on narratives from the explorative part of the semi-structured qualitative interviews. The purpose of the personas within this research study were twofold. First, it formed a clear introduction to the difficulties that the prototype intervention aims to target. Second, it also helped remove

the focus on participants' own personal experiences, rather forming discussions based on a fictitious persona.

The second intervention technique involved an activity centred around a 'Making a Pizza' analogy. Comparing intervention development to that of making a pizza, aids the understanding of the steps and components required to develop an intervention (218). In a public involvement consultation with young people, they explained that they felt the activity was clear to follow and would help facilitate discussions. They also liked the idea of including a related ice breaker at the start of the workshop, where they could introduce themselves and two of their favourite pizza toppings and one of their least favourite. They did however express the need for the facilitator to make sure that discussions remained focused on the task at hand. The same exercise was used for caregivers and professionals, however using 'baking a cake' as the analogy. To ensure that all participants could express their views both verbally and in writing, they were provided with post-it notes so that they could write suggestions down alongside the verbal discussions. This was designed to accommodate for different preferences and competencies (221, 222).

7.2.4 Co-design Workshop Analysis

A pragmatic approach to thematic analysis was applied to the workshop findings, as utilised by O'Brien and colleagues in their work (214). For each of the intervention strategies the specific sections of transcripts, workshop materials, and field notes referring to these were collated. For each strategy the linked data was searched for recurring views and suggestions regarding the intervention strategies whilst also identifying and examining any differences.

7.2.5 Co-design Workshop output

The workshop findings taken together with the systematic review findings, qualitative review findings and selected theory resulted in the development of a visually-focused logic model which summarised the key intervention components and how these are theorised to impact desired outcomes. Also known as the program theory (223). This is the fourth step

in O'Brien's model. During intervention development a logic model can aid as a planning tool. It is not static, rather it can be refined throughout this process (224). The building of a logic model requires conceptualising each of the four parts of the model. These include a) outcomes; b) behaviours which directly affect the main outcomes; c) determinants associated with those behaviours; d) the intervention strategies which are linked to changing the determinants (225). This process requires systematic thinking, clarity and specificity which aids the refinement the intervention (224). Ultimately the development of logic models can contribute to the success of an intervention as it can aid the identification of gaps in component parts or understanding of the intervention process, the underlying mechanisms, can then be addressed.(63, 224).

When developing interventions it is important to consider the possible unintended adverse outcomes which can occur and the mechanisms in which these operate (226). These can include 'harmful externalities' which refer to harms that are not included in the interventions targeted outcomes. Harm can also encompass an increase in outcomes that the intervention is in fact aiming to prevent, known as 'paradoxical effects'. A visual depiction of these unintended adverse effects are referred to as "dark logic models" and aim to complement logic models (227). The identification of these possible harmful effects can inform the refinement of the prototype intervention in an attempt to reduce the risk of harmful effects (227).

7.3 Methods

7.3.1 Eligibility Criteria

The Inclusion criteria remained the same as for qualitative interviews for both young people and caregivers. There was an attempt to recruit a wider range of diversity as this was missing from the interview sample. Therefore, the same sampling criteria was used for the workshop recruitment (see section 5.3.3). An additional criterion was added for professionals who were not included until this point; professionals working with, or having worked with, young people aged 12-17 years, experiencing mental health problems and are engaging in alcohol use.

7.3.2 Recruitment Strategy

Participants were recruited through the same approaches as adopted for the qualitative interview recruitment. The recruitment and sampling strategies are outlined in section 5.3.3 along with the NHS ethics approval (covering interviews and co-design workshops) in section 5.4.1.

Additional recruitment strategies were also employed. The young people and caregivers who took part in the qualitative interviews had the option within their consent form to express an interest in being contacted for the future workshops. It was made clear that this was not obligatory. If they were interested, they were provided with a consent to contact form in which they provided any contact details of their choice. Five of the young people included were recruited through this first method. One additional young person, who had not previously participated, was suggested through a gatekeeper. Similarly, two caregivers were recruited through the first method although one was gained through snowball sampling.

Professionals were recruited from a range of young people's services, including schools and youth groups. This was informed by participants discussions regarding suitable professionals to deliver the intervention within the qualitative interviews. Gatekeepers for the recruitment of young people and caregivers were contacted and asked whether they would like to partake in the workshops. They then approached colleagues, providing an information leaflet suitable for the study and provided them with a leaflet. If professionals wished to take part either their details were passed on to the myself who directly contacted them, or communications remained via the initial contact.

7.3.3 Development of co-design workshop content: the integration of mixed-method findings

First, the findings from the systematic review and the qualitative interviews were compiled. This was done by listing the evidence as a range of 'evidence statements'. Findings drawn from the second part of the interviews (practical exploration of 'what an intervention could

look like') resulted in practical suggestions for intervention content and delivery. These are listed as intervention principles (early intervention ideas). Together these evidence statements and the intervention principles highlighted the areas which need to be targeted within the intervention. Please see evidence statements and intervention principles below:

Evidence statements

a) Primarily addressing family functioning within an intervention may not be sufficient

The systematic review and meta-analysis demonstrated that existing family inventions, in which the key mechanism of change was reductions in poor family functioning and dynamics, were not found to be effective. The meta-analysis concluded that the family interventions were effective in reducing the mechanism of change, represented by the measure of family conflict. This emphasised that targeting this mechanism of change may not be sufficient at reducing young people's alcohol use and mental health problems.

b) Family interventions may benefit from including youth focused components

The systematic review and narrative synthesis tentatively suggested that the addition of components addressing individual functioning and extrafamilial factors to young people alone may increase intervention effectiveness.

c) Need to directly address link between mental health problems and alcohol use

The systematic review demonstrated that although the family inventions targeted common underlying familial factors most did not actually address the link between alcohol use and mental health in young people. Only three interventions did this, and it is not clear how in-depth this was.

d) Group delivery (young people with other young people) can have adverse effects

The systematic review and narrative synthesis reported that a group-based family intervention led to adverse effects on subgroups of the participants for externalising symptoms.

e) Paucity of interventions specifically targeting internalising symptoms alongside alcohol use

The systematic review highlighted that the majority of trials and family interventions target externalising problems and alcohol use. Only a minority were designed to target internalising problems alongside alcohol use.

f) The relationship between mental health and alcohol use interacts with wider socio-ecological factors

The qualitative interviews demonstrated that the reciprocal relationship between alcohol use and mental health problems is embedded within, and interacts with, young people's social systems. Consequently, a comprehensive approach within an intervention needs to be taken, which targets both the link between alcohol use and mental health and the interacting socio-ecological factors.

g) Building familial support

The qualitative interviews outlined that irrespective of whether family risk factors are present or not, the caregivers need help in galvanising their support. This includes building their knowledge and skills to feel better equipped to support their child with their co-occurring mental health problems and alcohol use.

h) Developing young people's coping mechanisms

Young people also need the opportunity to gain this insight and develop coping mechanisms to help manage their co-occurring mental health and alcohol use.

Intervention Principles (initial intervention ideas)

(1) Raise awareness and management of co-occurring alcohol use and mental health problems

Findings from the sub section of the qualitative interviews reported the need for both caregivers and young people to understand causes, signs and symptoms along with coping strategies for mental health, alcohol use and their co-occurrence. The specific strategies raised by young people included relaxation/ stress release techniques, a diary/tally of alcohol use and feelings, and emotional support from a professional. Caregivers suggested raising awareness regarding the risks associated with alcohol use although young people did not think this would alter young people's drinking.

(2) Flexible Family involvement within intervention

Findings from the qualitative interviews suggest the need for the intervention to be youth led. As such the young person should decide to what extent the family and specifically which family members should be involved.

(3) Mode of delivery

Findings from the qualitative interviews suggested that the intervention needs to be delivered by a professional and delivered in 2-10 sessions. Characteristics of the professional is key rather their profession itself. The individual characteristics included a "young professional" (they were considered to be more relatable), non-judgemental, approachable and possessing good communication skills. Whilst therapeutic styles included remaining neutral, flexible, solution-focused, maintaining confidentiality. Equally, the characteristics of the environment in which it took place was key. Characteristics included familiarity, safety, neutrality, privacy, comfortableness, convenience, and informality.

The second step involved developing initial intervention strategies, tangible features of intervention content needed to address all the areas identified within the evidence statements and intervention principles. As such, for each evidence statement and intervention principle, corresponding intervention strategies were developed. The resulting

30 initial intervention strategies were used as a tool to form the basis for conversations within the co-design workshops. Participants could choose which ones they would like to discuss. It was not intended for all of these strategies to be included within the theoretical basis of the intervention, or to limit what could be included. Please find the possible intervention strategies tabulated alongside evidence statements and intervention principles below. Please see Table 7.1.

Table 7.1 Evidence statements, Intervention Principles and Corresponding Initial Intervention Strategies

Evidence Statements	**Intervention principles**	**Initial Intervention strategies**
a. Primarily addressing family functioning within an intervention may not be sufficient (systematic review, meta-analysis). b. Family interventions may benefit from including youth focused components (systematic	1.Raise awareness and management of co-occurring alcohol use and mental health problems 2.Flexible Family Involvement within intervention 3.Mode of delivery	1. Help a young person write out what they think emotional health is. Compare it to physical health. Discuss their ideas in a family session
		2. Talk through and break down problems such as bullying, friendship problems, family problems, romantic relationship issues, academic pressures, and traumatic life events
		3. Break problems into how you think, feel, behave, and physically feel with a professional. Pick a problem and think of what you can do to make that problem better. What are the good and bad things about these ideas? Pick the best way to make the problem better
		4. Help the young person understand that other young people also struggle with their feelings. Also discuss this in a family session
		5. Help young people think about how feelings can affect their drinking and how drinking can affect their feelings
		6. Discuss how young people can 'replace' effects of drinking with doing things like relaxing, listening to music, reading etc.
		7. Help young people and parents/carers think of different and new things the young person would like to try
		8. Make a 'wellbeing toolkit' with the help of a professional. Young people can choose if they want to share this in a family session
		9. Help young people think of things they can do that make themselves feel better and how family members can support them

review-narrative synthesis) c. Need to directly address link between mental health problems and alcohol use (systematic review-narrative synthesis). d. Group delivery (young people with other young people) can have adverse effects (systematic review narrative synthesis)		10. Help parents/carers and young people feel like they want to and are ready to change the young person's drinking. For young people this would involve showing them how their goals and thoughts about drinking are different from their actual drinking
		11. Encourage young person to write about their feelings in a diary
		12. A professional will help young people compare how much they think young people their age drink with how much young people actually drink
		13. Discuss with young people how alcohol use can affect their body and how they feel
		14. To help young person feel more confident around mates without drinking. For example, with a professional work on replacing negative thoughts about oneself with positive thoughts (reframing)
		15. Help young people feel like they can say no to drinking. Practice through role play
		16. Compare what alcohol and drugs do to you
		17. Support young people to talk to their family about the reasons why they can find it difficult to tell them about their feelings
		18. Discuss difficult feelings a lot of young people experience. Help parents/cares to recognise these and ways they can help
		19. Ask family members to think about how they react if/when the young person drinks. Take time to understand **why** the young person is drinking.

e. Paucity of interventions specifically targeting internalising symptoms alongside alcohol use (Systematic review, narrative synthesis) f. The relationship between mental health and alcohol use interacts with wider socio-ecological factors		20. Talk to family members about how parents/carers drinking and problems with their feelings can affect the young person. Help parents/carers find support if they think this is needed
		21. Young people show the family a problem and how they want to fix it. A professional will show how family members can help the young people think of how to make problems better.
		22. Professional helps the young person and parents/cares talk about the pressures of school to help parents/carers better understand
		23. Help family members feel like they can talk about the young person's drinking and emotions
		24. Discuss with parents/carers about what they think could be bad about them giving young people alcohol
		25. Discuss with parents/carers about whether letting the young person drink when adults are there to check on them stops the young person from drinking when adults are not around
		26. Discuss how parents/carers within a family can better help each other. This can involve talking about things that work well and don't work so well to help the young person
		27. Plan special times together to have fun as a family
		28. A professional will help the family to talk about how they think and feel to help the rest of the family understand
		29. Help family to give young people clear limits and expectations about the young person's drinking

(qualitative interviews)		30. With your family, use role play to find better ways of talking to other people about what is on your mind

7.3.4 Conducting co-design workshops and resulting outputs

Workshops were carried out separately for young people, caregivers and professionals, based on the same content and techniques. This was to help participants feel comfortable and able to contribute to discussions. For young people workshops were not age specific, as all young people who took part were from the same school and the gatekeeper deemed it appropriate for them to all be in the same workshop. I was supported by a facilitator for each workshop who observed the workshop and took notes.

All participants were provided with a consent form and the opportunity to ask any questions before commencing the workshop. 'Household rules' were also announced to ensure that all participants remained aware that what was shared was confidential and not to be shared outside of the workshop. Everyone was encouraged to remain respectful throughout and to be aware that there were no right or wrong answers. All participants were provided with refreshments. The workshops were audio recorded and the facilitator took notes throughout.

All participants were asked to introduce themselves. To aid the introductions for young people and to provide an icebreaker, they were asked to present their name along with their favourite and least favourite pizza topping. The two personas were first introduced forming the introduction of the workshop activity. These were developed based on the symptoms and associated difficulties presented by the young people who took part in the explorative interviews.

The 'making a pizza' analogy was then explored. Here developing an intervention was compared to making a pizza. To make a pizza (outcome), what do you need to do? (process), and what do you need to be able to do it? (inputs). For example, to make a pizza (outcome), you need to roll out the dough and put sauce on (processes), and to do this you need a rolling pin and dough (inputs). These steps were displayed in the form of a simplified logic model (see Figure 7.1). It was explained that the same steps apply to developing an intervention. Referring back to the personas, the participants were introduced to the outcome of interest; to reduce alcohol use and difficult emotions such as feeling low,

worrying and anger. Participants also had the option to add any other outcomes they felt were important. Participants were then presented with 30 possible ways in which we can help the personas (process). This consisted of the 30 intervention strategies on laminated cards. It was explained that these intervention strategies were based on the findings from previous work and interviews with caregivers and young people. These 30 intervention strategies formed the basis for discussions regarding components that could be a part of the blank diagram. It was explained to participants that just like pizza toppings there could be personal preferences. Participants may like some intervention strategies whereas they may be others they dislike. If participants had time they could move on to the final step and considerer what 'inputs' were needed for example, who should deliver it, where should it be delivered etc.

Participants were provided with post-it notes in order to write down any initial thoughts about the intervention strategies whilst discussing them with the wider group. They all had the opportunity to add any additional components they felt were missing. The final task involved grouping the components into two sets, those they thought were helpful and those they thought were less helpful, along with a brief discussion about important practical considerations of intervention delivery.

The professional's and young people's workshop both took place in schools and took between 60-90 minutes. As soon as the young person's workshop was completed, they returned to their classes. The caregiver dyad interview and single interview both took place in their respective homes.

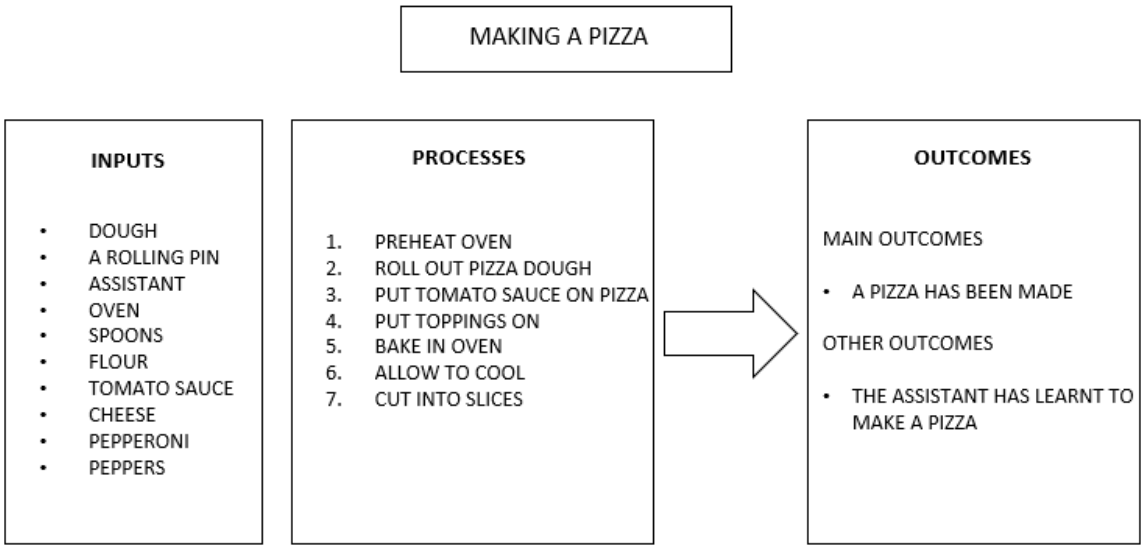

Figure 7.1 'Making a Pizza': example logic model

Workshop Analysis

Workshop audio recordings were transcribed verbatim. For each of the intervention strategies related sections from transcripts (across all participants), field notes and participant's post-it notes were collated. This was then tabulated and searched for recurring views and any differences regarding the acceptability of each of the intervention strategies. Subsequently, the intervention strategies were colour coded using a traffic light system to highlight which intervention strategies were deemed acceptable for inclusion in an intervention, and those which were not. Green represented intervention strategies that were agreed to be acceptable and a priority by young people, caregivers and professionals. Amber indicated intervention strategies where findings were mixed across participants and/or where modifications were at times suggested. Red highlighted strategies that were not deemed as acceptable or a priority by young people, caregivers and professionals.

Program Theory Development

The fourth step involved building the program theory visually depicted in a logic model. This consisted of conceptualising each component part in the order in which they occur: intervention strategies, determinants, behaviours and outcomes. The intervention

strategies colour coded green were refined and included within the intervention. The qualitative findings and selected theories were drawn upon to further inform the determinants section of the logic model. The workshop findings and key intervention objectives informed behaviours and outcomes section of the logic model. Please see Figure 7.2.

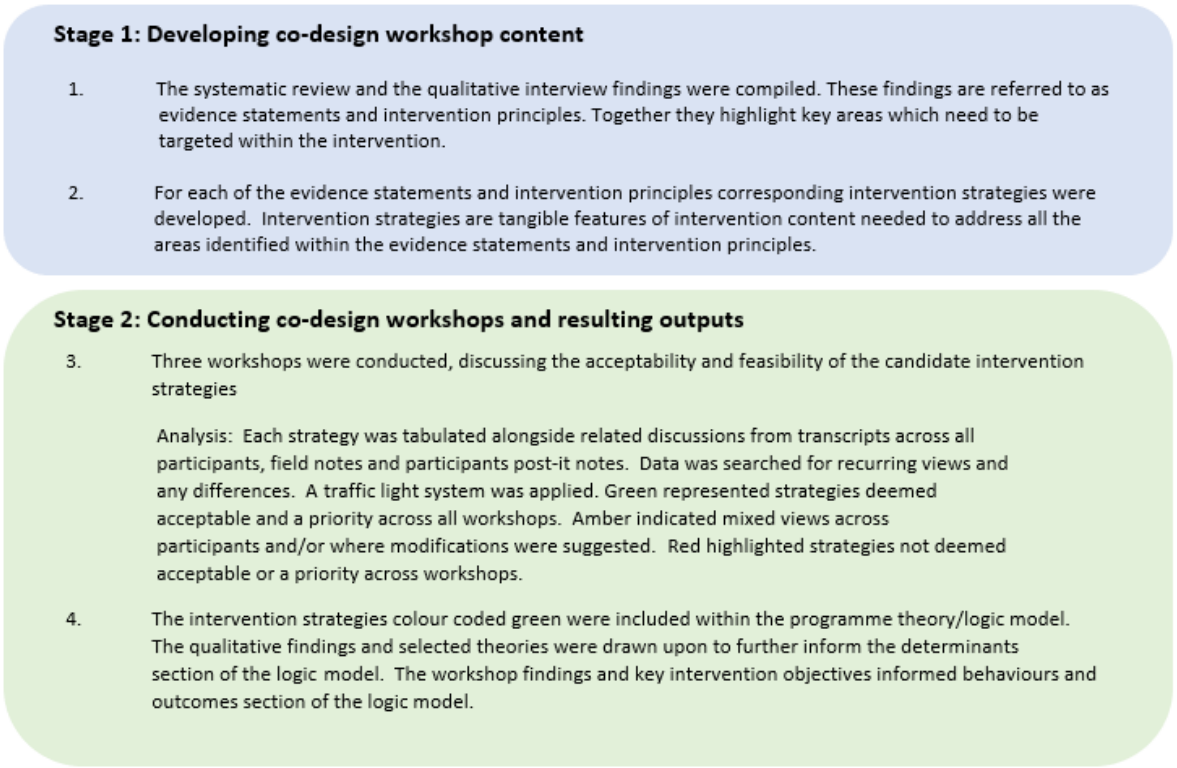

Figure 7.2 The four steps involved in developing the theoretical basis of the intervention

7.4 Chapter Summary

This chapter has detailed the methodological considerations alongside the methods employed within the development of co-design workshop content, the delivery of co-design workshops and resulting outputs. Specifically, this involved detailing the adapted co-design guidance forming two stages. The first involved the steps used to integrate the mixed-method findings and form corresponding initial intervention strategies. This formed the

content for the co-design workshops. The second stage included the steps to conduct the workshop, along with the development of the co-design workshop outputs. The findings from the co-design workshops and the resulting theoretical basis for the prototype intervention are presented in the following chapter.

Chapter 8. Co-Design workshop: Findings

8.1 Chapter Introduction

The findings from the co-design workshops are outlined within this chapter. This is followed by detailing the resulting core intervention strategies and associated program theory. Finally, the associated logic model is presented.

8.2 Co-design workshop findings and outputs

8.2.1 Participant demographics

A total of 15 participants took part in the co-design workshops: six within the young people workshop, six in the professional workshop and three within the caregiver's workshop. Due to difficulties arranging a time and place suitable for all caregivers, one interview and one dyad interview based on the same activities and materials were carried out instead. For ease of reporting these will be referred to as caregiver workshops throughout. The characteristics of participants are presented in the table below.

Table 8.1 Characteristics of participants involved in co-design workshops

Young People		**N (6)**
Age	13	1
	14	3
	15	2
Gender	Female	1
	Male	5
Ethnicity	Black British	1
	White British	5
Socio-economic status	Low socio-economic status	6
	Medium socio-economic status	0
	High socio-economic status	0
Caregivers		**N (3)**
Relation to child	Mother	2
	Grandmother	1
Ethnicity	Black British	0
	White British	3
Socio-economic status	Low socio-economic status	3
	Medium socio-economic status	0
	High socio-economic status	0

Professionals		N (6)
Profession	Youth work manager	1
	Family support worker	1
	Learning mentor	2
	Student support officer	1
	Head of sixth form	1
Ethnicity	Black British	0
	White British	6

8.2.2 Co-design workshop findings

Whilst discussing the included intervention strategies each strategy will be cross referenced to the Table 7.1 in Chapter 7, to illustrate the progression from evidence statements (compiled systematic review and qualitative interview findings) and intervention principles (practical intervention ideas from a subsection of the interviews) to the initial strategy. Where intervention strategies were based on multiple evidence statements or intervention principles, all will be listed.

Included intervention strategies

The young person, caregiver and professional workshops deemed the intervention strategy 'exploring how emotions and alcohol use is specifically linked for the young person' to be a priority (a.1.5); (c.1.5); (f.1.5). This is to be delivered separately for young people (b.1.5) and caregivers (g.1.19); (g.2.19). The caregiver workshops raised that it would be helpful exploring reasons for their child's drinking with a professional as it is easy to attribute alcohol use to *'just being a teenager'* (Participant 3, Mother, caregiver workshop). The Professional workshop suggested developing this strategy by combining this with general information regarding this link.

All workshops expressed the importance of the strategies improving young people's coping strategies, as many young people *'don't know how to handle their emotions'* (Participant 4, Female, Young Person Workshop). The coping strategy involving 'the breakdown of problems and identifying solutions' was deemed to be a useful, approachable and solution focused strategy (b.1.2); (b.1.3); (f.1.2); (f.1.3); (h.1.2). This involved for example identifying

challenges such as falling out with friends, bullying, academic stressors along with selecting the best solutions. All workshops discussed the importance for caregivers to be shown this method so that they could help their child use this strategy (g.1.21); (f.2.21). However, participants suggested that this strategy should be amended and be delivered in separate sessions rather than together (g.2.21). Young people could then choose whether to share a problem with their family and how they would like to approach/fix it.

Although not discussed within the caregiver workshops, the young person and professional workshops were in agreement with the "wellbeing toolkit" being a priority. It was agreed that this should be delivered to both young people (b.1.8); (h.1.8) and caregivers (g.1.8). Although it was felt that this should be delivered separately for caregivers (g.2.8). Young people could have the option to share their own wellbeing toolkit with their caregiver in a joint family session (b.2.8). This consists of a personalised selection of activities that can improve how they feel e.g. talking to a friend/family member, playing football, dancing. The professionals workshop expressed that this was an efficient tool. They raised the importance of improving the young person's wellbeing in it's own right, how this can in turn reduce both mental health problems and alcohol use. *'But if that well-being groundwork isn't there in the first place, they're just going to go, "Well, actually, this is a quick fix. I'll just get absolutely obliterated and then I just don't feel anything"',* (Participant 3, Learning Mentor, Professional Workshop). Within the professional workshop it was strongly suggested that wellbeing should be a secondary outcome of the intervention. Providing these alternative coping strategies as a 'replacement' of intoxication was expressed as a useful technique within youth work practice (b.1.6);(h.1.6).

The professional workshop identified that raising the self-esteem of young people was key in both improving wellbeing and reducing alcohol use, *'The reality is, you raise self-esteem and you raise how the person feels about themselves. Then they don't need to rely on these other things to make them feel better'* (Participant 5, Student Support Officer, Professional Workshop). The intervention strategy encompassing the 'engagement young people in new social activities' was considered highly acceptable and a priority across all workshops (b.1.7); ;(c.1.7); (f.1.7). In addition, it was thought to provide forms of socialisation other than

through the use of alcohol and to provide a wider variety of friends with different interests (f.1.7). Although, within the professionals workshop it was highlighted that simply identifying and signposting young people to new activities was not sufficient. As such the strategy was tailored to proactively help the young person sign up and engage in a new activity.

Assisting the caregivers to reflect on how their own mental health, alcohol use and coping strategies may impact their child, was recognised to be a very sensitive area and difficult to explore. The caregivers workshops raised their concern that there was a risk for the parent to feel blamed and shut down, *'She's not blaming my [fathers] drink on this." So he's quite where he won't accept that maybe'* (Parent 1, Mother, Workshop based interview). As a consequence, exploring caregivers own needs to increase their own emotional and physical resources may be a more efficient approach. The professional can sign posting relevant support for the caregiver if needed (g.2.20).

An agreement was not reached across or within the workshops regarding the therapeutic technique in which young people share insights from their own sessions within family sessions. Within caregiver workshops it was thought to be crucial to gain this insight, to be able to help and support their child. Discussions from the young person workshops highlighted the importance that caregivers understand their point of view and why they feel or behave in a certain way. However, some young people explained that they thought this could increase conflict within the family, '*Don't know, if it was me, and then the mentor told my mum or dad, then I just get shouted at when I get home for telling the mentor. So, I wouldn't want my mum or dad knowing anything I say'* (Participant 2, Male, Young Persons Workshop). Though they felt it may be beneficial with a professional present to mediate or relay needs and conversations. The professionals workshop raised that although this was a useful step, they agreed that it should be guided by the young person's needs. Consequently, this therapeutic technique could be optional to the young people receiving the intervention (b.2.8); (g.2.21).

Similarly joint sessions focused on improving the communication between family members, also received mixed reactions across the workshops (a.2.30). This was seen as a priority within the professional workshop. It was emphasised that this must be delivered sensitively without pathologising the family. The young persons and caregivers workshop raised apprehension. Both young people and caregivers were concerned that it could possibly lead to increased conflict within the family, *'I'm not talking because it causes an argument… screaming, shouting, bawling, tears'* (Participant 1, Mother, Parent dyad workshop). It was suggested that this session could be offered for those young people who would want it (a.2.30). The strategy was also amended to not utilise role play techniques. This therapeutic technique was not considered an acceptable or useful therapeutic tool within any of the workshops as it was felt to be '*embarrassing*' (Participant 3, Male, young person workshop).

Excluded intervention strategies

As for helping caregivers to relay clear expectations regarding alcohol use to their children, caregiver workshops believed that young people would not listen and that it would not alter their behaviour, *'I don't think they listen [about alcohol related harms]*' (Participant 2, Grandma, Caregiver Dyadic workshop). They felt that the strategies addressing social influences are likely to be more effective.

Writing in a 'feelings diary' was not thought to be a priority by most of the participants because they did not think young people would engage in this, *'My two girls, they would just laugh at me if I said that [to write in a feelings diary]'* (Participant 1, Mother, Caregiver Dyadic Workshop). However, a minority acknowledged that it may work for some, if tailored to the young person's abilities and later shared with a professional to talk through.

The young person and professional workshop were in agreement that raising the young person's awareness around the effects of alcohol use and other substances were not felt to be effective. Although a minority thought it could be beneficial, the professionals workshop highlighted that this approach is already covered in the school curriculum, '*They've been doing it in PHSE lessons since they were six, about the dangers of alcohol. Or, like I say, the*

dangers with your health and if that's not going to have any impact on them essentially' (Participant 6, Head of Sixth Form, Professional Workshop).

Amongst all workshops it was agreed that challenging the young persons perceived social norms regarding alcohol would not be effective in reducing their alcohol use. They believed that ultimately their immediate peers alcohol use would be more influential. As for improving young people's alcohol refusal skills, the young person's workshop raised that they did not think this would reduce alcohol use. The young people felt that they already had these skills. Whilst the professionals and caregivers workshop expressed that these skills would not be applied in real life.

The intervention strategy involving raising young people's and families' motivation to change the young person's alcohol use were not discussed in the professional or caregiver workshops. This strategy involved exploring how the young person's thoughts and goals about their own drinking may be different from their actual drinking. The young person's workshop did not deem this strategy to be a priority and explained how this could lead to feeling *'guilty'* (Participant 3, Male, Young Person Workshop) about their alcohol use but not leading to change in use.

The caregiver and professional workshops discussions around the strategy involving the exploration of the harms associated with parental provision of alcohol, further highlighted how socially informed and accepted this strategy was. This strategy was not deemed acceptable.

Caregiver workshops deemed encouraging family time a priority, meanwhile the young person workshop expressed that this would not reduce difficult emotions they were experiencing or their alcohol use.

Finally, the strategy aimed at increasing the young person's self-esteem involving 'reframing the young person's negative thoughts about themselves', was not deemed a priority. The intervention strategies surrounding increasing awareness of mental health and common

mental health problems experienced by young people, did not gain much attention across the workshops and were not seen as a priority.

8.2.3 Co-design workshop output

Overall intervention features

Together with the evidence statements, intervention principles, and selected theory the core intervention strategies resulted in the underlying theoretical basis for the prototype intervention. This consists of core intervention strategies and program theory for a prototype targeted family-involved intervention for young people aged 12-17. There are three key features underpinning this intervention. First, it takes a holistic approach, targeting the relationship between alcohol use and mental health problems along with socio-ecological factors. Second, the intervention aims to help galvanise and build familial support in addition to young people's own coping mechanisms. Specifically, the family (the young person and their chosen family members) require knowledge and skills in order to support the young person experiencing co-occurring alcohol use and mental health problems. Third, the intervention should be youth led, meaning that the young person can tailor the intervention to their individual needs.

Young people will be able to tailor the intervention in two ways. First, they can choose which family member/s should be involved. This particularly reflects findings from the qualitative interviews in which some young people would feel more comfortable involving for example grandparents or older siblings within the intervention. This also responds to the findings from the systematic review highlighting that family involvement is often limited to mothers. Whilst some caregivers and a few young people discussed group-based delivery, the sessions will be delivered to the young people individually. This decision is due to the potential adverse effect of a group- based format for young people raised within the systematic review. Second, the intervention will consist of separate sessions for young people, chosen family members and optional joint family sessions. The young people may choose whether they would like to engage in any of the optional joint family sessions or not.

This is in keeping with the varied acceptability of these sessions and perceived potential to increase conflict as raised in the workshops and qualitative interviews.

Further, the intervention content will mainly focus on general information and skills-based provisions for family members during seperate sessions. This aids family member involvement to a level the young person feels comfortable with as expressed within the workshops.

As preferences regarding location and the individual delivering the intervention varied, a pragmatic decision was made. The delivery of interventions is planned to be carried out in schools and by a school mentor. This location is readily accessible. It will consist of a session for each strategy included.

Finally, within the interviews the age at which young people expressed a link between their alcohol use and mental health problems appeared to emerge mainly at the age of 14. As such the intervention will be particularly important for young people aged 14-17 as a targeted preventative effort. Whereas most young people aged 12 and 13, did not express a link between their mental health problems and alcohol use. Rather their alcohol use was often limited to restricted amounts together with caregivers. Consequently, this intervention should be paired with specific efforts to address parental alcohol provision, for those aged 12 and 13. As outlined in the qualitative interviews and the co-design workshops this was highly socially informed management strategy and would require a societal and cultural shift in current norms surrounding young people's alcohol use.

Core intervention strategies and program theory

Strategies delivered to young people

1. Exploration of co-occurring alcohol use and mental health problems. Identification of key family members

Young people will be provided with information about the relationship between alcohol use and mental health problems. This will be combined with exploring how alcohol use and mental health are specifically linked for that young person. This could aid in increasing their motivation to change. Furthermore, exploring this link within their own social context will contribute to an increased understanding about how alcohol use and mental health is introduced and reinforced. This draws upon the importance of considering the interactions between the young person's alcohol use and mental health problems and with wider socio-ecological factors. This is emphasised within ecological systems theory. This understanding can help tailor the development of coping skills and wellbeing toolkits.

2. Break down problems into how the young person thinks, emotionally and physically feels & behaves. Choose one at a time and think about how this can be solved.

Improving young people's coping strategies may directly reduce both alcohol use and mental health problems. The multistage social learning model posits that increased coping skills will reduce the reinforcing value of alcohol use on mental health symptom reduction. Elements of cognitive behavioural theory presents how coping skills can be tailored to the specific stressors in their lives. This approach will be used within the intervention. First this involves talking through any difficulties the young person is facing such as bullying, friendship problems, relationship issues, academic pressures etc. This is followed by breaking down problems into how the young person thinks, emotionally feels, behaves, and physically feels. The young person then selects a problem and thinks of possible solutions. Weighing up the positives and negatives of the solution, the best one is chosen.

3. Develop a personalised wellbeing toolkit for the young person

The use of problem solving is coupled with young people being shown how to build a personalised wellbeing toolkit. This involves selecting activities that can improve how they feel e.g. talking to a friend/family member, playing football, dancing, reading. Young people can then apply their wellbeing toolkits within their daily lives. This is thought to increase

wellbeing, in line with CBT principles. The wellbeing toolkit also contributes with alternate coping mechanisms instead of alcohol use.

4. Help the young person to identify and engage in new activities

By identifying and engaging young people in new social activities this is theorised to increase their social skills, self-esteem and introduce them to new peer groups. According to multistage social learning model this will in turn improve their mental health and reduce the need for alcohol use in aiding their social skills and, self-esteem. It may also place the young person within a different set of peer norms, regarding alcohol use, which will not reinforce the relationship between alcohol use and mental health or model drinking to cope via social learning. Additionally, introducing young people to new peer groups may help reduce sources of distress caused by young people's current friendship groups. This further draws on ecological systems theory, delineating the importance of the influence of surrounding microsystems such as peer groups.

<u>Strategies delivered to chosen family members</u>

5. Equip family member with tools to support the young person

Although the multistage social learning model acknowledges that the child's coping skills can be influenced by caregivers own coping through social learning, within this research it is theorised to be facilitated through caregiver's direct support provided to their child. Equipping the caregiver with additional supportive strategies to help the young person, may reduce the caregiver engaging in certain strategies used to manage alcohol use but, in some instances, inadvertently introduce or reinforce the relationship between alcohol use and mental health problems for their child. In addition this intervention will not only be limited to caregivers rather can involve a family member of choice. The chosen family member will be shown how to use the problem-solving technique, informed by aspects from the cognitive and behavioural model.

6. *Explore difficult feelings young people can face and possible links with alcohol use*

In addition, the above support strategies for the chosen family member needs to be coupled with information on the link between alcohol use and mental health. This provides context for the new strategies. This may be particularly important for caregiver's support as strategies are shaped by what they perceive to be the cause. Caregivers/ family members will also explore how alcohol and mental health may link specifically for their child, to inform and tailor appropriate supportive strategies for their child. As for the corresponding component for young people (strategy one) this strategy is in line with ecological systems theory.

7. Exploration of their own coping skills and linked substance use. Signposting to support services

This strategy involves exploring the family members own coping skills, substance use and mental health and signposting to appropriate services where needed. This aims to increase caregivers/family members own emotional and physical resources in order to feel better able to support the young person. In addition, a reduction in caregiver mental health and/or alcohol use may reduce sources of distress for the young person. Consequently, it expands on the multistage social learning model. It acknowledges that the child's coping skills can be influenced by caregivers own coping. Furthermore, it is understood that the caring relationship between the caregiver and young person is not simply one way, from caregiver to child. Rather the child also feels a responsibility to care for their caregivers. Thus, knowing that the caregiver are being supported may help the young person feel more comfortable to open about the difficulties they are facing, as they may feel that their chosen family member is better equipped.

Optional intervention strategies

<u>Joint family sessions</u>

These two optional strategies were discussed within the intervention structure section and as such are just listed below.

8. Improve communication skills amongst all family members

9. An opportunity for young people to share their wellbeing toolkits and examples of problems they have identified along with solutions

The mechanisms of change outlined above are distilled within the logic model (see Figure 8.1). The primary outcome is reducing co-occurring mental health problems and alcohol use. Whilst the secondary outcome is improving wellbeing. Although a considered effort was made to adjust intervention strategies as to reduce the likelihood of adverse effects to arise, it is acknowledged that this may still occur as discussed above in the intervention structure section.

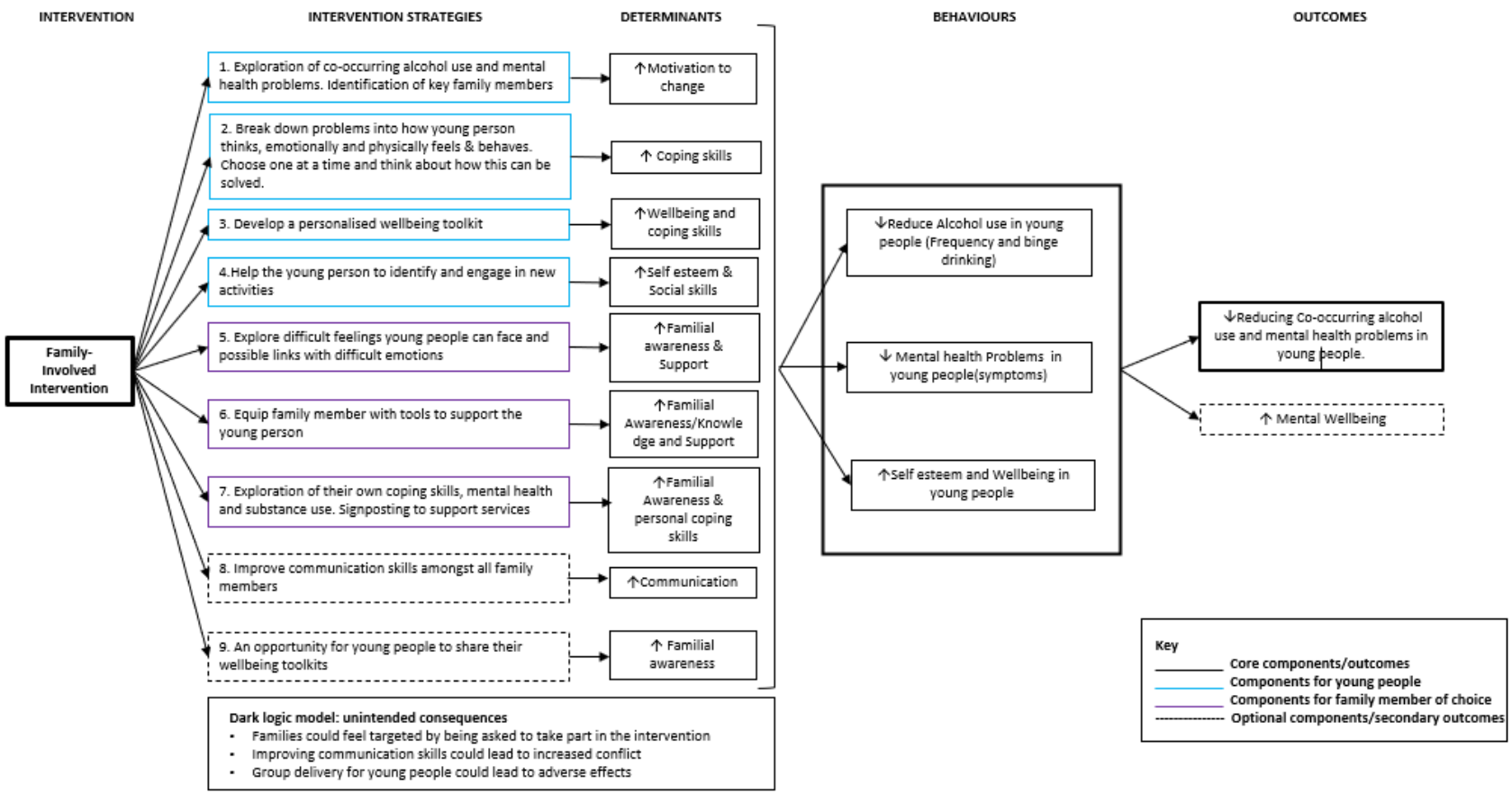

Figure 8.1 Logic model depicting program theory for the family-involved intervention

8.6 Chapter Summary

In this chapter the findings from the co-design workshops, discussing the initial intervention strategies have been presented. Additionally, the associated outputs including the resulting core intervention strategies and associated program theory are discussed and depicted as a logic model. The next chapter is the discussion in which the findings from the systematic review, explorative qualitative interviews and co-design workshops will be critiqued, in relation to their contribution to the literature, strengths and limitations, future research and policy and practice implications.

Chapter 9. Discussion

9.1 Chapter Introduction

The overarching aim of this research was to develop the theoretical basis for a prototype family-involved preventative intervention, alongside young people and caregivers, with the aim of reducing co-occurring alcohol use and mental health problems in young people aged 12-17. Three key research objectives with associated approaches were employed to achieve this. First, a systematic review was utilised to gain an understanding of the effectiveness of existing family interventions at reducing co-occurring alcohol use and mental health problems in young people. Second, qualitative interviews were conducted with young people and caregivers to explore risk and protective factors alongside the needs of young people experiencing co-occurring alcohol use and mental health problems. Third, these findings were integrated to inform candidate intervention strategies. These candidate intervention strategies were discussed and further developed within co-design workshops with young people, caregivers and professionals. This resulted in a set of intervention strategies and associated program theory presented as a logic model. The systematic review and qualitative interviews addressing the first two objectives, offer important insights in their own right. As such, these will be discussed first considering how the systematic review and qualitative interview findings speak to each other and to the wider literature. The co-design workshop output, specifically the underlying assumptions and intervention components and strategies will then be outlined and situated within the wider literature. The key strengths and limitations of this doctoral study will be considered in relation to the overall approach taken, methods utilised and resulting data. Finally, raising possible implications for policy and practice along with highlighting areas in need of further research.

9.2 Summary and interpretation of key findings

9.2.1 *Building familial support alongside young people's coping mechanisms*

A key finding from this thesis is the role caregivers and other family members can have in supporting young people with their co-occurring alcohol use and mental health problems. However, caregivers and other family members do not always feel equipped to provide this. Subsequently family members need help in building their knowledge, skills, emotional and physical resources.

The systematic review and meta-analysis demonstrated that existing family interventions were not found to be effective. The meta-analysis found non-significant effects for the primary outcomes: frequency of alcohol use, internalising symptoms and externalising symptoms or for the secondary outcome substance use. These findings are corroborated by recent reviews and meta-analyses which have concluded that existing evidence does not support the effectiveness of preventative family interventions for alcohol use (228) or antisocial behaviour (229). The review from this doctoral work supplies a possible explanation as to why they are ineffective. The included family interventions are theorised to reduce alcohol and mental health problems indirectly, through primarily reducing family dysfunction. Interestingly, the meta-analysis within this doctoral work demonstrated that the interventions were effective in reducing this mechanism of change as they set out to. This suggests that family dynamics and functioning is not the right mechanism to target in reducing young people's alcohol use and mental health problems.

The qualitative interview findings provide some further insight as to why this might be. Most young people and carers did not want intervention content aimed at family functioning. Whilst most young people and caregivers discussed the role of factors external to the family in relation to the young person's co-occurring alcohol use and mental health problems, only a minority discussed familial risk factors. Therefore, targeting familial dysfunction and poor dynamics is not sufficient, corroborating the key finding from the systematic review. This contrasts with the deficit/problem maintenance model, predominantly informing family involvement within interventions (230). This model emphasises how carers and family

members are considered part of the problem. This focus has resulted in the lack of understanding how best to involve family members within interventions (230).

Rather, what emerged from young people and caregivers accounts was the importance of familial support. Young people and caregivers expressed that through galvanising carers knowledge and skills they can then support the young person in relation to the extrafamilial factors and the co-occurrence of mental health and alcohol use. Although it is acknowledged that addressing familial risk factors can be important in some cases, the findings suggest that caregivers and other family members can contribute as a substantial resource for the young person (231). Thereby within this thesis family members are considered to be part of the solution (232). This is contrary to the predominant content of the interventions included within the systematic review targeting familial risk factors with few interventions targeting familial support.

This positioning of caregivers and other family members contrasts with one of the primary theories applied to family interventions and therapy, family systems theory (233, 234). Within family systems theory the key assumptions are that dysfunctional family dynamics and processes lead to the development of both alcohol use and mental health problems in young people (234). Although family systems theory has been adapted to acknowledge other social determinants, the primary focus remains on the families functioning and dynamics (235).

Accordingly, this doctoral research moves away from this predominant approach. Instead it recognises family as a primary environmental support system for young people (231). Increasingly the value of galvanising familial support has been raised as an important protective factor for preventative mental health interventions to target (50). The interviews suggested that some young people were hesitant to seek/receive support from their caregivers on a day to day basis. This was mainly because they cared about how this might impact the wellbeing of their caregiver or family member. Thus, it is important for the professional delivering the intervention to not only provide support to the young person but also to their family member involved in the intervention.

The systematic review found that mothers were the main family member involved in the interventions. This could be a reflection of implicit and explicit gender bias, in which mothers can be assumed to be the primary caregiver (236). Within the qualitative interviews and co-design workshops young people varied in who they would want to involve in an intervention, including both mothers and fathers. Many young people also spoke about a range of other family members including siblings and extended family such as grandparents, aunties and uncles. This emphasises the importance of alloparents, family members other than biological caregivers/ primary caregivers within the intervention context (237).

Within the interviews, young people and caregivers also expressed that they wanted an intervention to be youth led. This involves the young person identifying which family members to involve and determining their level of involvement. Whereas usually the professional delivering the intervention decides whether and how to include family members (230). These decisions are often informed by an intervention manual as advised by NICE guidelines (238). However, within practice this is critiqued, as this standardisation can make it difficult to respond to each individuals' specific needs (239). Allowing the prototype intervention within this doctoral work to be youth led facilitates flexibility within the intervention. This allows for the intervention to be tailored to the needs of each individual young person, whilst also enabling structure through the use of an intervention manual.

Building young people's coping strategies also emerged as an important area to target in conjunction with familial support. This was partially informed by the narrative synthesis, which tentatively suggested the importance of including components delivered separately to the young person alone, addressing an array of extrafamilial factors. This is consistent with findings from substance use prevention in which youth focused components have been found to increase the effectiveness of family interventions (54). The qualitative interviews raised the specific need for increasing young people's coping skills in relation to managing stressors.

9.2.2 The link between mental health and alcohol use is embedded within the young person's social systems

Another key finding from this study is that alcohol use and mental health problems in young people do not occur in a vacuum. There is a reciprocal relationship between alcohol use and mental health problems embedded within, and interacting with, young people's social systems. This is line with the micro, meso and macro systems from ecological systems theory. Conversely, the systematic review reported that most family interventions relied on targeting common underlying familial factors. Only 3 out of 21 interventions addressed the link between mental health and alcohol use (126, 152, 161).

Within the qualitative interviews most young people aged 14 and over depicted a bidirectional relationship between their alcohol use and mental health problems. Young people described how alcohol could enhance positive emotions such as feeling happy, carefree, confident and temporarily reduce negative emotions and provide a sense of escape, distraction and relief. This relationship is well established in the literature (10, 23, 28). In contrast to existing evidence for young people without metal health problems, some young people in this study expressed how the negative consequences of alcohol use and intoxication could also provide the desired distraction and escape they sought (240, 241). However, this was short-lived and young people also spoke about how alcohol use lead to anger, upset and low mood both in the short term and longer term. The qualitative interviews in this study unearthed a nuanced picture in how this bidirectional relationship interacts with socio ecological factors.

Most studies have identified risk and protective factors associated with alcohol use and mental health problems separately in young people (37, 38, 242). However, these studies were unable to explore specific mechanisms underlying the co-occurrence of alcohol use and mental health problems. A limited number of studies exploring factors specifically in relation to the concurrent co-occurrence of the two established common underlying factors in young people. Although they have not explored **how** these shared risk factors contribute to this co-occurrence (25). This limits the understanding of the specific mechanisms at play

when alcohol use and mental health problems co-occur. In contrast specific mechanisms emerged within the qualitative interviews in this research. First, common familial and extrafamilial factors emerged for alcohol use and mental health. However, the specific mechanisms in which these factors operated often differed for mental health and alcohol use. For example, familial substance use could be distressing for the young person which could impact their mental health whilst also affecting the young person's alcohol use through the normalisation and accessibility of alcohol use. Whilst other factors appeared to directly affect mental health which, in turn impacted alcohol use and vice versa. Following from the above example, young people and caregivers talked about how drinking could form an escape from the distress caused by familial substance use.

These findings may help further explain why the family interventions included in the systematic review were ineffective. Most existing family interventions were not specifically designed for young people with co-occurring alcohol use and mental health problems. Instead, they simply targeted the common underlying factors. One of the included trial papers argued that a complete understanding regarding the mechanisms causing the co-occurrence is not required, as long as both alcohol use and mental health are targeted together (126). The findings from this doctoral work challenge this position. With multiple mechanisms present, simply targeting common factors alone is not likely to be sufficient.

In addition to the multiple mechanisms at play, the constituent mental health problems and alcohol use forming the co-occurrence can also interact with the socio ecological factors. The qualitative interviews found that a young person's mental health problems could make them increasingly susceptible to peer influence and social norms directly linked to alcohol use. The qualitative interviews within this doctoral study found that, peer influence and social norms continued to influence the young person's drinking, whilst also introducing the perceived beneficial effects on their mental health problems. Subsequently alcohol use could inadvertently become an established coping mechanism to manage difficult experiences and feelings.

Peer influence and social norms also influenced the way in which caregivers viewed and approached the link between alcohol use and mental health problems. Previous research has reported that the perceived inevitability of their child's alcohol use due to social norms can impact how caregivers manage and negotiate alcohol use with their children (243-245). The qualitative interviews within this doctoral study suggests that caregiver's emphasis on the role of peer and social norms may in fact mask the role of other factors on alcohol use. Caregivers rarely considered the role of their child's mental health in relation to their child's alcohol use or vice versa. Furthermore, caregivers understanding of the relationship between alcohol use and mental health was often socially informed. They drew upon their own personal experiences as adolescents, which again reinforced the role of social and peer norms. Caregivers were also more comfortable with the thought of their child drinking for social reasons rather than as a way of coping with their mental health. The former deemed to be normal for young people their child's age (243). This is suggestive of the need for caregivers to gain an increased understanding of the possible link between the two. This knowledge may aid them in feeling better able to support their child.

Together the systematic review and qualitative data suggest the need for a comprehensive intervention approach, which targets the link between alcohol use and mental health and the interacting socio-ecological factors. This includes common underlying factors and other factors that are linked mental health which, which in turn impact alcohol use or vice versa. The value of a holistic approach is also being recognised within the area of intervention development for reducing amphetamine use and mental health in adults (246).

9.2.3 The components of a targeted family-involved intervention

Intervention strategies

First, the intervention aims to help galvanise and build family support in addition to young people's own coping mechanisms. Specifically, the family (the young person and their chosen family members) require knowledge and skills in order to support the young person experiencing co-occurring alcohol use and mental health problems. Second, it takes a holistic approach addressing the link between alcohol use and mental health problems,

alongside interacting socio ecological factors. Finally, it will be youth led. Meaning that the young person can choose which of their family members to involve and the level of their involvement. The intervention strategies will now be discussed and situated within the wider literature. Please see the logic model, Figure 8.1, for an exact outline of each of the 9 intervention strategies and associated mechanisms of change.

Information will be shared with young people and caregivers/family members about the relationship between alcohol use and mental health problems. Professionals will also explore how they are specifically linked for that young person within their social context. This will aid an understanding as to how the link between alcohol use and mental health is introduced and reinforced for that specific young person. This was not done in any of the family interventions included in the review, including the three that did to some extent raise the link between the two (126, 152, 161). The coping skills and wellbeing toolkits can be tailored specifically towards the way alcohol and mental health are specifically linked for that child within their social systems.

The intervention will build familial support alongside young people's own coping mechanisms in relation to extrafamilial factors. Including youth focused components within an intervention has been found to increase the effectiveness of family interventions within the field of substance use prevention (54). Particular focus on coping mechanisms is consistent with emerging recommendations for the prevention and treatment of co-occurring mental health and alcohol use in young people (23). These components will be delivered separately for young people and family members, based on the same content. Specifically, the family member and the young person will learn how to problem solve and cope with specific stressors in the young person's life. The family member will be shown this technique with aim of aiding the young person to problem solve within their day to day lives. This technique is based on cognitive behavioural principles.

The intervention will also aim to increase young people's self-esteem and well-being. Specifically, through engaging young people in new social activities, to help them build new peer networks. This may also contribute to an alternate set of peer norms surrounding

alcohol use and help broaden their peer network if having difficulties with peer relationships. In the field of alcohol use a similar focus on targeting peer influence and social norms is emerging (247).

Furthermore, the proposed intervention aims to help explore family members own mental health and substance use, signposting to appropriate services where needed. This aims to increase caregivers/family members own emotional and physical resources in order for them to feel better able to support the young person. It may also reduce direct impacts of caregiver's own mental health and alcohol use on the young person which is associated with negative impacts on the young person (36, 166).

With the intervention being youth led, young people may choose whether they wish to engage in any of the optional joint family sessions or not. The first includes building familial communication skills. The second involves an opportunity for young people to share their wellbeing toolkits and problem-solving skills (developed in their individual session) in a joint family session. This differs from many of the existing family interventions in which the child could not select which family member to involve or the level of family involvement(142, 149).

The study did not find sufficient support for group based-delivery or for the use of 'scare stories' from young people with clinical levels of alcohol use. In relation to group-based delivery evidence suggests that not only are these ineffective, but also that they can have adverse effects (226). As for the use of 'scare stories' existing literature suggests that these strategies are not effective in reducing young people's alcohol use (248), as young people are not concerned about health risks (247).

Target population and outcomes

The importance of not pathologising the young person and the difficulties they are facing emerged from this research. While, at times participant's discourse trivialised the young person's needs, referring frequently to 'typical teenager' and 'hormonal'. It is of course

important to take a developmental viewpoint whilst understanding these difficulties, recognising that adolescence is a time of considerable biological, psychological and social change (249). Although, it is argued within this doctoral work that regardless of whether alcohol use and mental health symptoms are linked to these developmental stages or not, they can nonetheless be distressing for the young person. As such, this provides an opportunity to equip them and their families to help support the young person. Hopefully they will be able to draw upon and build on this throughout their lifetime (250). Accordingly, employing a targeted preventative approach to this family involved intervention is suitable, as it does not involve providing a diagnosis.

As for the target age group of the intervention, it is designed for young people aged 12 to 17. However, it is acknowledged that it may be more suitable for young people aged 14 to 17 as a targeted (indicated) preventative intervention. This was often the age in which young people expressed a link between their mental health and alcohol use within the qualitative interviews. Whereas most young people aged 12-13, did not express a link, rather their alcohol use was limited to restricted amounts together with caregivers. Caregivers would provide alcohol, varying from sips to their own drink, in an attempt to prevent young people from drinking with peers. Consequently, for young people aged 12 and 13 this would need to be paired with specific efforts to address parental alcohol provision. As this has been found to not be a protective factor and in fact increase the chances of peer supply of alcohol use (251). As outlined in the qualitative interviews and the co-design workshops this was highly socially informed and would require a societal and cultural shift in current norms surrounding young people's alcohol use. This corroborates other studies examining caregiver's attitudes and behaviours in relation to young people's alcohol use (243).

With regard to the targeted outcomes, professionals raised the need to not only reduce co-occurring alcohol use and mental health problems but also to promote wellbeing. Wellbeing can be understood as emotional or hedonic wellbeing (positive or negative affect, satisfaction with life), and psychological or eudaimonic wellbeing (personal growth, purpose

in life, positive relations with others) (252). Within the field of public health the improvement of wellbeing alongside the reductions of mental health problems is seen as crucial within preventative interventions (34). Consequently, wellbeing was included as a secondary outcome of the intervention. The primary outcome was co-occurring alcohol use and common mental health problems (internalising and externalising).

9.3 Implications for policy and practice

The proposed theoretical basis for the family-involved intervention within this doctoral work responds to the call for improved preventative interventions for young people's mental health, outlined in both the 'Future in mind' and the green paper (7, 48). It also responds to the need for interventions within schools (48). Although the family involved prototype intervention in this thesis is still in the early stages of development and the planned setting may change, schools are acknowledged as possible delivery setting.

This doctoral work can help inform UK guidance for preventative support for young people with subthreshold levels of co-occurring alcohol use and mental health problems. Currently NICE and associated 'Office for Health Improvement and Disparities' guidance for co-occurring substance use (including alcohol use) and mental health problems only covers services treating clinical levels of substance use (including alcohol use) and mental health problems (PHE, 2017; NICE, 2016).

Specifically, future interventions aimed at preventing/reducing the co-occurrence of alcohol use and mental health problems in young people should take a holistic approach addressing both the link between alcohol use and socio ecological factors. This is regardless of whether preventative or treatment based and other type of intervention. This is underpinned by the qualitative findings suggesting multiple underlying mechanisms are often at play. Further enabling the young person to determine the level of family involvement may increase the acceptability of future interventions.

My research also suggests that interventions aimed to galvanise familial support and young people's coping strategies may be better placed to reduce the co-occurrence of alcohol use and mental health problems, than family interventions primarily addressing family dysfunction. This is evidenced by the findings from my systematic review that existing family interventions are not effective in reducing co-occurring alcohol use and mental health problems in young people. This is in line with current NICE guidance for promoting emotional wellbeing (59); and preventing clinical levels of alcohol use (60) separately. NICE does not recommend family interventions or therapy but does recommend the involvement of family members within interventions. Consequently, the findings from this thesis are well suited to inform the development of a targeted **family-involved** intervention, addressing co-occurring alcohol use and mental health problems.

It may be most efficient to deliver the proposed family-involved intervention alongside other population-based approaches aimed at reducing parental provision of alcohol. With parental alcohol provision being socially driven, a universal intervention would need to facilitate a societal and cultural shift in current norms surrounding young people's alcohol use. This additional universal strategy may be particularly important for young people aged 12 and 13 as this doctoral work highlighted that they would only drink with their family. An example of such a population strategy is the 'What's the harm?' campaign launched by Balance, an organisation funded by seven local authorities in the North East of England. The campaign was designed to help dispel the myths around perceived protective factors of providing alcohol to young people. This is in line with the chief medical officer's guidance on an alcohol-free childhood (253).

9.4 Strengths of this research

9.4.1 Approach and contributions of this study

The proposed theoretical basis for a holistic family involved intervention is grounded in the lived experiences and needs of young people and caregivers. Young people, caregivers and professional's perspectives were drawn upon at different stages throughout the research study. This was facilitated by the use of in depth semi structured interviews and the co-

design workshops. This should increase the likelihood of the resulting finalised intervention improving health outcomes and to inform policy and practice (64).

This doctoral work takes the stance that the family can be part of the solution within interventions. Specifically, with the right help family members can be a considerable environmental support system for young people with co-occurring mental health problems and alcohol use. This encourages the shift away from the existing predominant focus on involving family members to primarily target the dysfunction within the family.

My findings contribute to the existing knowledge base by moving beyond merely identifying shared risk and protective factors to exploring **how** socio-ecological factors can lead to the co-occurrence of alcohol use and mental health problems. This was enabled by the use of semi-structured qualitative interviews which identified the underlying mechanisms associated with the co-occurrence of alcohol use and mental health problems. The critical realist orientation of my work placed further emphasis on the importance of going beyond the identification/description of factors and identifying underlying mechanisms. This has resulted in clear areas for interventions to target.

The study did not rely on 'off the shelf theories' which tend to heavily focus on individual level risk and protective factors. Rather the selection of possible theories were guided by the systematic review and the emerging themes from the qualitative data, and thus ensured that my understanding reflected the accounts of young people and caregivers. This resulted in drawing on aspects of multiple theories. This provided a comprehensive understanding of both individual and social factors and how they were related to the co-occurrence of alcohol use and mental health problems. The use of multiple theories is in keeping with critical realism. The overarching theory, ecological systems theory, illuminated how the young person's alcohol use and mental health problems were situated amongst and interacted with multiple social systems. In light of the findings from the qualitative interviews and the systematic review certain aspects of the multistage social learning model were used and at times modified. First, the parent section was modified to focus on equipping parents or other family members with effective strategies to support the young person. Rather than

focusing on how the caregivers own coping skills can influence their child's coping, caregivers own mental health and substance use and any support they may need are explored. Therefore acknowledging the stressors caregivers themselves may be facing (91) and how this may impact their physical and emotional resources, as was demonstrated in the qualitative interviews. Less emphasis was placed on the parenting technique section in the model, with aspects such as familial communication skills optional for those young people who would find this beneficial. As for the adolescent section of the model the qualitative interviews reinforced the role of coping skills, self-esteem, peer groups, and school. However, this was understood in relation to the link between mental health and alcohol use as opposed to substance use primarily, as outlined in the model. Finally, principles from the cognitive behaviour model were specifically applied to the understanding of young people's coping skills.

The specific strengths relating to the methods of each of the components will now be discussed.

9.4.2 Systematic Review and Meta-Analysis approach

Rigorous methods were applied throughout the review process. This included the development of a search strategy designed to balance specificity and sensitivity. The search was not limited to papers reported in English so as to include all papers within the research area. Further rigorous steps included, dual screening, extraction and assessment for risk of bias. All levels of prevention and treatment were included to allow for the comparison between the different levels of intervention. Although comparisons were not possible between the levels of prevention, comparisons were possible between the impact of prevention compared to treatment. A broad definition of family was employed, to include parents, carers, grandparents, aunts, uncles and siblings. Broad inclusion criteria for family interventions were also applied in which a young person and a caregiver needed to be included, either separately or together, in at least one session. This was to capture a variety of family interventions. A range of demographics including gender, ethnicity, and socioeconomic status were all well represented amongst the included trials. The systematic

review provided a holistic overview of the existing family interventions and the gaps in the field, specifically the lack of comprehensive intervention development specifically designed for young people with co-occurring alcohol use and mental health problems.

9.4.3 Qualitative Interviews analysis

Often within the areas of young people's mental health and alcohol young people's and caregivers views are explored separately (244, 254). Whereas in this piece of research the views of both young people and caregivers have been explored. This allowed for a broader understanding of the experiences of caregivers in supporting young people with co-occurring alcohol use and mental health. It also enabled a deeper understanding, through comparing and contrasting their accounts.

This qualitative exploration of factors and related mechanisms in relation to the co-occurrence of alcohol use and mental health for young people who live in the UK is essential for the development of UK-based interventions, as frequently evidence originates from the USA. The considerable social and cultural differences between the UK and USA may hinder successful translation of these interventions to other countries (Allen, Coombes, & Foxcroft, 2007).

Co-design workshops

The systematic review and meta-analysis of the effectiveness of existing family interventions and the qualitive exploration of the needs and support of young people with co-occurring alcohol use and mental health problems together formed a comprehensive basis for the co-design workshop content. End user involvement with both young people and caregivers was prioritised throughout. This is deemed essential within the intervention development process (63, 255).

Professionals were also consulted in the co-design workshops alongside young people and caregiver workshops. The selection of included professionals was based on those professionals who young people thought could best deliver the intervention. The

researcher was able to recruit a range of different professionals, providing a broad base of expertise and insight regarding the feasibility of the initial intervention strategies discussed.

Involving such a range of end users and stakeholders was enabled through pragmatic methodological considerations. Conducting workshops for young people, caregivers and professionals separately facilitated age-appropriate workshops and to aid everyone feeling able to contribute. To facilitate the integration of findings from the separate workshops the same content was discussed.

9.4.4 Limitations of this research

Approach to study

Due to limited research within the field of co-occurring alcohol use and mental health problems, a broad stroke approach was applied. To gain the most comprehensive insight into existing family interventions aimed at preventing co-occurring alcohol use and mental health problems, treatment-based interventions were also included within the review. This decision was based on the ability to compare prevention and treatment whilst also gain additional insight into effective family interventions aimed at co-occurring alcohol use and mental health. Similarly, within the qualitative interviews young people with and without a treatment background were sampled. This was to gain diversity of perspectives to aid the analysis. Young people with a diagnosis were not asked about their experiences of treatment, rather were able to talk about what help could have been put in place sooner. These decisions did not alter the overall aim of the doctoral work, to develop a targeted intervention. As such the findings do not reflect the needs of young people with clinical levels of co-occurrence nor are the recommendations outlined to be applied to the area of treatment.

Systematic Review data

There were several limitations of the included trials which impacted the systematic review and meta-analysis. The main limitation of this review is a result of the lack of existing trials explicitly screening for and examining co-occurring alcohol use and mental health problems.

Participants were rarely screened for the co-occurrence of alcohol use and mental health problems. As for outcomes at follow up, either alcohol use or mental health were measured as a primary outcome with the other simply measured as a secondary outcome.

Further to this, less than half of the included papers could be pooled for meta-analysis. This was due to both heterogeneity amongst target populations and outcome measures and the lack of adequate reporting of means and standard deviations. Furthermore, only three authors were able to provide the level of required data upon personal request. This lack of adequate data also hindered the ability to run sub-group analysis. This, in conjunction with limited reporting of intervention content in trial papers, hindered an in-depth understanding of some key intervention components.

Varying degrees of bias were present across the included trials. Comparators often consisted of active controls. This was primarily amongst the targeted and treatment-based studies, limiting the ability of trials to identify significant intervention effects. Many of those that did, employ inactive controls included treatment as usual which often involved alternate therapy. A number of trials, including several pilot feasibility trials, utilised small sample sizes, resulting in the likelihood of underpowered trials and an increased risk of type II error. Three trials included medication administration in addition to family-involved interventions and one trial provided additional Motivational Enhancement Therapy/Cognitive Behaviour Therapy. This limits the ability to attribute effects to the family-involved interventions. However, all control groups, apart from one in which it was unclear, were offered the same additional treatment.

9.4.5 Qualitative methods

There are several limitations in relation to recruitment of participants. The majority of participants were accessed through gatekeepers. Although this was a very efficient approach it had some drawbacks. Whilst gatekeepers were briefed of the inclusion and exclusion criteria it still allowed for a level of interpretation from the gatekeeper themselves. Consequently, the researcher did not have a full input regarding who was

approached. At times this resulted in misunderstandings regarding the inclusion criteria. In most instances this could be picked up by the researcher prior to arranging interviews. However, in two cases this only surfaced during the interview when two participants, a 12 year old participants and a 13 year old explained that they had never consumed alcohol. The researcher chose to continue the interview, due to the effort both young people had taken in attending the interview. The data from these two interviews were included in the analysis. It was considered that the data would enrich the researchers theoretical understanding by providing an insight into the reasons why the two young people experiencing challenging emotions and difficulties had not engaged in alcohol use. Furthermore, the results from the qualitative interviews are limited to those who chose to take part. It important to acknowledge that those young people and caregivers who chose not to take part in the interview may differ in regard to the challenges they have faced compared to those who chose to take part.

Socioeconomic status is a complex construct which encompasses a multitude of aspects of social stratification. Different measures capture different aspects of socio-economic status. An area level measure was adopted as a proxy for individual level socioeconomic status (256). As young people did not provide postcode data, the postcode from the place of recruitment was used. This method has been used successfully in similar qualitative studies with young people (241, 257). For consistency the same method was utilised for caregivers. The majority of those interviewed within the qualitative study were from areas of high deprivation. This is a population group deemed to be underrepresented (258). Additional efforts were made to try to reach young people and caregivers from areas with low levels of deprivation, in aid of maximum variation. Whilst the literature focuses on the impacts of lower socioeconomic status, research has found that young people from higher socioeconomic status can also be associated with increased alcohol use and mental health problems (259). One of the methods included recruiting from a school with a large catchment area including higher SES areas. This may have resulted in the inclusion of participants with higher socioeconomic status. However, as the postcode of the school was used (representing medium to high levels of deprivation) rather than the postcode of young

people's homes, the levels of deprivation may not be representative of the socio-economic status of the included young people or caregivers. As such this proxy measure limited the ability to explore the role of socioeconomic status within the analysis. Attempts at accessing private schools were unsuccessful. With less focus on examining mental health and alcohol use specifically for young people with high socioeconomic status, teachers and parents may be less attuned to these concerns (260). This may explain the difficulty in recruiting individuals with higher socioeconomic status from for example private schools.

Other population groups which proved difficult to recruit from included fathers and black, asian and minority ethnic groups. Despite specific efforts to recruit fathers, only two (out of twelve caregivers) took part in the study. This signifies a larger issue within the field of young people's social and health research, in which fathers are underrepresented (261). The small number of fathers in this study may partially be due to the use of terminology within the recruitment material. This included parents and caregivers, whereas research has found that specifically addressing fathers alone within recruitment advertisements are crucial in successfully recruiting fathers (262). Only one minority ethnic individual took part in this study with remaining participants being white British. This demonstrates the need to improve and develop strategies to increase the involvement of ethnic minorities in research to better understand their views and meet their needs (263). For example, through public involvement minority ethnic individuals could be involved in the development of the study design to ensure that the methods employed are sensitive to cultural and health beliefs and communication needs (264). Including the option to take part remotely may also aid involvement (264). Thus, average and high socioeconomic status, ethnicity and fathers were not well represented which could restrict the transferability of findings.

The majority of young people and caregivers were from different families. It proved challenging to recruit caregivers and as such the researcher decided not to impose further criteria, including the need for included caregivers to be related to the young people in the study. For the few participants that were from the same family, this enabled the researcher to compare and contrast accounts in order to further build a theoretical understanding.

Importantly, the aim was not to unearth a collective truth regarding the risk and protective factors at play and the support needs of the young person. Rather, in line with critical realism, it was to capture each family members subjective account and their own truth.

It is important to note that the data was collected and analysed prior to the onset of the Covid-19 pandemic. Thus, young peoples and caregiver's support needs may have changed substantially subsequent to the pandemic. New and/or different risk factors may have been introduced in relation to the young person's co-occurring alcohol use and mental health problems which may not be taken into account in this study.

Co-design Workshop methods

Whilst young people and professional workshops were carried out successfully, the researcher was unable to carry out a workshop with caregivers. This was due the inability to find times and places that suited everyone, due to personal commitments. To ensure caregivers were also given the opportunity to provide their views regarding the acceptability and feasibility of initial intervention strategies one interview and one dyadic interview were carried out to gain their insights. This involved using the same workshop material as used for young people and caregivers for consistency and comparability. The same challenges surrounding recruitment remained, despite specific efforts to gain a representative sample in relation to socioeconomic status, ethnicity and fathers. The young person's workshop did not manage to cover the entire age range of 12 to 17 but this was well represented within the interviews. The workshop did however manage to include more boys, as there were slightly less boys than girls in the interviews.

9.5 Future research

There are possible areas for further research. First there is a need for further quantitative and qualitative research exploring the interactions between familial and extrafamilial factors and co-occurring alcohol use and mental health problems. This could explore additional factors such as single parent families and socioeconomic status. This would help contribute to a more comprehensive understanding of the link between alcohol use and mental health

problems and how it interacts with ecological factors. This could also involve exploring alcohol use in relation to specific aspects of internalising and externalising problems such as anxiety more closely. In addition, considering the role that other family members had within the young person's lives, future research should try to include a broader range of family members. To enable consistency and comparability between studies the use of a consistent concurrent outcome measure for the co-occurrence of alcohol use and mental health problems is essential. This will aid the development and/or adaption of psychosocial interventions, across all levels of prevention.

Future trials evaluating the effectiveness of these interventions should screen for co-occurrence (for targeted and treatment-based interventions) and adopt consistent outcome measures to aid comparability across trials and to facilitate future systematic reviews and meta-analyses. Other methods of evaluating evidence may also be suitable such as a realist evaluation, in which the focus is to build an understanding surrounding the context, outcome and mechanisms at play. Within the updated medical research council guidance for the development of complex interventions, it acknowledged that evaluating the effectiveness of interventions is not the only useful form of synthesis and evaluation for informing intervention development (64).

As for the specific continuation of this doctoral work, additional workshops are required. These will involve the refinement of the core intervention components and building a prototype intervention whilst exploring the contextual factors which may impact the implementation and the effects of the intervention (255). This also allows the opportunity to recruit from populations that were not well represented within the qualitative interviews and co-design workshops to date. Once this has been reached and the program theory has been adapted accordingly, the intervention should be assessed for acceptability, feasibility, cost-effectiveness and suitable evaluation design. This can be carried out through a comprehensive feasibility study. If deemed suitable this can inform an evaluation study, as advised by the medical research council (64).

9.6 Conclusions

This thesis has demonstrated a dearth of family interventions specifically designed for preventing/ reducing co-occurring alcohol use and mental health problems in young people aged 12-17. Existing family interventions primarily target shared risk factors, including parenting techniques and family functioning, in order to reduce co-occurring alcohol use, internalising symptoms and externalising symptoms. The systematic review and meta-analysis in this study found that these family interventions were not effective in reducing any of the above outcomes or wider substance use. The meta-analysis did however find that family interventions were effective in reducing the mechanism of change, represented by family conflict. Consequently, this may suggest that targeting family functioning is insufficient in reducing co-occurring alcohol use and mental health problems. The qualitative interviews with young people and caregivers and the narrative synthesis from the systematic may provide insight as to why. First, the importance of familial support and young people's own coping strategies emerged from the qualitative interviews. The latter was in line with the narrative synthesis from the systematic review, which suggested that the inclusion of youth focused components may increase effectiveness of interventions. Second, the qualitative interviews raised that with multiple mechanisms at play, simply targeting common underlying factors is not sufficient. Rather the link between mental health and alcohol use is embedded within and interacts with multiple socio-ecological factors. Together the findings from the review and qualitative interviews indicate that a holistic family-involved intervention is required, galvanising familial support and young people's own coping skills. These findings underpinned the development of the theoretical basis for a targeted family-involved intervention reducing co-occurring alcohol use and mental health problems (internalising and externalising symptoms) in young people aged 12-17. Through co-design workshops with young people, caregivers and professionals, a theoretical model was developed containing components delivered to young people and family members (of their choice) separately. Covering the areas of a) Raising awareness regarding the link between alcohol use and mental health problems; b) Building familial support and coping strategies specifically tailored to how alcohol use and mental health problems link for them within their social systems; c) Engaging young people in new social

activities to enhance self-esteem and wellbeing; d) Exploring family members own mental health and alcohol use to improve emotional and physical resources; e) Optional familial joint sessions. This doctoral work contributes to the existing evidence base with a contextualised understanding of young people and caregivers needs to support young people with co-occurring alcohol use and mental health problems within the UK. It responds to the call from the future in mind report and the green paper for preventative interventions for young people's mental health; through providing the formative work towards the development of a targeted preventative family intervention for co-occurring alcohol use and mental health problems.

Appendix A. Prospero Registration for the Systematic review

UNIVERSITY of York
Centre for Reviews and Dissemination

NHS
National Institute for Health Research

PROSPERO International prospective register of systematic reviews

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Secondary preventative family-involved interventions to reduce co-occurring risky alcohol use and mental health problems in young people aged 12-17 years: a systematic review and meta-analysis

Emma Geijer-Simpson, Raghu Lingam, Ruth McGovern, Paul McArdle, Eileen Kaner

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Citation

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Review question(s)

1. To conduct a systematic review that summarises current evidence on effective secondary preventative family-involved interventions to prevent risky alcohol use, mental health problems and/or both that can be delivered to young people aged 12-17 years.

2. To conduct a meta-analysis evaluating the effectiveness of secondary preventative family-involved interventions in enhancing person-focused outcomes of young people's risky alcohol use, mental health problems and/or both.

3. To compare the effectiveness of secondary preventative family-involved interventions on person-focused outcomes in relation to for example whether intervention only targets parents or entire family, delivery agent session duration, age groups.

4. To identify the theoretical underpinnings and intervention techniques using behavioural change taxonomy if authors provide sufficient information.

Searches

The following electronic databases have been searched; MEDLINE, PsycINFO, Web of Science, the Cochrane Central Register of Controlled Trials (CENTRAL), CINAHL, ASSIA and Embase.

The grey Literature will also be searched, alongside relevant journals using combinations of the key words developed in the search strategy.

Citations and references of included studies will be screened.

The search strategy includes terms relating to young people, the outcomes mental health and alcohol use, family and preventative interventions. This will be combined with validated trial filters where available.

To prevent bias, no time or language restrictions will be applied.

Before the analysis commences the search will be re-run to include any additional relevant papers.

Types of study to be included

Studies will consist of outcome evaluations, particularly randomised controlled trials, controlled trials and randomised trials. Quasi-experimental designs will not be excluded at this stage.

Condition or domain being studied

The focus will be on reducing or preventing the following outcomes; risky alcohol use, mental illness (both internalising and externalising symptoms), and other linked symptoms.

Participants/ population

Inclusion criteria

1. Families including young people aged 12 to 17 years of age.

2. Studies including a broader age range will only be included if sub-group analysis is provided for individuals within the age range 12 to 17 years.

3. To ensure that this review is comprehensive a broad definition of 'family' will be employed encompassing parents, single parents, step-parents, carers, grandparents, aunties, uncles and siblings.

Exclusion criteria

1. Families and young people specifically engaged with primary (whole population) preventive interventions and tertiary-level prevention of mental health interventions (treatment or clinical populations).

Interventions aimed at any of the following populations:

2. People with diagnosed mental health disorders or those accessing psychological/psychiatric secondary care.

3. Young people who have certain disabilities or illnesses such as autistic spectrum disorder, learning difficulties, cancer.

4. Young people and their families with unique environmental circumstance (e.g. refugee, war-torn/disaster zone, military families, homeless).

It is important to note that primary and tertiary preventative interventions will be included if the targeted outcomes are co-occurring mental health problems and risky alcohol use. This is due to the lack of secondary preventative studies in this area.

Intervention(s), exposure(s)

The primary aim of this review is to evaluate secondary preventative family-involved interventions that aim to reduce co-occurring risky alcohol use and mental health problems in young people aged 12 to 17.

Scoping work has highlighted the lack of studies examining the effect of preventative family-involved interventions targeting co-occurring substance use and mental health difficulties. Therefore if there is not a sufficient amount of studies the review will also encompass secondary preventative interventions that target alcohol use and mental health difficulties separately. Important to note primary and tertiary interventions will be included if the outcomes investigates co-occurring mental health problems and risky alcohol use.

Secondary preventative interventions can include selective or indicated interventions. Selective interventions are aimed at individuals who are at a high risk of developing a mental health disorder whereas indicated interventions target individuals who present with symptoms of a disorder (Mrazek & Haggerty, 1994).

With regard, to studies examining the effectiveness of interventions to reduce substance use, a range of drugs or psychoactive substances will be included as long as the impact upon alcohol use can be specifically evaluated (alcohol-focused outcomes extracted). Also family-involved interventions in this review can encompass parent-targeted interventions that do not involve the young person however it must measure young people's outcomes. There will not be any restrictions regarding delivery agent (e.g. school/third sector) or length of intervention. Context of delivery will not be restricted as long as the intervention is family-involved; therefore it could be for example conducted at home or in a school-based setting.

Exclusion criteria

1. Multicomponent interventions, involving other types of preventative interventions in combination with family-involved interventions, will not be included as this hinders the ability to assess the effects of the family-involved

intervention alone.

2. Interventions that do not measure mental health and/or alcohol use outcomes of young people between 12-17 years of age.

3. Interventions that do not include a sub-analysis of alcohol use outcomes.

4. Primary and tertiary preventative interventions and services targeting substance use problems or mental health separately.

Comparator(s)/ control

Eligible comparator groups:

1. Wait-list, no-intervention or treatment as usual comparison control groups.

2. Alternative family-involved interventions, reduced intervention content, reduced intensity (e.g. less frequent/shorter sessions) or delivered by an alternative modality (e.g. individual/group) in comparison to the secondary preventative family-involved intervention tested.

Context

Research highlights that adolescence is often when mental health and substance use problems first emerge (Hawkins, 2009), that they commonly co-occur, can lead to numerous social, behavioural, familial problems and that they can have longitudinal effects into adulthood (Bender, Springer, & Johnny, 2006; Skogen et al., 2014).

Arguably intervening before the onset of a disorder provides the paramount opportunity to avoid the significant costs to individuals, families and society that these disorders cause (Mason, Haggerty, Fleming, & Casey-Goldstein, 2012). Consequently adolescence is arguably when preventative interventions should be applied.

Secondary preventative interventions have been found to result in larger effect sizes than universal interventions (Foxcroft & Tsertsvadze, 2011) (Foxcroft, 2011). Rates of young people's alcohol consumption have reduced over recent years however those that do consume alcohol are drinking regularly and large amounts (Fuller, 2015). This trend further suggests the need for secondary preventative interventions rather than primary preventative interventions.

Research suggests that family-related risk factors are the strongest and most consistently associated risk factor with both problems (Rowe, 2010)). Consequently this review will be primarily be examining secondary preventative family-involved interventions aimed to prevent risky alcohol use, mental health problems and/or both in adolescence.

Outcome(s)

Primary outcomes

1. Adolescent co-occurring alcohol use and mental health problems.

2. Adolescent alcohol consumption (use, frequency, binge drinking, regular or problem drinking).

3. Adolescent mental health problems both internalising and externalising symptoms.

Secondary outcomes

1. Substance use e.g. smoking, illicit drug use, novel psychoactive substance use.

2. Self-harm.

3. Family functioning and relationships e.g. family conflict, family cohesion.

4. Quality of life.

Data extraction, (selection and coding)

Systematic methods will be applied to search, screen, quality appraise and extract data from the studies. One reviewer will screen the titles and abstracts against pre-set inclusion and exclusion criteria for all the papers at each stage. Full papers will be retrieved for all potentially relevant papers and again screened against the inclusion and exclusion criteria. Relevant papers will be included in the review and assessed and data-extracted by myself and one other independent researcher. Any disagreements will be resolved by a third independent researcher. The process and outcome will be represented in a PRISMA diagram and a table summarising the findings, as suggested in the Cochrane Handbook, will be included. In addition to the electronic database, the included studies will be cross-referenced, reference lists of reviews will be searched, relevant journal alert systems will be monitored and authors of identified studies will be contacted.

Criteria for data extraction will include but not limited to:

1. Study author, publication year and country where research took place.

2. Participants recruited (age, gender, SES).

3. Family composition.

4. Method of selection/recruitment of participants.

5. Intervention characteristics and comparison groups.

6. Mode of delivery (e.g. in-person, email).

7. Theoretical underpinnings of interventions will be recorded if provided by the authors, if any information is unclear authors will be contacted. Sensitivity analysis will be performed on studies that incorporate theoretical framework into their study.

8. Intervention techniques will be recorded using behavioural change taxonomy if included by authors.

9. Length of intervention and number of sessions (any follow-up details).

10. Outcome data.

Risk of bias (quality) assessment

The quality of trials will be critically appraised using the Cochrane Collaboration's tool for assessing risk of bias. Reviewers will be blinded to each other's assessment and will be compared. If any disagreements arise this will be resolved through discussion, or with a third reviewer. The results of critical appraisal will be reported in narrative form and presented in relevant tables. Although studies will not be excluded based on the critical appraisal, it will help to critically evaluate the conclusions of included trials.

Strategy for data synthesis

Initially narrative synthesis will be conducted for interventions targeting the three main outcomes, risky alcohol use, and/ or mental health problems and co-occurring mental health problems. This will include describing and comparing the theoretical underpinnings and the intervention techniques using behavioural change taxonomy if sufficient information is provided by the authors. If there is a sufficient amount of homogeneity a random effects model meta-analysis will be conducted, sub-analysis will be conducted if this further enables conducting a meta-analysis.

Analysis of subgroups or subsets

The review will be divided into three sections according to the family involved intervention outcomes; risky alcohol use, mental health problems and co-occurring risky alcohol use and mental health difficulties. Dependent on data identified sub analyses may be conducted, using moderator analysis, for example to examine the impact of age and development (young people will be divided into younger e.g., 12-14, and older e.g.,15-17). Sub-analyses may be conducted based on the type of family-involved interventions for example whether it is parent targeted or targeting the entire family. Sub-analysis may also be carried out for the duration of the intervention for example short, medium and extended.

Dissemination plans
This meta-analysis will be published upon completion.

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Anticipated or actual start date
30 March 2016

Anticipated completion date
03 October 2016

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Conflicts of interest
None known

Language
English

Country
England

Subject index terms status
Subject indexing assigned by CRD

Subject index terms
Adolescent; Alcohol Drinking; Alcohol-Related Disorders; Alcohols; Family; Family Health; Family Relations; Humans; Mental Health; Risk; Risk Factors; Secondary Prevention; Treatment Outcome; Underage Drinking; Young Adult

Stage of review
Ongoing

Date of registration in PROSPERO
23 May 2016

Date of publication of this revision
23 May 2016

Stage of review at time of this submission	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	No
Formal screening of search results against eligibility criteria	No	No
Data extraction	No	No
Risk of bias (quality) assessment	No	No
Data analysis	No	No

Appendix B. Systematic review search strategy for included databases

Theme:	Keywords:	MeSH terms:	CINAHL headings	PsychInfo headings	ASSIA headings	Web of Science	Cochrane
Young Person:	*See adj to outcome variables*	Adolescent/	Adolescence	adolescen*.mp.	Adolescent girls Adolescent boys	***In title:*** TI=teen* or pre?teen or adolescen* or youth or "young person" or "young people" or young* or child* or juvenile* or underage*))	Adolescent/
Alcohol Outcomes	((teen* or pre?teen or adolescen* or youth or "young person" or "young people" or young* or child* or juvenile* or underage*) adj5 (alcohol* adj2 (drink* or intoxicat* or use* or abus* or misus* or risk* or consum*))) ((teen* or "pre-teen" or adolescen* or youth or "young	alcohol drinking/ or binge drinking/ or underage drinking/ or Alcohol-Related Disorders/	Alcohol Drinking Binge Drinking	alcohol drinking patterns/ or alcohol intoxication/ or binge drinking/ or underage drinking/	Alcohol related disorders Alcohol intoxication Alcohol related problems Alcohol consumption	***In title:*** TI=("alcohol drinking" or "drink alcohol" or "binge drinking" or "binge drink" or "harmful drinking" or "problem drinking" or intoxication or "alcohol use" or "alcohol abuse" or "alcohol misuse "or	Alcohol-Related Disorders/ or alcohol drinking/ or binge drinking/

	person" or "young people" or young* or child* or juvenile* or underage*) adj5 (drink adj2 (binge or harmful or problem)))					"alcohol consumption" or "risky alcohol use")	
Mental Health outcomes:	((mental or psychologic* or behavio?ral or emotion*) adj2 (ill* or disorder* or symptom* or health or problem* or difficult*)) ((teen* or "pre?teen" or adolescen* or youth or "young	Mental Health/ or Anxiety/ or Anxiety Disorders/ or Mood Disorders/ or Depression/ or "attention deficit and disruptive behavior disorders"/ or attention	Mental Health Anxiety Disorders Impulse Control Disorders Attention Deficit Hyperactivity Disorder Child Behavior Disorders	mental health/ or well being/ or mental disorders/ or anxiety disorders/ or impulse control disorders/ or affective disorders/ or conduct disorder/ or aggressive	Mental health Mental health promotion Preventive mental health care	***In title:*** TI=("mentally ill " or "mental illness" or disorder or "mental health" or psychologic* or "internali?ing symptoms" or "externali?ing symptoms" or "behavi|or?ral symptoms" or	Mental Health/ or Anxiety/ or Anxiety Disorders/ or Mood Disorders/ or Depression/ or "attention deficit and disruptive behavior

	person" or "young people" or young* or child* or juvenile*) adj5 (anxiet* or anxious* or stress or stressed or depress* or self?harm* or "self?injur*" or suicid* or resilience or self?esteem or internali?ing or externali?ing or impuls* or "conduct disorder" or "oppositional defiant disorder" or "attention deficit hyperactivity disorder" or "attention?deficit disorder" or anger* or aggress* or "anti?social behavio?r" or "family functioning" or "family relationship" or "problem behavio?r" or well?being or "quality of life"))	deficit disorder with hyperactivity/ or conduct disorder/	"Depression" Affective Disorders Anxiety	behavior/ or behavior disorders/ or behavior problems/ or psychological stress/ or Attention Deficit Disorder/ or Attention Deficit Disorder with Hyperactivity/	Affective disorders Anxiety disorders Anxiety Depression Conduct disordered adolescents Disruptive behaviour disorders Disruptive behaviour Attention deficit disorder Attention deficit hyperactivity disorder	"emotional symptoms" or "emotional problems" or "behavior?ral problems") OR TI=(anxiet* or anxious* or stress or stressed or depress* or psychological or self-harm* or self- injury* or suicid* or resilience or self-esteem or internali?ing or externali?ing or impuls* or "conduct disorder" or "oppositional defiant disorder" or anger* or	disorders"/ or attention deficit disorder with hyperactivity/ or conduct disorder/

						aggress* or "anti?social behavio?r" or "attention hyperactivity deficit disorder" or "family functioning" or "family relationships" or "problem behavio?r" or well?being or "quality of life")	
Family:	(famil* or parent or parents or relative or relatives or sibling* or grandparent* or family?centered or family?centred or family?based or famil?involved or family?strengthening)	Family/ or Parents/	Family Therapy	family/ or parents/	Parents Family networks	***Title or abstract:*** TS=((famil* or parent or parents or relative or relatives or family-centered or family-centred or family-based or family-involved or family-strengthening)	Family/ or Parents/

Intervention	(reduc* or increas* treatment* or therap* or preven* or promot* or screen* or psychoeducat* or psychosocial or intervention* or program* or counsel* or (systemic adj2 therap*) or (multi?systemic adj2 therap*) or "behavio?ral intervention*" or "behavio?ral therap*")	family therapy/		Family Therapy/ or Family Intervention/ or Multisystemic Therapy/	Behaviour family therapy Developmental family therapy Cognitive behaviour family therapy Family therapy Brief family therapy	***Title or abstract:*** TS=(reduc* or increase* or treatment* or intervention* or program* or counsel* or therap* or preven* or promot* or psychoeducat* or psychosocial or psychological or (systemic near/2 therap*) or (multi?systemic near/2 therap*) or "behavio?ral intervention*" or "behavio?ral therap*")	Family Therapy/
Quantitative Filter	randomized controlled trial.pt. or controlled clinical trial.pt. or randomized.ab. or placebo.ab. or clinical trials as topic.sh. or		Randomized.tw. Treatment outcomes.sh. Clinical trial.pt.	Double-blind.tw. Random$ assigned.tw. Control.tw.	No Validated Filter See WOS	No Validated filter	No Filter Needed

	randomly.ab. or trial.ti. NOT exp animals/ not humans.sh. (Validated- Cochrane filter)		(Validated)	(Validated)		TS=(rat or rats or animal* or mouse or mice) TS=(intervention* or trial or randomi* or controlled or experiment* or treatment* or outcome* or therap*) After discussion with supervisors, it is thought that the term controlled for example could bring back case controlled studies and could lead to too many results so suggested only including: Trial or randomi* or quasi-experimental	

Appendix C. Systematic review data extraction form

Title: Family-involved interventions to reduce co-occurring risky alcohol use and mental health problems in young people aged 12-17 years: a systematic review and meta-analysis

Trial identifier (note: several papers may relate to 1 trial)	
Author(s)	
Title of paper	
Name of reviewer	
Key features of study (Type of trial, how many conditions, how many follow ups, key	

characteristics of population e.g. gang affiliated youth, Hispanic etc)	
Notes: (e.g. issues for discussion, further information required from authors)	
Relevant references from reference list	

Participants: Note- Report separately for intervention and control condition where possible	
Country	
Recruitment setting (e.g schools)	
Recruitment method (e.g advertising, referrals etc)	

Inclusion criteria (include both parental and young people criteria)	
Exclusion criteria	
Number of Participants (report for both children and parents if included)	
Number of participants entering trial (report total number and number entering control and intervention condition. Report for both children and parents)	

Description of child participants (e.g age, gender, ethnicity)	
Description of family participants (age, gender, relation to child, ethnicity, SES, socio demographics such as Employment status **Socio-economic status** **Household composition)**	
Educational level	

Young people's Alcohol use at baseline (E.g Frequency levels dependence abuse mean consumption(SD) (daily/weekly/monthly) Hazardous drinker(%) Harmful drinker(%) Binge drinkers(%))	
Young Peoples mental Health at baseline (E.g internalizing and externalizing symptoms, clinical significance)	

Interventions: Note- Report both for intervention and control condition	
Level of prevention	
Setting of intervention	
Professional(s) giving intervention	
Number of sessions (n & mean)	
Duration of each session	

Family involvement in sessions (e.g separate parent and young person sessions or all together)	
Intervention modality (e.g. Advice-giving Counselling, type of family intervention, Residential Treatment as usual No intervention Other)	

Theory-base (specify) e.g Attachment, Family therapy, MST, BSFT, Psychoeducation, CBT, MI	
Notes: Specify any other details (e.g content of sessions)	
Attrition	
Selective Attrition	

Baseline, follow-up and outcome measures	
Baseline and follow-up time points (specify post recruitment or post treatment)	
Statistical analysis	

Primary Outcome 1: Alcohol use **Please report and specify all types of outcomes reported (**E.g Frequency levels dependence abuse mean consumption(SD) (daily/weekly/monthly) Hazardous drinker(%) Harmful drinker(%) Binge drinkers(%)) Include number of participants	Group 1: Intervention condition	Group 2:	Group 3:

Outcome tools used	
Reported findings (significance tests/between group analysis)	
Primary outcome 2 e.g. Mental health please report and specify all types of outcomes reported (E.g internalizing and externalizing symptoms, clinical significance) Include number of participants	
Outcome tools used	

Reported findings (significance tests/between group analysis)	
Secondary outcome 1 (Substance use E.g: substance use, quantity, dependence, disorder symptomology) Include number of participants	
Outcome tools used	

Reported findings (significance tests/between group analysis)			
Secondary outcome 2: Family Related outcomes. Please report and specify all outcomes reported(E.g Family relationships/cohesion/conflict/positive parenting /inconsistent parenting) Include number of participants	Group 1: Intervention condition	Group 2:	Group 3:
Outcome tools used			

Reported findings (significance tests/between group analysis)			
Secondary outcome 3: Self Harm/Suicide Include number of participants	Group 1: Intervention condition	Group 2:	Group 3:
Outcome tools used			
Reported findings (significance tests/ between group analysis for all outcomes specified above)			
Other outcomes of interest			

Additional data & comments	

Appendix D. Risk of bias assessment tool

Entry	Judgement (low, high risk, unclear risk)	Support for judgement
Random sequence generation (selection bias)		
Allocation concealment (selection bias)		
Blinding of participants and personnel (performance bias)		
Blinding of outcome assessment (detection bias)		
Incomplete outcome data addressed (attrition bias)		
Selective reporting (reporting bias)		
Other Sources of bias (other bias)		

Appendix E. Sensitivity Analysis Table

Outcome	N studies	N intervention	N control	Estimate, 95%	I^2
Time band of 3-12 month follow up					
Primary outcomes					
Alcohol use	4	265	235	-0.92[-2.21,0.37]	98
Internalising Symptoms	6	362	381	-0.02[-0.39,0.35]	83
Externalising symptoms	10	519	566	-0.15[-0.61,0.32]	93
Secondary outcomes					
Substance use	6	325	326	-0.32[-0.86,0.22]	91
Family conflict	4	206	242	-0.32[-0.57,-0.08]	37
Outcome measures					
Primary outcomes					
Alcohol use	---	---	---	---	---
Internalising Symptoms	5	77	42	-0.07[-0.23,0.10]	19
Externalising symptoms	7	375	416	-0.11[-0.25,0.03]	0
Secondary outcomes					
Substance use	3	160	138	-0.44[-1.69,0.82]	96
Family conflict	5	238	219	-0.25[-0.50,-0.01]	25
Intervention content: Selective prevention					
Primary outcomes					
Alcohol use	5	312	252	-0.70[-1.81,0.41]	97
Internalising Symptoms	7	449	468	-0.14[-0.39,0.11]	71
Externalising symptoms	---	---	---	---	---
Secondary outcomes					
Substance use	7	381	352	-0.36[-0.85,0.14]	91
Family conflict	5	255	270	-0.27[-0.47,-0.06]	22
Intervention content: Removing alternate interventions					
Primary outcomes					
Alcohol use	---	---	---	---	---
Internalising Symptoms	7	431	446	-0.17[-0.42,0.08]	69
Externalising symptoms	10	538	561	-0.33[0.75,0.09]	91
Secondary outcomes					
Substance use	---	---	---	---	---

Family conflict	---	---	---	---	---
Removing Outliers					
Primary outcomes					
Alcohol use	5	273	202	-0.01[-0.40,0.38]	76
Internalising Symptoms	7	409	417	-0.05[-0.19,0.09]	0
Externalising symptoms	9	496	511	-0.08,[-0.22,0.06]	15
Secondary outcomes					
Substance use	7	343	302	-0.06[-0.64,0.52]	71
Family conflict	---	---	---	---	---

Appendix F. NHS ethical approval form

NHS
Health Research Authority
West Midlands - Coventry & Warwickshire Research Ethics Committee
The Old Chapel
Royal Standard Place
Nottingham

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

05 December 2016

Miss Emma Geijer-Simpson
PhD student
Institute of Health and Society, Newcastle University
Baddiley-Clark Building, Newcastle University
Richardson Road
Newcastle Upon Tyne
NE2 4AX

Dear Miss Geijer-Simpson,

Study title:	**Qualitative formative research to inform development of a family-involved intervention to prevent risky alcohol use and co-existing mental health difficulties in young people aged 12-17.**
REC reference:	**16/WM/0454**
Protocol number:	**BH151042**
IRAS project ID:	**213828**

Thank you for your letter of 24th November 2016, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact the REC Manager, Ms Rachel Nelson, NRESCommittee.WestMidlands-CoventryandWarwick@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

- The Participant Information Sheets should have "with your permission" added after the statement about audio recording.
- The word "years" should be added after "10" in the Participant Information Sheet when referring to the storage of data.

You should notify the REC once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Revised documents should be submitted to the REC electronically from IRAS. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which you can make available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for

medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	*Version*	*Date*
Copies of advertisement materials for research participants [Document 20_Young people's Poster.pptx]	V1.1	23 November 2016
Copies of advertisement materials for research participants [Document 20_Young People's Poster V1.1]	V1.1	23 November 2016
Covering letter on headed paper [Review Application Cover Letter]	V1.0	12 September 2016
Covering letter on headed paper [Review Application Cover Letter]	V1.1	24 November 2016
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [16-17 Newcastle University Public Liability Ins Cert]	V1.0	10 October 2016
Interview schedules or topic guides for participants [Document 1_Topic Guide for young People .docx]	V1.0	09 September 2016
Interview schedules or topic guides for participants [Document 2_Topic Guides for Parents and Carers.docx]	V1.0	09 September 2016
IRAS Application Form [IRAS_Form_21102016]		21 October 2016
IRAS Checklist XML [Checklist_21102016]		21 October 2016
IRAS Checklist XML [Checklist_24112016]		24 November 2016
Letter from sponsor [Emma Geijer-Simpson Standard NU Sponsorship letter]		05 October 2016

Other [Informed consent in pediatric research certificate]	V1.0	23 November 2016
Participant consent form [Document 13_ parent or carers consent-interview.docx]	V1.1	18 November 2016
Participant consent form [Document 14_ parents or carers consent-workshops V1.1]	V1.1	18 November 2016
Participant consent form [Document 15_ over 14 consent-interview V1.1]	V1.1	18 November 2016
Participant consent form [Document 16_ over 14 consent-workshop V1.1]	V1.1	18 November 2016
Participant consent form [Document 17_Under 14 Assent and Consent-interview V1.1]	V1.1	18 November 2016
Participant consent form [Document 18_under 14 assent and consent-workshop V1.1]	V1.1	18 November 2016
Participant consent form [Document 19_ Consent form for Professionals V1.1]	V1.1	18 November 2016
Participant consent form [Document 9_consent to contact for young people-interview.docx]	V1.1	18 November 2016
Participant consent form [Document 10_Young People consent to contact-workshop V1.1]	V1.1	18 November 2016
Participant consent form [Document 11_Parent or carer consent to contact-interview V1.1]	V1.1	18 November 2016
Participant consent form [Document 12_Parent or carer consent to contact -workshop V1.1]	V1.1	18 November 2016
Participant information sheet (PIS) [Document4_Information Leaflet for young people interview]	V1.1	15 November 2016
Participant information sheet (PIS) [Document 5_Information Leaflet for young people workshop V1.1]	V1.1	15 November 2016
Participant information sheet (PIS) [Document 6_Information Leaflet for parents and carers interviews V1.1]	V1.1	15 November 2016
Participant information sheet (PIS) [Document 7_Information Leaflet for parents and carers workshops V1.1]	V1.1	15 November 2016
Participant information sheet (PIS) [Document 8_Information Leaflet for professionals workshop V1.1]	V1.1	15 November 2016
Research protocol or project proposal [Emma Geijer Simpson_Ethics Protocol V1.0]	V1.1	23 November 2016
Summary CV for student [Emma Geijer-Simpson CV Summary]	V.10	10 October 2016
Summary CV for supervisor (student research) [Raghu Lingam CV]		10 October 2016
Summary CV for supervisor (student research) [Ruth McGovern CV]		10 October 2016
Summary CV for supervisor (student research) [Eileen Kaner-short CV2016]		10 October 2016
Summary, synopsis or diagram (flowchart) of protocol in non technical language [Document 22_Summary Diagram.docx]	V1.1	23 November 2016

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document *"After ethical review – guidance for researchers"* gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website:
http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/

16/WM/0454	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely,

pp

Dr Helen Brittain
Chair

Email:NRESCommittee.WestMidlands-CoventryandWarwick@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: *Ms Kay Howes*

Mr Simon Douglas

Appendix G. Evidence of Newcastle University Sponsorship

Newcastle University

5th October 2016

Emma Geijer-Simpson
IHS

Faculty of Medical Sciences
Newcastle University
The Medical School
Framlington Place
Newcastle upon Tyne
NE2 4HH United Kingdom

Dear Emma

Newcastle University Sponsorship of: Qualitative formative research to inform development of a family-involved intervention to prevent risky alcohol use and co-existing mental health difficulties in young people aged 12-17
Principle Investigator: Emma Geijer-Simpson

Further to recent correspondence concerning the request for University sponsorship for the above named study, I am able to confirm that Newcastle University will act as sponsor for this project.

If there are any amendments to your protocol and research activity, please ensure that I am notified.

Yours sincerely

Kay Howes.

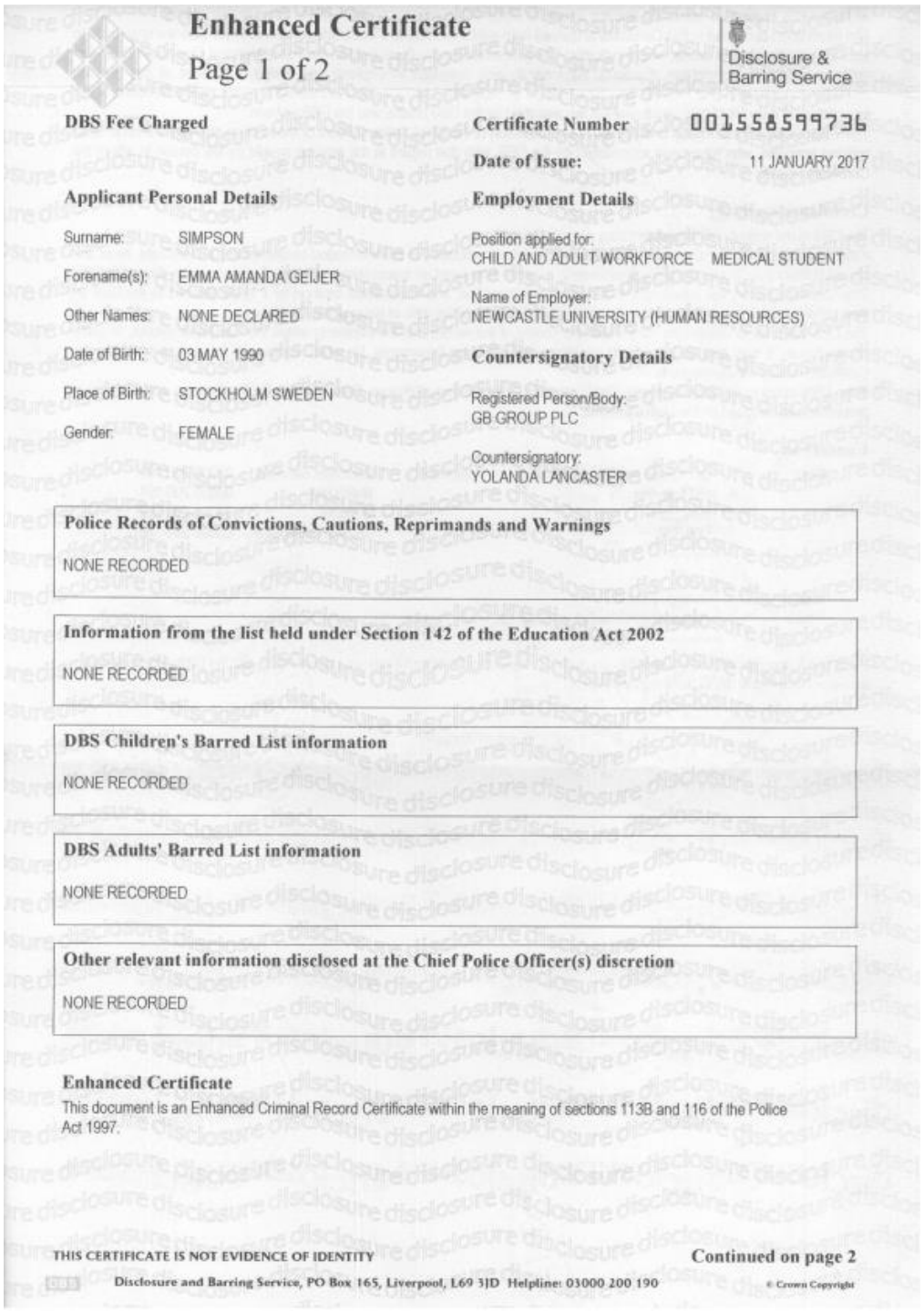
Kay Howes
FMS Research Manager

tel: +44 (0) 191 208 6000
fax: +44 (0) 191 208 6621

www.ncl.ac.uk
The University of Newcastle upon Tyne trading as Newcastle University

The Queen's Anniversary Prizes
for Higher and Further Education
2013

Appendix H. Evidence of DBS check



Enhanced Certificate

Page 1 of 2

Disclosure & Barring Service

DBS Fee Charged

Certificate Number 001558599736

Date of Issue: 11 JANUARY 2017

Applicant Personal Details

Surname: SIMPSON

Forename(s): EMMA AMANDA GEIJER

Other Names: NONE DECLARED

Date of Birth: 03 MAY 1990

Place of Birth: STOCKHOLM SWEDEN

Gender: FEMALE

Employment Details

Position applied for:
CHILD AND ADULT WORKFORCE MEDICAL STUDENT

Name of Employer:
NEWCASTLE UNIVERSITY (HUMAN RESOURCES)

Countersignatory Details

Registered Person/Body:
GB GROUP PLC

Countersignatory:
YOLANDA LANCASTER

Police Records of Convictions, Cautions, Reprimands and Warnings

NONE RECORDED

Information from the list held under Section 142 of the Education Act 2002

NONE RECORDED

DBS Children's Barred List information

NONE RECORDED

DBS Adults' Barred List information

NONE RECORDED

Other relevant information disclosed at the Chief Police Officer(s) discretion

NONE RECORDED

Enhanced Certificate

This document is an Enhanced Criminal Record Certificate within the meaning of sections 113B and 116 of the Police Act 1997.

THIS CERTIFICATE IS NOT EVIDENCE OF IDENTITY

Continued on page 2

Disclosure and Barring Service, PO Box 165, Liverpool, L69 3JD Helpline: 03000 200 190

Certificate Number 001558599736

Use of certificate information

The information contained in this certificate is confidential and all recipients must keep it secure and protect it from loss or unauthorised access. This Certificate must only be used in accordance with the Disclosure and Barring Service's (DBS) Code of Practice and any other guidance issued by the DBS. Particular attention must be given to the guidance in the fair use of the information in respect of those whose Certificate reveals a conviction or similar information. The DBS will monitor the compliance of Registered Bodies with this Code of Practice and other guidance.

This Certificate is issued in accordance with Part V of the Police Act 1997, which creates a number of offences. These offences include forgery or alteration of Certificates, obtaining Certificates under false pretences, and using a Certificate issued to another person as if it was one's own.

This Certificate is not evidence of the identity of the bearer, nor does it establish a person's entitlement to work in the UK.

Certificate content

The personal details contained in this Certificate are those supplied by or on behalf of the person to whom the Certificate relates at the time the application was made and that appear to match any conviction or other details linked to that identity.

The information contained in this Certificate is derived from police records, and from records held of those who are unsuitable to work with children and/or adults, where indicated. The police records are those held on the Police National Computer (PNC) that contains details of Convictions, Cautions, Reprimands and Warnings in England and Wales, and most of the relevant convictions in Scotland and Northern Ireland may also be included. The DBS reserves the right to add new data sources. For the most up to date list of data sources which are searched by the DBS please visit the DBS website.

The Other Relevant Information is disclosed at the discretion of the Chief Police Officers or those of an equivalent level in other policing agencies, who have been approached by the DBS, with due regard to the position sought by the person to whom the Certificate relates.

Certificate accuracy

The DBS is not responsible for the accuracy of police records.

If the person to whom this Certificate relates is aware of any inaccuracy in the information contained in the Certificate, he or she should contact the Countersignatory immediately, in order to prevent an inappropriate decision being made on their suitability. This Countersignatory will advise how to dispute that information, and if requested arrange for it to be referred to the DBS on their behalf. The information should be disputed within 3 months of the date of issue of the Certificate.

The DBS will seek to resolve the matter with the source of the record and the person to whom the Certificate relates. In some circumstances it may only be possible to resolve a dispute using fingerprints, for which consent of the person to whom the Certificate relates will be required.

If the DBS upholds the dispute a new Certificate will be issued free-of-charge. Details of the DBS's disputes and complaints procedure can be found on the DBS's website.

Contact us

Post:	Disclosure and Barring Service PO Box 165 Liverpool L69 3JD	Telephone:	Customer Services: Welsh line: Minicom: General Information	03000 200 190 03000 200 191 03000 200 192 03000 200 190

Web: www.gov.uk/dbs
Email: customerservices@dbs.gsi.gov.uk

If you find this certificate and are not able to return it to the person to whom it relates, please return it to the DBS at the address above or hand it in at the nearest police station.

End of Details

Appendix I. Interview Information sheet for young people

STAR: STudy exploring Alcohol Risks and mental wellbeing

Hi, my name is Emma Geijer Simpson. I would like to invite you to take part in a research study. Please take time to read this leaflet and feel free to discuss it with your family, friends or teachers.

What is the research about?

- I am trying to find out the best way to help young people who are aged **12-17**, drink alcohol and are also experiencing difficulties such as feeling sad, fed up or angry. I will use **your ideas to help** other young people.

What will taking part involve?

- If you are between **12-17, drink alcohol and struggle with your emotions** then I would like to hear your thoughts on what support may be useful for other people in similar situations.

- If you decide to take part you will be invited to come to a group with other young people. The group will talk about the best way to help people who drink alcohol and also struggle with their feelings. This group discussion will last approximately one hour. This discussion will be audio recorded.

- You will receive a **£10 gift voucher** for taking part.

Do I have to take part?

- **No**. It is up to you whether you want to take part. If you do decide to take part, you can change your mind whenever you want and your future care will not be affected.

Will my taking part be kept confidential?

- All the information you provide will be **confidential.** This means that what you tell me will not be shared with other people

- You will not be named in anything written about the study

- The only time things you tell me will not be kept confidential is if you tell me that you or another person is at serious risk of harm. This is called **safeguarding** (this is to keep you safe).

- Any information about you will be stored electronically on a secure, anonymous Newcastle University database for 10

Thank you for taking the time to read this leaflet. Please get in touch to ask any questions or share any concerns you may have about the project or at:

Contact details:
Emma Geijer-Simpson
Tel: XXXXXX
You can also email me at:

XXXXXX

Or write to:
Institute of Health and Society, Baddiley Clarke Building, Richardson Road, Newcastle Upon Tyne, NE2 4AX.

This research has been reviewed by the West Midland-Coventry and Warwick Research Ethics Committee.

This research is funded by Alcohol Research UK

ALCOHOL RESEARCH UK

If you are concerned about alcohol or mental health and you would like information on where to get help you can contact:

***Freephone Talk to Frank :* 0300 123 6600**

Freephone Childline: *08001111*

What should I do if I have a suggestion or complaint about the study?

Any suggestions or complaints about the study or how you were treated should be made in writing to:

Professor Allison Pollock
Institute of Health & Society
Newcastle University
Baddiley-Clark Building
Richardson Road
Newcastle upon Tyne NE2 4AX

All complaints will be dealt with in writing within 7 working days. If you are not happy with the way your complaint has been handled, your complaint will be referred to the research sponsor, Newcastle University.

Newcastle University
Institute of Health & Society

ALCOHOL RESEARCH UK

STAR:STudy exploring Alcohol Risks and mental wellbeing

Research Information Leaflet

STAR: STudy exploring Alcohol Risks and mental wellbeing. Participant information leaflet for young people approached for workshops; version 1.1; 15.11.16,IRAS Project ID: 213828

Appendix J. Interview information sheet for parents/caregivers

STAR: STudy exploring Alcohol Risks and mental wellbeing

Hi, my name is Emma Geijer Simpson. I would like to invite you to take part in a research study. Please take time to read this leaflet and feel free to contact me if you have any questions.

What is the research about?

- I am trying to find out the best way to help young people who are aged **12-17**, drink alcohol and are also experiencing difficulties such as feeling sad, fed up or angry. **Your ideas will help** to inform the best way to do this.

Am I eligible for this study?

- You need to have experience of having a child aged 12-17 who **drinks alcohol** and **struggles to manage their emotions**.

What will taking part involve?

- If you decide to take part , I will arrange to meet you at a time and appropriate place that is best for you. We will talk about your experiences and how families of young people who drink alcohol and also experience difficulties with their emotions such as feeling sad, annoyed, worried can be best supported. This will take approximately 1 hour. Interviews will be audio recorded.

- You will receive a **£10 gift voucher** for taking part.

Do I have to take part?

- **No**. It is up to you whether you want to take part. If you do decide to take part, you can change your mind whenever you want and your child's future care will not be affected.

Will my taking part be kept confidential?

- All the information you provide will be **confidential.** This means that what you tell me will not be shared with other people

- You will not be named in anything written about the study

- The only time things you tell me will not be kept confidential is if you tell me that you or another person is at serious risk of harm. This is called **safeguarding** (this is to keep you safe).

- Any information about you will be stored electronically on a secure, anonymous Newcastle University database for 10

Thank you for taking the time to read this leaflet. Please get in touch to ask any questions or share any concerns you may have about the project or at:

Contact details:
Emma Geijer-Simpson
Tel: XXXXXX
You can also email me at:

XXXX

Or write to:
Institute of Health and Society, Baddiley Clarke Building, Richardson Road, Newcastle Upon Tyne, NE2 4AX.

This research has been reviewed by the West Midland-Coventry and Warwick Research Ethics Committee.

This research is funded by Alcohol Research UK

ALCOHOL RESEARCH UK

If you are concerned about your child's alcohol use or mental health and you would like information on where to get help you can contact:

Freephone Talk to Frank : **0300 123 6600**

Freephone YoungMinds Parents helpline: **0808 802 5544**

What should I do if I have a suggestion or complaint about the study?

Any suggestions or complaints about the study or how you were treated should be made in writing to:

Professor Allison Pollock
Institute of Health & Society
Newcastle University
Baddiley-Clark Building
Richardson Road
Newcastle upon Tyne NE2 4AX

All complaints will be dealt with in writing within 7 working days. If you are not happy with the way your complaint has been handled, your complaint will be referred to the research sponsor, Newcastle University.

Newcastle University
Institute of Health & Society

ALCOHOL RESEARCH UK

STAR:STudy exploring Alcohol Risks and mental wellbeing

Research Information Leaflet

STAR: STudy exploring Alcohol Risks and mental wellbeing. Participant information leaflet for parents/carers approached for interviews; version 1.1; 15.11.16;IRAS Project ID: 213828

Appendix K. Topic guide for young person's interviews

Thank you for taking part in this study about young people, alcohol use and their emotions. I would like to ask you about your experiences of drinking and difficulties you experience such as feeling sad, fed up or angry and what support you think could be put in place.

Reiterate issues of confidentiality and anonymity, the purpose of the study and what is going to happen to the data.

Complete Consent Forms

Introduction

So, tell me a little about yourself? (age, school, college, interests, friends)

Exploration of environment and family

Tell me about your family/home life?

(Probe: what is good, bad?)

Thinking about the people in your life, who is important to you?

(probe: why, how do they influence you?)

Exploration of mood/feelings

Activity

The participant will be given flash cards and asked to pick out the emotions that they feel they frequently experience. Both negative emotions such as mad, worried, upset and positive emotions such as happy, safe will be explored. For the older participants this can just be provided as an option.

Can you tell me about the cards you have chosen?

(prompt what the emotions are, when they experience them, how often they feel this way, triggers, how it impacts them, what helps you not feel that way? coping strategies?)

Exploration of alcohol use

Could you tell me about your experiences of alcohol use? – Use of timeline

(Probe: have you ever drunk alcohol before, have your friends ever drunk before, have you been around them when they were drinking, a typical day when you or others drink, where and when, how often? Other substances? smoking?)

Why do you drink alcohol?

(Probe: socialising, coping strategy, certain situations that cause you to drink, how does your drinking make you feel? (probe:, positive and negative impacts, impact upon mood, other substances)

Have you or anyone else ever been worried about your drinking?

(Probe: friends, family, teachers, doctor, mentor? What makes you think that they have been worried, why do you think they have been worried? Any other substances?)

Experience of help and support

Who do you talk to about your feelings and/ or your alcohol use with?

(Probe: is this easy or difficult to talk about? how do they provide support? Family? Who else provides support? Prompt informal and formal support)

How could your family help you?

How could family life be better?

Is there any support you do not currently have that you feel could help you reduce your alcohol use and any unhappy feelings you feel that you experience? (Probe: support from family, anything else that could help)

If a mate comes to you worried about alcohol or unhappy, what would you recommend that they do? (Probe: what do you think would help them stop? What would help you if you wanted to change?)

Exploration of practical factors

Activity

If we want to help support young people with alcohol and mental health problems what would that help look like? Draw a person OR have a picture available. Once the picture has been drawn, ask the participant to draw a mind map about the following.

Who would be involved, any family members? (Probe: what would be difficult about this, what could help?)

Where would it take place?

Who would deliver it?

Would it be self-management?

What would a session look like? (formal/informal), frequency?

Close

Are there any other points that you would like to add?

Thank respondents. Offer reassurance that all responses will be anonymised and that participants will not be identified in the dissemination of results.

Appendix L. Topic guide for parent/carer interviews

Introduction

Thank you for taking part in this study about young people, alcohol use and mental health. I would like to ask you about your experience of supporting your child with mental health and alcohol use as a family. To further ask you about your experiences of help seeking and support that you think could be put in place.

Reiterate issues of confidentiality and anonymity, the purpose of the study and what is going to happen to the data.

Complete Consent Forms.

Exploration of environment and family

So, tell me a bit about your family? (number of children, family composition)

Tell me about your family life (probes around positives, difficulties)

How about the child/ren you care for what is/are he/she/they like? (Probe: age interests, school, friends)

Alcohol and young people

What are your thoughts about young people and alcohol? (probe around amount, risk, level of concern, other substances)

Is alcohol something you have spoken to your child/ren about? (Probe: is it easy/difficult, other substances)?

Are you aware of a time when your child/ren has/have consumed alcohol? (Probe: what happened, how did you know/find out? What motivated their drinking? What did you think about it? supervised and unsupervised drinking, other substances)

How would/do you respond if your child drinks? (probe supervised and unsupervised drinking, things that work and don't work when responding to your child, other substances)

Have you ever been concerned about your child's drinking?

Mental Health and young people

Can you tell me about your child's mood and behaviour (probe difficulties, impact upon child and family, triggers, coping strategies?)

How would/do you know if your child is having difficulties with their mental health (going through a tough time/sad/angry)? Probe tell-tale signs for their child

How do you feel talking about mental health and difficulties with your child?

Experience of help and support

Have you ever sought help for your child's alcohol use, mental health or both?

What do you think about the support that is available for children around alcohol and mental health, and their families? (probe: strength and weaknesses of services)

What help do you think needs to be in place for you to be assisted to manage the young person's needs as a family? (probe: around advice, information, self-management, support services)

Exploration of practical factors

Activity

If we were to develop a family involved intervention to support young people with alcohol and mental health problems what would it look like?

A picture of a family will be in the middle of the paper, ask the participant to draw a mind map about the following:

Which family members would be involved?

Where would it take place?

Who would deliver it?

Or would it be self-management?

What would a session look like? (formal/informal), frequency?

Close

Are there any other points that you would like to add?

Thank respondents. Offer reassurance that all responses will be anonymised and that participants will not be identified in the dissemination of results.

Appendix M. Emotion cards to aid young people's interviews

Fine	Cheerful
Horrible	Mad
Sad	Angry
Angry	Worried
Anxious	Lonely

Frustrated	Bad
Stressed	Unhappy

Appendix N. Qualitative analysis: coding

Initial coding framework used within NVivo

1) Family
    - Family composition
    - Home life
2) Mental Health
    - Presenting difficulties
    - Risk factors
    - Protective factors
    - Coping mechanisms/strategies
3) Alcohol use
    - Patterns of drinking
    - Function of drinking
    - Risk factors
    - Protective factors
4) Relationship between mental health and alcohol use
5) Experience of help and support
    - Informal
    - Formal
    - Perceived need
    - Additional support needed
6) Practical factors-intervention
    - Barriers
    - Facilitators
    - Mode of delivery

Please note: Risk and protective factors for alcohol use and mental health problems were coded separately in order to account for the various mechanisms in which the factors operated.

Ongoing ‘review and revival’ of nodes towards the development of themes for young people

Name	Sources	Frequency of coding points
Receptiveness to support		
Associated change/reaction in parents/carers	20	81
Characteristics and resources of parents/carers/others	21	83
Impact on parents/carers/others	13	49
Monitoring VS permissiveness		
Parents area of concern re alcohol use	10	15
Relationship between mental health and alcohol use		
Coping (negative, internal)	19	69
Coping with socialising	11	19
Enhancement (positive, internal)	7	13
Impact of alcohol on mental health	14	29
Alcohol use-protective factors		
Academic work	8	14
Extracurricular activities	12	16
Parental monitoring vs permissiveness	22	78
Parenting styles	3	4
Social learning	2	3
Age norms-pressured to stop	6	15
Alcohol use-risk factors		
Familial drinking	10	46
Parenting styles	4	13
Relationships and conflict	8	27
Social norms	16	46
Social function	16	45
Vertical peer groups	8	17
Peer guidance	5	5
Peer pressure	4	6
Mental health-protective factors		
Family	6	12
Replacement/substitution/additional primary figure	10	32
(see coping strategies node)		
Mental health-risk factors		
Bereavement	4	7
Bullying	7	24
Parenting Styles	6	14
School work	15	32
Traumatic life events	9	33

Caring for family members	8	19
Difficulties associated with parental separation		
Support and coping strategies		
Alone time and self-reliance	15	24
Creative outlet	4	8
Distraction	10	16
Physical outlet	12	22
'Replacement'	5	10
Informal support	25	169
Parents/carers physical and emotional resources	14	35
Parents/carers mental health literacy	10	27
Siblings depleting parental resources	5	13
What could an intervention look like?		
Involving family	23	139
Length of sessions	10	14
Location	16	35
Self-management	18	22
Activities (content)	10	24
Communication (content)	7	15
Coping mechanisms (content)	6	10
Emotional Support (content)	16	24
Knowledge and skills for parents/carers	6	26
Awareness of alcohol use and mental health problems	8	26

Ongoing ‘review and revival’ of nodes towards the development of themes for caregivers

Name	Sources	Frequency of coding points
Monitoring VS permissiveness		
Conflicted	8	22
Consequences/ management	10	56
Managing immediate risks	10	38
Parents/carers past and present personal experiences	10	29
Misconceived protective factor	4	12
Inevitability	9	33
Relationship between mental health and alcohol use	9	47
Support		
Children’s own coping mechanisms	3	16
Informal support for child	10	38
Support for parent/caregiver	4	7
Parent/caregiver lack of time and resources	4	20
Helpless	8	33
Blame, Stigma	6	19
Mental health-risk factors		
Body image	2	6
Family	6	32
Friendships	4	16
Relationships	2	7
School	7	13
Traumatic Experiences	3	8
Mental health-protective factors		
Family	5	16
Friendships	1	1
Pets	1	1
School	2	3
Physical activity	2	4
Alcohol use-risk factors		
Family	7	12
Parental substance use	6	28
Relationship	2	7
Social and peer norms	8	33
Parental mental health	1	1
Alcohol use-protective factors		
Cost	1	1
Family	3	13
Personality	2	4

Scare experience	9	18
Sports	2	3
Trivialising VS problematising		
Mental health literacy	9	49
What could an intervention look like?		
Barriers	7	11
Content	12	78
Family involvement	12	83
Group-based	4	5
Individual delivering it	10	44
Length of sessions	5	6
Location	10	17

An example of the use of visual representation of nodes/codes to aid the review and revival of nodes.

Appendix O. Co-design workshop information sheet for young people

STAR: STudy exploring Alcohol Risks and mental wellbeing

Hi, my name is Emma Geijer Simpson. I would like to invite you to take part in a research study. Please take time to read this leaflet and feel free to discuss it with your family, friends or teachers.

What is the research about?

- I am trying to find out the best way to help young people who are aged **12-17**, drink alcohol and are also experiencing difficulties such as feeling sad, fed up or angry. I will use **your ideas to help** other young people.

What will taking part involve?

- If you are between **12-17**, **drink alcohol and struggle with your emotions** then I would like to hear your thoughts on what support may be useful for other people in similar situations.

- If you decide to take part you will be invited to come to a group with other young people. The group will talk about the best way to help people who drink alcohol and also struggle with their feelings. This group discussion will last approximately one hour. This discussion will be audio recorded.

- You will receive a **£10 gift voucher** for taking part.

Do I have to take part?

- **No**. It is up to you whether you want to take part. If you do decide to take part, you can change your mind whenever you want and your future care will not be affected.

Will my taking part be kept confidential?

- All the information you provide will be **confidential.** This means that what you tell me will not be shared with other people

- You will not be named in anything written about the study

- The only time things you tell me will not be kept confidential is if you tell me that you or another person is at serious risk of harm. This is called **safeguarding** (this is to keep you safe).

- Any information about you will be stored electronically on a secure, anonymous Newcastle University database for 10

Thank you for taking the time to read this leaflet. Please get in touch to ask any questions or share any concerns you may have about the project or at:

Contact details:
Emma Geijer-Simpson
Tel: XXXXXX
You can also email me at:

XXXXXX

Or write to:
Institute of Health and Society, Baddiley Clarke Building, Richardson Road, Newcastle Upon Tyne, NE2 4AX.

This research has been reviewed by the West Midland-Coventry and Warwick Research Ethics Committee.

This research is funded by Alcohol Research UK

ALCOHOL RESEARCH UK

If you are concerned about alcohol or mental health and you would like information on where to get help you can contact:

Freephone Talk to Frank : **0300 123 6600**

Freephone Childline: *08001111*

What should I do if I have a suggestion or complaint about the study?

Any suggestions or complaints about the study or how you were treated should be made in writing to:

Professor Allison Pollock
Institute of Health & Society
Newcastle University
Baddiley-Clark Building
Richardson Road
Newcastle upon Tyne NE2 4AX

All complaints will be dealt with in writing within 7 working days. If you are not happy with the way your complaint has been handled, your complaint will be referred to the research sponsor, Newcastle University.

Newcastle University
Institute of Health & Society

ALCOHOL RESEARCH UK

STAR:STudy exploring Alcohol Risks and mental wellbeing

Research Information Leaflet

STAR: STudy exploring Alcohol Risks and mental wellbeing. Participant information leaflet for young people approached for workshops; version 1.1; 15.11.16,IRAS Project ID: 213828

Appendix P. Co-design workshop information sheet for parents/caregivers

STAR: STudy exploring Alcohol Risks and mental wellbeing

Hi, my name is Emma Geijer Simpson. I would like to invite you to take part in a research study. Please take time to read this leaflet and feel free to contact me if you have any questions.

What is the research about?

- I am trying to find out the best way to help young people who are aged **12-17**, drink alcohol and are also experiencing difficulties such as feeling sad, fed up or angry. **Your ideas will help** to inform the best way to do this.

Am I eligible for this study?

- You need to have experience of having a child aged 12-17 who **drinks alcohol** and **struggles to manage their emotions** .

What will taking part involve?

- If you decide to take part you will be invited to attend a group discussion with other parents/carers. The discussion will be about how families of young people who drink alcohol and also experience difficulties with their mental health such as feeling sad, annoyed, worried can be best supported. You will be asked to talk about what this support would involve and who might provide it. This group discussion will take approximately 1 hour. This discussion will be audio recorded.

- You will receive a **£10 gift voucher** for taking part.

Do I have to take part?

- **No**. It is up to you whether you want to take part. If you do decide to take part, you can change your mind whenever you want and your child's future care

Will my taking part be kept confidential?

- All the information you provide will be **confidential.** This means that what you tell me will not be shared with other people

- You will not be named in anything written about the study

- The only time things you tell me will not be kept confidential is if you tell me that you or another person is at serious risk of harm. This is called **safeguarding** (this is to keep you safe).

- Any information about you will be stored electronically on a secure, anonymous Newcastle University database for 10

Thank you for taking the time to read this leaflet. Please get in touch to ask any questions or share any concerns you may have about the project or at:

Contact details:
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Tel: XXXXXX
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Or write to:
Institute of Health and Society, Baddiley Clarke Building, Richardson Road, Newcastle Upon Tyne, NE2 4AX.

This research has been reviewed by the West Midland-Coventry and Warwick Research Ethics Committee.

This research is funded by Alcohol Research UK

ALCOHOL RESEARCH UK

If you are concerned about your child's alcohol use or mental health and you would like information on where to get help you can contact:

Freephone Talk to Frank : 0300 123 6600

Freephone YoungMinds Parents helpline: 0808 802 5544

What should I do if I have a suggestion or complaint about the study?

Any suggestions or complaints about the study or how you were treated should be made in writing to:

Professor Allison Pollock
Institute of Health & Society
Newcastle University
Baddiley-Clark Building
Richardson Road
Newcastle upon Tyne NE2 4AX

All complaints will be dealt with in writing within 7 working days. If you are not happy with the way your complaint has been handled, your complaint will be referred to the research sponsor, Newcastle University.

Newcastle University
Institute of Health & Society

ALCOHOL RESEARCH UK

STAR:STudy exploring Alcohol Risks and mental wellbeing

Research Information Leaflet

STAR: STudy exploring Alcohol Risks and mental wellbeing. Participant information leaflet for parents/carers approached for workshops; version 1.1, 15.11.16.BIAS Project ID: 213826

Appendix Q. Co-design workshop information sheet for professionals

STAR: STudy exploring Alcohol Risks and mental wellbeing

Hi, my name is Emma Geijer Simpson. I would like to invite you to take part in a research study. Please take time to read this leaflet and feel free to contact me if you have any questions.

What is the research about?

- I am trying to find out the best way to support young people who are experiencing mental health difficulties and engage in risky alcohol use. **Your ideas will help** to inform the best way to do this.

Am I eligible for this study?

- You ***need*** to be a ***professional*** and work with young people between the ages ***12-17*** .
- *These young people* ***need to be experiencing mental health difficulties and engaging in alcohol use*** .

What will taking part involve?

- If you decide to take part you will be invited to take part in a workshop with other professionals. In the workshop you will discuss how best to support young people who drink alcohol and also experience mental health difficulties. You will be asked to talk about what this support would involve, who would provide the support etc. The workshop will last approximately 1 hour and will be audio recorded.
- You will be reimbursed for any travel costs.

Do I have to take part?

- **No**. It is up to you whether you want to take part. If you do decide to take part, you can change your mind whenever you want.

Will my taking part be kept confidential?

- All the information you provide will be confidential.
- You will not be named in anything written about the study
- The only time things you tell me will not be kept confidential is if you tell me that you or another person is at serious risk of harm. This is to uphold **safeguarding** protocol.
- Any information about you will be stored electronically on a secure, anonymous Newcastle University database for 10 years.

Thank you for taking the time to read this leaflet. Please get in touch to ask any questions or share any concerns you may have about the project or at:

Contact details:
Emma Geijer-Simpson
Tel: XXXXXX
You can also email me at:

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ALCOHOL RESEARCH UK

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STAR:STudy exploring Alcohol Risks and mental wellbeing

Research Information Leaflet

Appendix R. Persona: Introducing Amy

INTRODUCING AMY

Amy is 15. She is stressed. She has GCSEs in the next three weeks. She doesn't feel like she is going to do well and that everyone else is going to do much better than her. As well as having friendship issues, Amy likes to drink with her mates because she feels happy and forgets about things that worry her. She doesn't know what to do so tries not to be at home and doesn't want to talk to her mum or dad. Mum and dad are worried and keep asking Amy what is wrong but Amy just shrugs them off saying 'I'm fine'.

Appendix S. Persona: Introducing Alex

INTRODUCING ALEX

Alex is 13. Home life is difficult for Alex. There is a lot of arguing in the house and he feels like his step mum hates him. He gets on well with his older sister so he will sometimes talk to her if he is struggling. Alex drinks with his mates to try and fit in and because it makes him feel more confident. His friends are very important to him.

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