Addressing the impact of non-dependent parental substance misuse upon children

A rapid review of the evidence of prevalence, impact and effective interventions

McGovern, R., Gilvarry, E., Addison, M., Alderson, H., Carr, L., Geijer-Simpson, E., Hrisos, N. Lingam, R., Minos, D. Smart, D. & Kaner, E.

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Contents

Glossary

Alcohol use	Any ingestion of alcohol
Low-risk drinking	Alcohol use within legal and medical guidelines (up to 3 units per day and 14 units per week)
Alcohol misuse	Alcohol above low-risk limits of alcohol consumption
Hazardous drinking	Alcohol use at a level that increases the individual's risk of physical or psychological consequences (see increased-risk drinking below). Indicative levels are 14-34 units for women and 14-49 units for men per week
Harmful drinking	Defined by the presence of adverse physical or psychological consequences relating to alcohol (see high-risk drinking below). Indicative levels are over 35 units per week for women and over 50 units per week for men per week
Increased-risk drinking	See hazardous drinking above
High-risk drinking	See harmful drinking above
Excessive drinking	Hazardous and harmful drinking are referred together as excessive drinking
Heavy drinking	Hazardous and harmful drinking are referred together as heavy drinking
Binge drinking	High intensity drinking during a single occasion. It is strongly associated with intoxication. In the UK binge drinking is defined as drinking twice the daily recommended limit in one day (i.e. 6+ units)
Dependence	Diagnostic threshold for dependence is three or more of the following present together at some time during the previous year: A strong desire or sense of compulsion to take the substance; Difficulties in controlling substance-taking (onset, termination, or levels of use); A physiological withdrawal state when substance use has ceased or have been reduced; Evidence of tolerance; Progressive neglect of alternative pleasures or interests; Persisting with substance use despite clear evidence of overtly harmful consequences (ICD 10)

Non-dependent misuse	All levels of alcohol or drug misuse which does not meet the diagnostic threshold for dependent use
Alcohol use disorder (AUD)	Harmful drinking, alcohol abuse or dependence are together referred to as an AUD
Drug use	Any ingestion of drugs
Illicit drug use	Non-medicinal use of drugs prohibited by law
Drug misuse	See illicit drug use
Substance abuse/alcohol abuse/drug abuse	A maladaptive pattern of drinking/drug use, leading to clinically significant impairment or distress, as manifested by at least one related problem in a 12-month period (failure to fulfil major role obligations, use in situations in which it is physically hazardous, alcohol or drug-related legal problems, having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol or drugs without the criteria for dependence having been met. Abuse is an obsolete term having been dropped from the Diagnostic Statistical Manual (DSM)
Substance use disorder (SUD)	Use of a substance which meets the criteria for abuse or dependence is together referred to as SUD
Substance misuse	Either alcohol use above low risk levels or non-medicinal use of drugs prohibited by law
Externalising difficulties	Problem behaviours that are directed toward the external environment
Internalising difficulties	Negative behaviours that are focused inwards
Attention deficit hyperactive disorder	A group of behavioural symptoms which include inattentiveness, hyperactivity and impulsiveness
Defiant disorder	Defined by a pattern of hostile, disobedient and defiant behaviours directed at adults or authority figures

Executive summary

Statement of purpose

This review examines the evidence of the impact of non-dependent parental substance misuse upon children and effective interventions for dependent and non-dependent substance misusing parents. It is intended that the evidence synthesised will be of benefit to practitioners and decision-makers within Local Authorities and their health and third sector partners in responding to the needs of substance misusing parents and their children, particularly those affected by high risky levels of misuse. The term parental substance misuse is used throughout to denote non-dependent levels of alcohol and/or drug misuse. When the source studies examine only alcohol or only drug misuse the terms parental alcohol or parental drug misuse will be used.

Background

Alcohol and drug misuse is a major public health concern with risks for individual users, and other people who are adversely affected by their behaviour. Children in particular are vulnerable to the effects of parental substance misuse. Estimates suggest that in England around 162,000 children live with a dependent opiate user[1] and around 200,000 children live with an alcohol dependent parent. There is an established evidence-base regarding the risk of dependent parental substance misuse on children. Less is known about the prevalence of non-dependent parental substance misuse and the impact upon children. Further, there is a need to know how best to respond to parental substance misuse (both dependent and non-dependent) in order to address the possible negative impact on children. This rapid evidence assessment (REA) aims to: estimate the prevalence and assess the impact of non-dependent parental substance misuse upon children; identify effective and cost-effective interventions to reduce parental substance misuse and share examples of

[1] To note, this figure will include double counting where one or more children are living in a household where both parents have an opiate dependency.

practice from English Local Authorities in order to assist Local Authorities to respond to local need.

Key findings

REAi: Prevalence of non-dependent parental substance misuse and the impact upon children

This REA identified a large body of 61 published studies of varying methodological quality, which report on the prevalence and impact of non-dependent high-risk parental substance misuse. Of these 61 studies, 35 reported upon the prevalence of parental substance misuse at a range of different consumption levels, and 36 studies (from 34 unique studies) reported upon the impact of high-risk parental substance misuse on children. In addition, data from the Adult Psychiatric Morbidity Survey 2014 and Characteristics of Children in Need 2016, were used to inform prevalence estimates. These studies and surveys consisted of longitudinal studies and cross sectional surveys, with many benefiting from large samples.

Prevalence:

Studies and surveys estimated that between 2-4% of parents in the UK were harmful drinkers and between 12-29% of parents in the UK were hazardous drinkers. Less was known about the prevalence of parental non-dependent illicit drug misuse. Studies estimated that 8% of children may live with a parent who has used an illicit substance in the past year (2% with a class A drug user). Between 1-2% of parents self-reported alcohol and/or drug abuse, and it was estimated that 4% of children live with a parent who is both a problem drinker and drug user. A higher prevalence of parental non-dependent substance misuse was found in vulnerable families who were involved in children's social care with reported rates of 18% drug misuse and 19% alcohol misuse recorded as a factor in child in need assessments. Up to 52% in child protection cases and 34% of cases allocated for long-term social work intervention highlighted parental substance misuse to be a significant concern. Fifty-six percent of mothers who have been involved in recurrent care proceedings

were engaged in substance misuse during the index proceedings. Parental substance misuse (either alcohol, drugs or both) was recorded in 47% of all serious case reviews following child death or serious injury where abuse or neglect is known or suspected.

Physical health impact

Children whose parents misused substances were more likely to sustain an accidental injury. In particular, maternal high risk alcohol misuse was associated with a twofold higher odds of long bone fracture and a fivefold likelihood of medicinal poisoning. Maternal alcohol and/or drug misuse increased the likelihood of hospitalisation twofold. Further, poor dental hygiene and increased dental problems were associated with paternal substance misuse.

Psychological impact

Parental substance misuse was found to impact negatively upon child psychological health. In particular, there was evidence of an association between high risk parental alcohol misuse and externalising difficulties. This included conduct disorder, oppositional defiant disorder, attention difficulties, violent and rebellious behaviour. Children who were exposed to and aware of parental substance misuse seemed more vulnerable to psychological impact. Less evidence was found for an association between parental alcohol and/or drug misuse and internalising difficulties such as depression or anxiety.

Impact upon the child's own substance misuse

There was convincing evidence that non-dependent parental substance misuse increased the likelihood that their children would use substances and also begin use at an earlier age. Moreover, there was evidence that children of non-dependent substance misusing parents were more likely to develop substance use problems themselves. Children who had two parents who misused alcohol and/or drugs were most at risk of misusing substances themselves.

Educational and social impact

There was emerging evidence for the impact of parental non-dependent substance misuse upon children's educational outcomes. Adolescent children whose parents were high risk alcohol misusers had lower school performance and more frequent school behaviour problems, particularly in children aged 15-16 years. There was mixed evidence for the social impact of parental substance misuse upon the child. Some studies showed an increased likelihood of conflict within the home and difficulties within the parent-child relationship. Despite conflicting evidence of an association between parental alcohol misuse and neglectful parenting, parental alcohol misuse and/or drug misuse was associated with an increased likelihood of a child being placed in care. Children whose mothers were both alcohol and drug abusers were most at risk of being placed in care.

REAii: The effectiveness of psychological and social interventions to reduce dependent and non-dependent parental substance misuse

Psychological and social interventions

This evidence review sought to identify trials of psychological and social interventions for dependent and non-dependent substance misusing parents. There were 38 papers reporting on 33 unique trials of varying methodological quality, which met the inclusion criteria. The participants of the trials were mostly mothers, with few trials including fathers. All trials included dependent substance misusing parents, with a minority including participants who met the criteria for abuse or dependence. Twenty-one of the papers (reporting on 17 unique trials) examined the effects of an intervention delivered to an individual parent, whilst 16 unique trials examined an intervention delivered to two or more family members. Whilst the interventions often had overlapping components, they can be broadly described as: individual alcohol and/or drug treatment focusing upon the substance misuse needs of the parent; parent skills training; family-centred interventions and peer support.

There was limited evidence for effective psychological and social interventions to reduce the impact of substance misuse in dependent and non-dependent parents. Much of the

research evidence was based upon small pilot trials, which were not sufficiently powered to detect potentially small effects. Whilst intensive case management and family-level interventions showed some promise, further research is required before reliable practice recommendations can be made. In particular, research is needed to examine the effect of interventions for substance misusing fathers and non-dependent substance misusing parents.

Recommendation for further research, policy and practice

There is a large evidence for an adverse impact of non-dependent parental substance misuse upon children, particularly regarding their physical health, psychological wellbeing and personal substance use, where much of the evidence show consistent impact. Having one parent who is not a substance misuser may offer some protection to the child and provide an opportunity for intervention to increase resilience. Family-level interventions, particularly those that offer intensive case management, or those with clear extrinsic motivation for the parent (such as those linked to care proceedings) show promise in reducing parental dependent substance misuse.

Further research into the impact of non-dependent drug use is needed, as well as into the longer-term educational outcomes and social consequences of having parents who are non-dependent substance misusers. There is a need for large randomised controlled trials or well designed natural experiments to examine the effectiveness of psychological and social interventions with mothers, fathers and both parents as well as with families that include at least one non-misusing parent. Dependent levels of parental substance misuse appear to benefit from intensive case management, wherein substance misuse treatment and child safeguarding priorities are joined up in a way that is meaningful to both services and the families affected by parental substance misuse.

Conclusion

- Validated screening tools may assist Local Authorities and their partners to identify the large number of parents who are non-dependent substance misusers
- Non-dependent and dependent substance misusing parents are most likely to benefit from an intervention that is proportionate to the level of substance misuse
- The evidence base for brief alcohol interventions is robust however, this has not been evaluated within a parent population. It is likely that such interventions will need to be adapted for a parent population
- An extended intervention is most likely to be suitable for high risk substance misusing parents. This intervention may include discussing the impact of parental substance misuse upon the parent, child and family unit. An intervention that seeks to develop motivation based upon the benefits of behaviour change for the family is most likely to bring about positive change in substance misusing parents.

1. Background

The consumption of alcohol and drugs is a major public health concern worldwide [1, 2]. Whilst there is significant variation in consumption levels globally, alcohol and drug misuse has been rising over recent decades in many developing countries, with most high income countries experiencing the greatest burden [2]. As well as contributing to over 200 types of diseases, many fatalities are attributable to alcohol [2, 3]. Indeed, alcohol represents the sixth leading cause of morbidity and premature death, with 5.9% of all deaths being attributed to alcohol worldwide [2] and a further 0.4% of deaths being attributed to illicit drug dependence [4]. As well as being a significant risk to the individual users, alcohol and drug misuse has been found to be harmful to many people who do not misuse substances ('affected others'), with alcohol having the largest adverse impact [5]. In addition to health effects, there are numerous social risks associated with alcohol and drug misuse including family disruption and deprivation [6], violent and anti-social behaviour [7] and interpersonal violence [8]. Alcohol and drug misuse may lead to dependence and associated consequences for health, social stigma [9] and social exclusion [8].

Children are particularly vulnerable to the effects of parental substance misuse. It has been estimated that 162,000 children in England may live with a dependent opiate using parent [10][2]. Over half (105,780) of the total 197,110 adults receiving drug treatment during 2011-12 are reported to be either parents or to be living with children [11]. More recent estimates using National Drug Treatment Monitoring Services (NDTMS) for 2014-2015 report that of the 595,131 alcohol dependent adults in England, there are likely to be 120,419 alcohol dependent parents who have children living with them equating to between 189,119 and 207,617 children [12]. Much of the available estimates of parental substance misuse are based on such treatment cohorts, an approach which is likely to underestimate the numbers of parents whose misuse of substances may present a risk to

[2] To note, this figure will include double counting where one or more children are living in a household where both parents have an opiate dependency.

their children. Under-reporting can occur due to parents wishing to portray themselves as a 'good' parent [13] or for fear of negative consequences of disclosure [14], as well as sensitivity to stigma; all of which pose a barrier for one or both parents in accessing treatment services. Moreover, these NDTMS estimates do not include non-dependent substance misusing parents, who may not access alcohol and drug services because they do not feel their level of use warrants formal treatment [15]. The prevalence of non-dependent substance misuse is likely to be higher than that of dependent substance using parents; a pattern that is found in other substance misusing populations [16]. As such, the number of children in the UK who are significantly affected by parental substance misuse is also likely to greatly exceed current estimates.

There is a large and robust evidence for a wide range of harms to children from parental dependent drug and alcohol misuse [17, 18]. Children whose parents are dependent upon alcohol or drugs have been found to be more likely to suffer an injury as a child whose parents are not dependent upon drugs or alcohol [17, 19] and experience health problems which their parents may not respond effectively to [18]. Cognitive and language development has been reported to be delayed in children whose parents are dependent upon alcohol and drugs [20], and pre-school children have been found to have education deficits [21]. Adolescent education performance has been found to be lower amongst children whose parents are dependent upon alcohol and drugs [22]. Many factors have been highlighted as possible mechanisms which impact upon the child, these include: direct exposure to alcohol and/or drug use and to other users [17]; ineffective parenting practices and a reduction in parenting capacity brought about by the intoxicating effect of the substance and/or withdrawal from it [23, 24]; a lack of parental emotional availability and warmth [25] as well as greater likelihood of experiencing trauma such as abuse or neglect as a child [26]. Due to these harms, dependent parental alcohol and drug misuse is recognised as a substantial child protection concern [27, 28]. However, the impact of parental substance misuse upon the child is unlikely to be restricted to dependent levels of use. Far less is understood about the harms to children from non-dependent patterns of parental substance misuse.

The importance of intervening early in parental risk contexts, including alcohol and drug misuse, has been highlighted in guidance for health, social care and third sector partners [27, 29, 30]. While it is essential that specialist treatment is provided for these individuals, it is not sufficient to just target dependent substance misusing parents when intervening. The greatest impact in reducing the harm relating to substance misuse by parents at a population level can be made by targeting preventive interventions at the much larger group of non-dependent misusers; this is sometimes known as the preventive paradox [31].

Parental substance misuse occurs within the context of a family network. Such use may impact upon the parent, the child (or children) and wider family life, wherein parent-child and mother-father relationships as well as extended family members and the home environment may be affected. An intervention for a substance misusing parent will need to take account of these factors. Interventions may seek to work with the individual parent focusing upon their substance-related needs and/or ability to parent effectively. Alternatively, interventions may seek to involve the family in the parents' treatment, within couples or family therapy. An understanding of varying psychological and social approaches and their effectiveness will enable Local Authorities (LA) and their partners to address the impact of non-dependent parental substance misuse upon the child.

This review seeks to address the gaps in knowledge relating to non-dependent parental substance misuse. A significant challenge within this review was the lack of agreed and consistent definitions of substance misuse within the literature. Many of the studies apply vastly different criteria, making synthesis of findings problematic. To overcome this challenge, we agreed definitions of varying levels of substance misuse which we have applied to the original studies and synthesised accordingly. We focus upon high risk patterns of substance misuse, which include harmful levels of alcohol misuse defined as a pattern of drinking that leads to the presence of physical or psychological problems (typically over 35 units per week for women and over 50 units per week for men)[32], frequent drug misuse

(more than once per month as defined by the Crime Survey for England and Wales) and alcohol or drug abuse defined as: a maladaptive pattern of drinking/drug use, leading to clinically significant impairment or distress, as manifested by at least one related problem in a 12-month period (failure to fulfil major role obligations, use in situations in which it is physically hazardous, alcohol or drug-related legal problems, having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of alcohol or drugs) [33]. If insufficient detail was reported within the original study for the review team to confidently assess the criteria for high risk levels, we have not included these findings within the main body of the report (detailed within appendix D). Dependent use is defined as a cluster of physiological, behavioural, and cognitive phenomena in which the use of the substance takes on much higher priority for a given individual than other behaviours that once had greater value [33]. Separate work estimating the prevalence of dependent use was commissioned by PHE [12, 34] and therefore will not be included in the first element of our work (REAi). Going forward, we will refer to the substance misuse levels within all literature within the main body of the report as non-dependent parental substance misuse; denoting high risk levels.

We recognise that parental alcohol misuse is different from parental drug misuse. This difference relates to the illicit nature of drug misuse and general acceptability of alcohol use in society, particularly when consumed at low risk levels [32]. Where the source studies allow, we will separate alcohol or drug misuse findings and use the term 'parental alcohol misuse' or 'parental drug misuse'. Where referring to source studies or evidence which combine alcohol and drug misuse, we will highlight this within our findings using the term parental substance misuse. Within the tables and figures we will include further clarification relating to the specific levels reported upon within the source studies. REAii examines the evidence for psychological and social interventions and will include interventions for both dependent and non-dependent substance misusers. This decision was informed by a paucity of research examining the effectiveness of interventions for non-dependent substance misusing parents combined with the difficulty of separating substance abuse and dependence within this literature.

Substance misuse during pregnancy is not included in this report. Guidance on alcohol use in pregnancy is provided by the Chief Medical Officer following a recent review of alcohol guidelines, with clear advice that the safest approach is not to drink alcohol in pregnancy [32]. Whilst substance misuse during pregnancy can have significant adverse impacts on children and important child protection implications for health and social care, the precise physiological threshold for harm associated with substance misuse during gestation is often not clear. Moreover, there are several other challenges including: epidemiological complexities linked to ascertaining alcohol exposure at conception and during gestation; behavioural changes that can result from confirmation of an unplanned pregnancy; ethico-legal consequences of illicit drug use which affect reported behaviour; and relational difficulties of assessing and weighing up maternal (direct) and paternal (indirect) effects of substance misuse which include emotional and physiological impacts. Moreover, there are currently different statutory requirements for action regarding alcohol and illicit drug use in a pregnancy context. Thus within this complex arena, we feel this topic requires specific focus in future work.

The particular aims are to carry out a rapid but thorough search of available literature:

- To estimate the prevalence of non-dependent parental substance misuse in England
- To assess the impact of parental non-dependent substance misuse on the child
- To review the strength of evidence regarding the nature and extent of harm to the child due to non-dependent parental substance misuse
- To identify effective and cost-effective interventions to reduce parental substance misuse (including dependent use)
- To provide information to Local Authorities and their partners to help them accurately and appropriately interpret the evidence. This review is intended to inform practitioners, decision-makers and commissioners who respond to the needs of children and families. As such it will have relevance to Local Authorities, Health and third sector organisations.
- To share examples of practice from English Local Authority areas, which seeks to address the impact of parental substance misuse upon the child.

- To identify gaps in the evidence that highlight future research needs to address.

2. Methods

This study consists of two rapid evidence assessments (REA), using standard systematic review methods [35]:

REA i. Prevalence of parental non-dependent substance misuse and the impact upon the child: inclusion criteria for studies

This review is concerned with harm to the child (aged 0-18 years) from non-dependent parental alcohol and/or drug misuse. In particular, the review examines evidence from cross sectional surveys, longitudinal surveys, case-control studies and cohort studies relating to a high risk pattern of consumption or meeting formal criteria for alcohol or drug abuse. The focus upon high risk substance misuse is driven by the review aim to assist Local Authorities to respond to the needs of local vulnerable populations. Within our review, we included high risk levels of use if they were identified by a reliable, valid screening, assessment and/or diagnostic tool or where sufficient data from a quantity and frequency tool was presented to allow us to confidently identify high risk levels of use. However, as our focus is on the impact on children, we included studies with child reported measures of frequent heavy alcohol and/or drug use as well as intoxication. It should be acknowledged however that such an approach may be less reliable in accurately identifying parental substance misuse.

Harm to the child is defined as any negative health, psychological, substance use, educational or social effect. A health harm includes direct impact (e.g. brought about by accidental ingestion by the child or exposure to the substance or contaminated environments) or indirect impacts (e.g. child physical injury, health service usage, fatality); psychological harm such as internalising and externalising problems; substance use by the child includes early onset of alcohol and/or drug use, frequent use, experience of alcohol and/or drug problems; educational impact includes school attainment, punctuality, truancy or suspension and social impact includes parent-child relationship quality, family functioning and home environment, parent supervision and experience of abuse.

Levels of parental alcohol misuse, which are above the recommended low risk drinking levels [36] but below high risk levels or infrequent drug misuse (once or less per month) have been defined as 'increased risk'. This includes hazardous levels of alcohol misuse [32]. Whilst such patterns of consumption can present a risk to parents, children and the family environment, they are not the focus of this review, nor the focus of Local Authority intervention. As such, the evidence relating to the impact of increased risk parental substance misuse upon the child is detailed in appendix D of this report, for reference purposes. Studies which do not utilise a reliable measure of parental substance misuse reduce the confidence with which the level of substance misuse can be accurately assessed; these studies are also detailed within appendix D.

REA ii. The effectiveness of psychological and social interventions to reduce dependent and non-dependent parental substance misuse

This review examined the effectiveness of psychosocial interventions (secondary prevention and early or specialist treatment) to reduce dependent and non-dependent parental substance misuse. Participants were substance misusing adult parents (mothers and fathers regardless of custodial or residency status of the child), of children aged 0-18 years. Studies were included if they utilised a randomised controlled trial, controlled trial, randomised trial or have a quasi-experimental design. As this review is concerned with the effectiveness of interventions for parents, only trials of interventions delivered to the recipient(s) after the birth of the child were included, although the drug and/or alcohol misuse by the parent may have occurred during pregnancy.

Search strategy and data management

The international literature was searched using electronic databases Medline (OVID), PsychINFO (OVID), CINAHL (EBSCO), SCOPUS, Applied Social Science Index and Abstract (ProQuest), International Bibliography of Social Science (ProQuest), ProQuest Criminal Justice (ProQuest), ProQuest Social Science Journals (ProQuest), ProQuest Sociology (ProQuest), Social Service Abstracts (ProQuest), Sociological Abstracts (ProQuest). Supplemented by cross-referencing the included studies, searching the reference lists of

review articles, monitoring relevant journal alert systems and by contacting authors of identified studies. We also complemented the systematic searching of academic databases, by extensive searching of the grey literature. Due to population flux and changes in economic conditions, we restricted our search for evidence of the prevalence of parental substance misuse and the subsequent harms for the child to publications from 1998 onwards. This date was also identified due to the strategic and political change brought about by the implementation of Tackling Drugs to Build a Better Britain (1998) [37]. A date restriction was not imposed when searching for evidence of effective interventions to reduce parental substance misuse. A search strategy using mesh terms, thesaurus headings, boolean and proximity operators will be adapted for each database and implemented. An example of the search strategies for each REA is included in appendix A of this report.

The title and abstract of all papers were independently screened for relevance by two researchers. Full copies of the potentially relevant papers were assessed by two researchers independently. All relevant papers included in the review were data extracted separately by two researchers using a data extraction form developed for the reviews and quality assessed autonomously. Disagreements at each of the stages of screening, assessment and data extraction were resolved by a third researcher. In keeping with rapid review methods, studies published in languages other than English were excluded.

A relevant and appropriate methodological quality assessment tool was used to rate the studies in each REA. In REA i, methodological quality of each study included was assessed according to the criteria presented in the quality assessment tool for systematic reviews of observational studies (QATSO) [38]. This scale is based on a cumulative score across five items: external validity, reporting (two items), bias, and confounding factors. Studies achieving 67% or more in the scoring were regarded as high quality, 34-66% medium and less than 34% low quality. In REA ii, risk of bias was assessed using the Cochrane risk of bias tool [39] and categorised as low, medium or high risk of bias. Risk of bias was assessed according to risk of selection bias, allocation concealment, blinding of researchers and participants, attrition bias and reporting bias. Bias within research creates systematic error

which can affect research results and can explain variation in results between studies. The risk of bias is an important consideration when interpreting the strength of evidence.

The findings of REAi and REAii are synthesised and presented narratively. Within REAi, we identified 61 papers which met our inclusion criteria. Of these papers, 35 reported upon the prevalence of parental substance misuse within countries around the world. Due to cultural, economic and health care differences in the countries the narrative synthesis of findings reported in section 3.1 discusses seven papers, which reported prevalence rates of parental alcohol and/or drug use in the UK. This findings section is also supplemented by data from the Adult Psychiatric Morbidity Survey and Characteristics of Children in Need. Key details of prevalence data reported in studies from the UK and other European countries are reported in figure 1 and table 1, whilst studies conducted in other countries worldwide are reported in table 1 only. There were 36 papers reporting on 34 unique studies which reported on the impact of non-dependent, high-risk parental substance misuse on children. These findings are presented narratively and key data reported in figures and tables, grouped according to the type of impact: health; psychological; substance use by children; educational and social. A further 43 papers which met our criteria for increased risk parental substance misuse are included in the figures presented within the main findings section for REAi, however as increased risk substance misuse is not our focus, the narrative synthesis and findings tables relating to these studies are within the appendix. There were 38 papers reporting on 33 unique trials identified, which met the inclusion criteria for REAii. All findings are reported narratively and within findings tables, grouped according to intervention type; professional interventions delivered to the individual parent; professional interventions delivered to two or more family members; peer-delivered interventions.

A consort diagram using PRISMA reporting of identified, excluded and included studies is included in appendix B of this report.

3. Findings

REA i. Prevalence of parental substance misuse and the health, psychological, substance use, educational and social impact upon the child

The findings of this chapter are presented in both diagrammatic and narrative formats. The diagram presents all findings (both high and increased risk levels) that were identified within the review, whilst the narrative synthesis focuses upon high risk levels of alcohol and/or drug misuse. Findings are positioned within the diagram according to the level of alcohol and/or drug misuse, with the colour of the background denoting level of risk (see label). The diagrams aims to provide the reader with a sense of the size of literature finding evidence of an association between parental alcohol and/or drug misuse and harm to children. The colour of the text denotes country in which the study was conducted (black text is UK). Full references to the studies can be found in the reference list.

Figure 1: Prevalence of parental alcohol misuse in UK & Europe

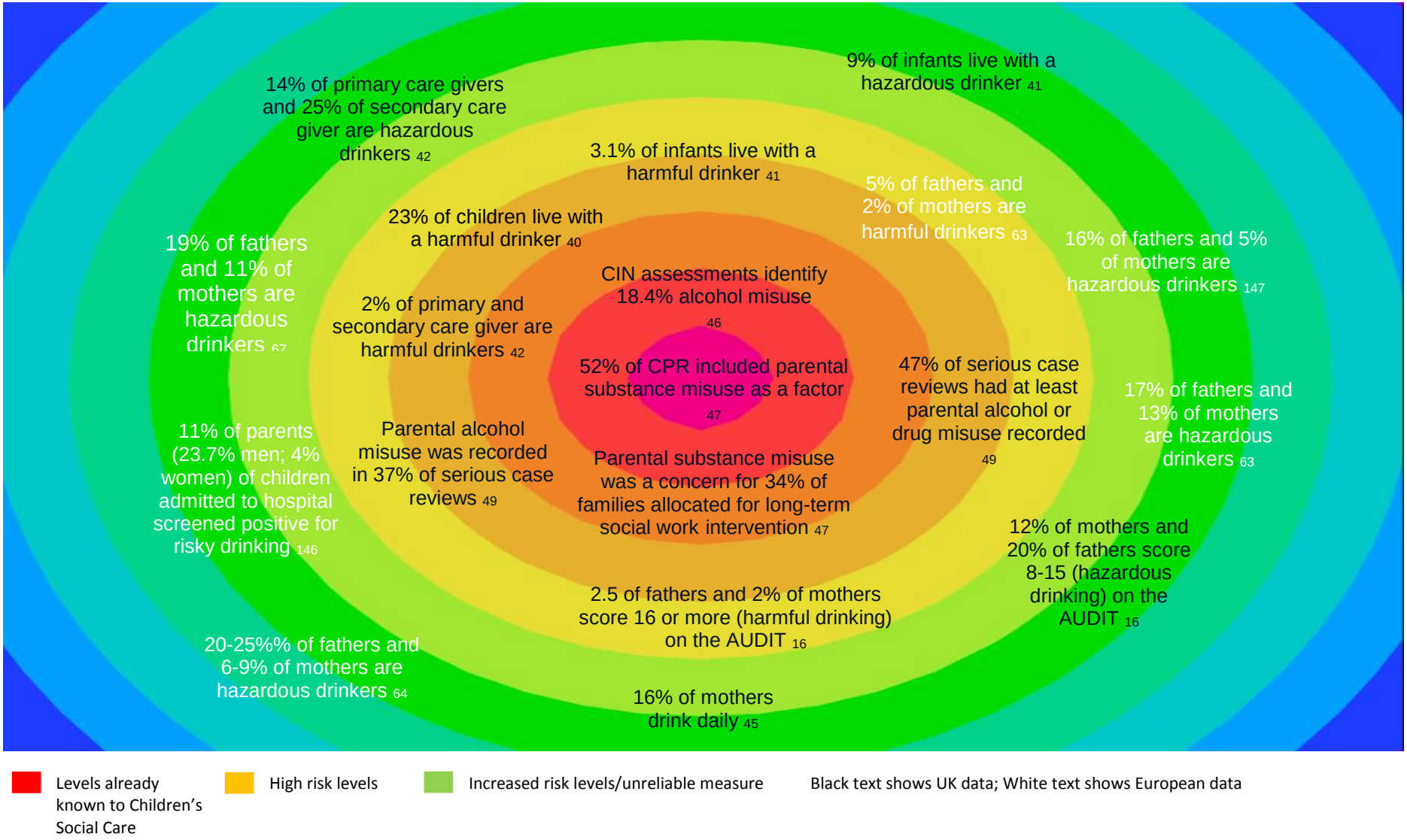
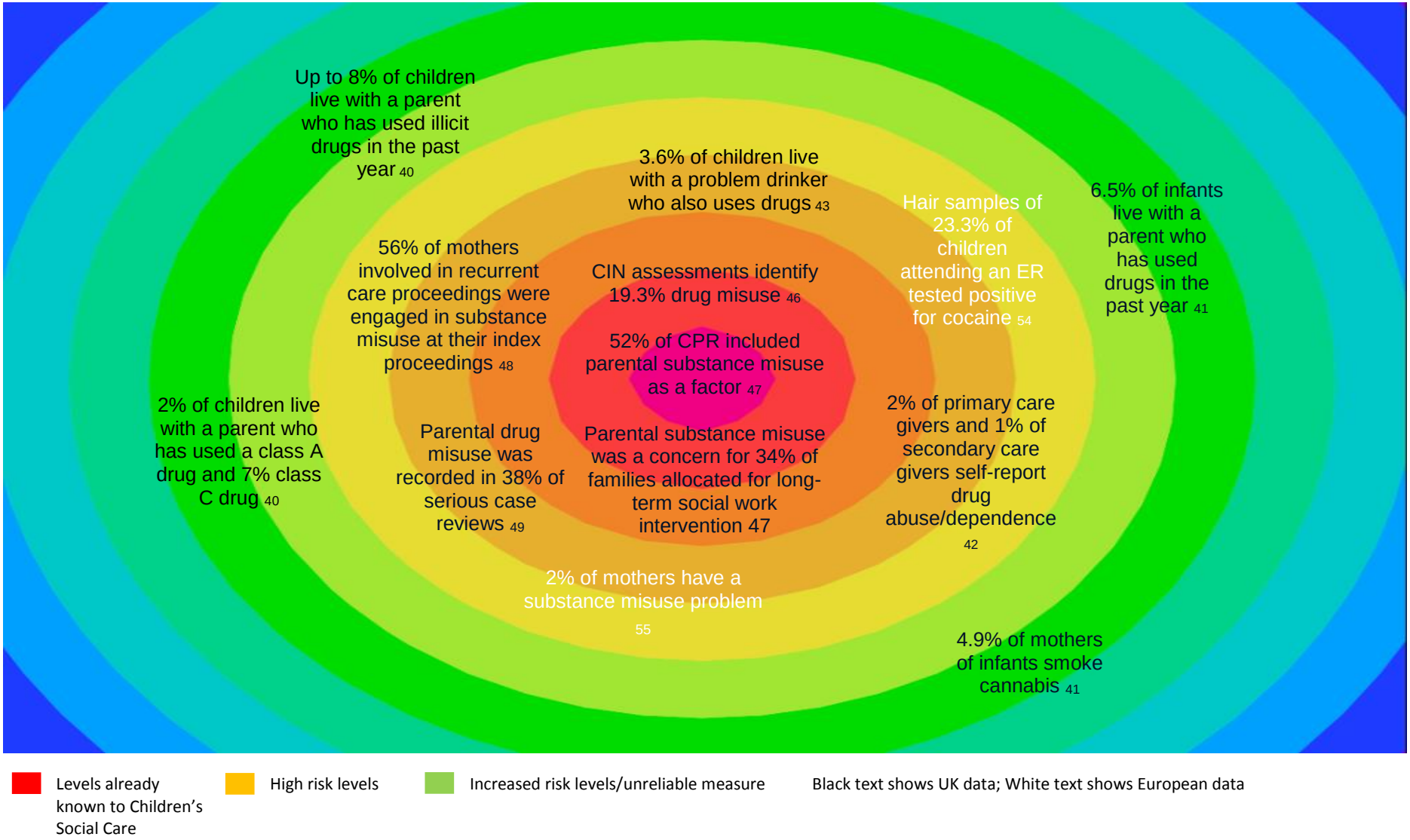


Figure 2: Prevalence of parental drug/substance misuse in UK & Europe



3.1 The prevalence of parental non-dependent substance misuse

Main findings:

- 2-4% of parents in the UK are estimated to be harmful drinkers
- 12-29% of parents in the UK are hazardous drinkers
- 3% of infants under the age of 1 year live with a harmful drinker
- 9% of infants under the age of 1 year live with a hazardous drinker
- Less is known about the prevalence of parental non-dependent illicit drug misuse
- 3.6% of children are likely to live with a parent who is a both a problem drinker and drug user
- Parental substance misuse is an identified risk factor in a large proportion of child in need assessments; 18% drug misuse and 19% alcohol misuse
- 52% of child protection cases have parental substance misuse identified as a risk factor
- 34% of cases allocated for long-term social work intervention highlighted parental substance misuse to be a significant concern
- 56% of mothers who have been involved in recurrent care proceedings were engaged in substance misuse during the index proceedings
- Parental substance misuse is recorded in 47% of all serious case reviews.

We searched for literature which reported on the prevalence of parental substance misuse, with a greater emphasis upon studies from the UK. We identified seven papers which reported upon UK prevalence and 34 papers worldwide.

Studies and data from national surveys reporting on the prevalence of parental harmful alcohol and/or drug use in the general population in the UK estimated a rate of between 2-4% and hazardous levels of up to 30%. Manning et al (2009) estimated levels of parental substance misuse based upon combined data from five national surveys and reported that

approximately 2.5% of children under the age of 16 years in the UK lived with a harmful drinker (almost 300,000 children). A further 29.1% children (almost 3.4 million) were estimated to live with one adult whose drinking pattern could at least be described as binge drinking, 8% with two binge drinkers and 4% with a lone binge drinking parent. Parental illicit drug use was reported in the past month and past year. As such, it is not possible to assess whether this use would meet the criteria for high risk, non-dependent levels. The paper however reported that 8% (up to 978,000) of children lived with an adult who had used illicit drugs within that year, 2% (up to 256,000) with a class A drug user and 7% (up to 873,000) with a class C drug user. The authors also found that 3.6% of children live with a problem drinker who also used drugs [40]. Using the data extrapolated from the National Psychiatric Morbidity Survey 2007, Manning (2011) estimated that 3.1% of infants under the age of one year old were living with a harmful drinking parent and 9.3% with a hazardous drinking parent. Furthermore, 6.7% of infants lived with a parent who had used an illicit drug in the past year; 2.6% of which was class A drug use. There were 3.1% of infants who lived with a parent who was both a problem drinker and drug user [41].

Two papers reported the findings of longitudinal studies. A survey of 721 households in Belfast asked main care givers to report upon their own substance use and that of any secondary care giver [42], using the Alcohol Use Disorder Identification Test (AUDIT) [43] and modified questions from the National Survey on Drug Use and Health Survey [44]. Ninety percent of the main care givers were female and reported 2% prevalence of harmful drinking for both themselves and the secondary care giver. Primary care giver hazardous drinking levels were 14% and 25% for secondary care giver, whilst self-reported drug abuse/dependence was 2% and 1% respectively [42]. A paper published on the Avon Longitudinal Study of Parents and Children (ALSPAC) (http://www.bristol.ac.uk/alspac/) included the prevalence of daily maternal drinking and postnatal cannabis use. Within a sample of 4159 mothers, rates of 16.4% daily alcohol use and 4.9% any cannabis use were reported [45].

The Adult Psychiatric Morbidity Survey 2014 reported that of women who have children below the age of 18 years living in their household, 1.6% scored 16 or more on the AUDIT (1.2% with a small family and 1.9% with a large family), which is suggestive of harmful drinking and 11.7% who scored 8-15 on the AUDIT (10.5% with a small family and 12.9% with a large family), which is suggestive of hazardous drinking. Further, 2.4% of men with children below the age of 18 years living in their household (2.1% with a small family and 2.6% with a large family) scored 16 or more and 19.9% scored 8-15 on the AUDIT (21.0% with a small family and 14.7% with a large family) [16].

The Characteristics of Children in Need(CIN): 2015-2016 reported national and regional data: over 570, 000 child in need assessments were conducted in 2015-2016, 18.4% of these assessments identified parental alcohol misuse as a factor and 19.3% identified parental drug misuse. There were regional differences in these rates of concern, with Inner London reporting the lowest rates of both parental alcohol misuse identified within CIN assessments (13.1%) and parental drug misuse (15.1%), and the West Midlands the highest rates of parental alcohol misuse (22.1%), as well as East England showing the highest rates of parental drug misuse (23.0%) [46]. A study of social workers' child protection case conference reports relating to 50 families in a Local Authority area within inner London reported rates of 68% of parents whose children were on the child protection register (currently referred to as being on a child protection plan) were known to use substances by the social worker. Of these, 52% were considered by the social worker to be at levels/patterns of some concern, with alcohol and heroin being the primary substances of concern [47]. A further study which reviewed cases allocated for long term social work intervention found that parental substance misuse was identified as a concern in 100 out of the 290 cases (34%) allocated to four Local Authorities in London [15]. Of these alcohol misuse only was identified as a concern in 41%, drug misuse only was identified as a concern in 32% and both alcohol and drugs were identified as a concern in 27%. Fifty-six percent of mothers who have been involved in recurrent care proceedings were engaged in substance misuse during the index proceedings [48]. Between 2011 and 2014, parental alcohol misuse was recorded in 37% of serious case reviews (local enquiry following the death or serious harm to a child where abuse or neglect are known or suspected), parental drug misuse was

recorded in 38% of reviews, with at least one of these recorded in 47% of reviews [49]. It should be noted however that data based upon social work assessment of concern does not assess level of parental substance use, but the level of concern caused by the presence of parental substance misuse. Therefore it is highly likely that these studies will include dependent parental substance misuse.

Table 1: prevalence of parental non-dependent substance misuse

Author (year)	Country	Cohort number	Findings (level of use; harmful – hazardous; mother/father/both parents)
United Kingdom (UK) and Europe			
Bjerregaard (2011) Denmark	Hospital	N=779	11% of the parents (23.7% men and 4% women) screened positive for risky alcohol behaviour
Broadhurst (2017) UK	Care proceedings	N=354	56% of mothers involved in recurrent care proceedings were engaged in substance misuse during the index proceedings
Engels (2007) Denmark	Community	N=428	19.9% of fathers and 16.1% of mothers are hazardous users
Forrester (2000) UK	CPR	*Families* N=50	68% of parents whose children were on CPR were known to use substances by the social worker. 52% were considered by the social worker to be at levels/patterns of some concern
Forrester (2006) UK	Long-term allocation	N=290 cases	34% of cases allocated for long-term social work intervention highlight parental substance misuse as a significant concern
Haugland (2013) Norway	Community	N=5032	15.6% of fathers and 4.7% of mothers are hazardous users
Haugland (2015) Norway	Community	N=2306	25.6% fathers and 8.5% of mothers reported feeling strongly intoxicated; 53.6% of fathers and 21.6% of mothers reported heavy episodic use
Heron (2013) UK	Community	N=4159	16.4% of mothers drank daily; 4.9% of mothers had smoked cannabis post-natally
Joya (2009) Spain	Hospital	N=90	23.3% of children's samples were positive for cocaine and 88% of the parents of the positive cases were also positive.
Lieb (2002) *Germany*	Community	N=2427	28% of fathers and 11.6% of mothers are alcohol abusers; 18.5% of fathers and 10.5% mothers are hazardous alcohol users
Manning (2009) UK	Community	N= 3 388 782	2.5% of children under the age of 16 years in the UK lived with a harmful drinker; 29% with at least a binge drinking adult, 8% with two binge drinkers and 4% with a lone binge drinking parent. 8% children lived with an adult who had used illicit drugs within that year, 2% with a class A drug user and 7% with a class C drug user. 3.6% of children live with a problem drinker who also uses drugs
Manning (2011) UK	Community	N=186	3.1% infants (under 1yrs) live with a harmful drinking parent, 9.3% a hazardous drinking parents 6.7% live with a parents who has used drugs in the past year (2% class A drug and 7% class C drug)
Percy (2008) Ireland	Community	N=1066	2% of primary carers and 2% of secondary carers are harmful drinkers; 2% of primary carers and 1% of secondary carers are drug abusers/dependent users; 14% of primary cares and 25% of secondary carers are hazardous user
Raitasalo (2015) Finland	Health register	N= 54 519	2% mothers identified as having a substance use problem
Sidebotham (2016) UK	Serious case reviews	N=293	Parental alcohol misuse, drug misuse or both were recorded in 47% of serious case reviews
Torvik (2011) Norway	Community	N=8984	4.5% of fathers and 2.2% of mothers are alcohol abusers; 16.5% of fathers and 12.8% of mothers are risky drinkers
Van der Zwaluw (2008) Netherlands	Community	N=428	Father's use ranged 19.4%, 22.7% and 25.5% at three time points; Mother's use 5.6%, 8.4% and 9.1%
Yang (2012) Russia	Maternity	N=10932	7.9% fathers are weekly heavy drinkers

Other countries worldwide			
Barczyk (2013) USA	Hospital	N=926	37.1% (n=257) of families had at least one parent who screened positive for risky drinking
Chan (2016) Australia	Community	N=7059	14.32% of parents in major cities were heavy drinkers, 23.8% in Inner region and 27.44% in rural Australia
Cheng (2010) USA	Child protection	N=1591	7.2% of parents assessed as having problem drinking
Freisthler (2014) USA	Community	N=3023	4% infrequent heavy (5 or more drinks monthly), 4% occasional heavy (5 or more 2-3 times/month) and 2.7% frequent heavy (5 drinks 3-5 days per week or daily)
Jeffreys (2009) Australia	Care system	N=467	Parental substance misuse was a known and significant factor in 40% of children entering care. After taking account of unidentified cases, 70% prevalence rate of concerning parental substance use in children entering care was estimated
Jester (2000) USA	Community	N=480	13% current caregivers very heavy drinkers (>28 drinks per week), 12% were heavy drinkers (14-27 drinks per week)
Lane (2007) USA	Primary Care	N=216	13.9% prevalence for parental alcohol abuse; 3.2% parental drug abuse and 15.7% for either drugs or alcohol
Lange, (2016) USA	Community	N=15,836	20.3% breastfeeding women consumed alcohol; 10.7% drank weekly; 6.5% drank more than once per week
Liu, (2015) USA	Community	N=3,397	12.8% mothers are binge drinking 1 year after delivery of child (6.8% aged 20–25; 3.3% aged 26–35; 2.7% aged 36+). When child aged 3: parents 20-25 8.4% and 8.4% in year 5 vs. age group 26–35: 5.5% in year 3 and 9.3% in year 5; age group 36+: 18.4% in year 3 and 26.6% in year 5
Maloney, (2010) USA	Community	N= 6068	Single parent family: 34% of fathers and 16% mothers are heavy drinkers; 33% fathers and 21% mothers are binge drinking at least 2-3 times/month; 21% fathers and 11% mothers binge drinking 1-2 times/week Two parent family: 33% of fathers and 15% mothers are heavy drinkers; 30% fathers and 13% mothers were binge drinking at least 2-3 times/month; 18% fathers and 7% mothers binge drinking 1-2 times/week
Maxson, (2009) New Zealand	Hospital	N=295	29% of single parent families (n=50) screened positive for risky drinking. In two parent families, 18% (n=11) both caregivers screened positive, 39% (n=24) one caregiver screened positive
Muhuri (2009) USA	Community	N=94483	2.7% mothers used cannabis 6+ days/week; 17.1% of mothers (child aged 0-2 years) were binge drinking
Schluter, (2013) USA	Community	N=2201	38.3% fathers are hazardous drinking when child is aged 1yr, 40% at age 2 & 4yrs; 3.4% mothers are hazardous drinking at 6 weeks postpartum, 16.8% at 2 years; 8.3% of families had both parents drinking harmfully at 1yr and 9.1% at 2yrs
Sharma (1999) USA	Hospital	N=193	7.8% parents screened positive for risky drinking (13 fathers and 2 mothers)
Tyler (2007) USA	Community	N=542	Nearly 8% mothers are binge drinkers
Wilson (2008) USA	Outpatient	N=879	11.5% of parents screened positive on either AUDIT (6.2%) or TWEAK (7.2%)

Figure 3: Impact of parental alcohol misuse upon child health

Figure 4: Impact of parental drug or substance misuse upon child health

3.2 The impact of non-dependent parental substance misuse upon the child

3.2.1 Physical Health Impact

Main findings:

- There is evidence that parental alcohol misuse impacts negatively upon child health. There is less evidence relating to parental drug misuse.
- Children whose mothers' have a history of alcohol misuse are twice as likely to suffer a long bone fracture
- Children whose mothers' have a recent history of alcohol misuse are five times as likely to suffer an accidental medicinal poisoning
- Children whose parents are alcohol and drug misusers are more likely to be hospitalised or attend paediatric outpatient appointments
- Poor dental hygiene, toothache and tooth decay are associated with fathers' substance use disorders in sons

We reviewed evidence of the impact of non-dependent parental substance misuse upon child health, searching for literature which examined both direct impact (e.g. brought about by accidental ingestion by the child or exposure to the substance or contaminated environments) or indirect impacts (e.g. child physical injury, health service usage, fatality). We identified eight papers which met the inclusion criteria.

Impact of parental alcohol misuse

Baker et al (2014) and Tyrrell et al (2012) conducted large UK population-based matched nested case–control studies investigating the association between maternal alcohol misuse and other risk factors for accidental child injury aged 0-5 years. Baker et al (2014) examined the association between maternal alcohol misuse and the first long-bone fractures in children [50], whilst Tyrrell et al (2012) examined risk of medicinal and non-medicinal

poisoning [51]. Study participants were drawn from children registered with General Practitioners in the UK and whose records were linked to their mother's primary care records. Maternal alcohol misuse was determined if present in the mother's care records prior to the child's injury. Both studies found direct and statistically significant associations between maternal alcohol misuse and child injury. Children whose mother's medical record showed a history of alcohol misuse were found to have a twofold higher odds of long bone fracture (OR 2.33, 95% CI 1.13 to 4.82, $p< 0.05$) [50] when compared to those without a record for alcohol misuse, although the odds of injury relating to harmful levels of maternal alcohol use may be underestimated in this study as the authors included both hazardous and harmful levels of consumption as a single measure of alcohol misuse within the analysis. Problematic maternal alcohol use within the mother's medical records (identified through codes indicating problematic alcohol use, frequent high levels, adverse health outcomes due to alcohol and treatment for alcohol addiction) was significantly associated with child medicinal poisoning. This association was greatest in mothers with problematic alcohol misuse recorded within the last year, wherein there was a fivefold higher odds of medicinal poisoning in children (OR 5.44, 95% CI 1.99 to 14.91, $p< 0.01$) [51] compared to those without a record of maternal problematic alcohol use. Maternal alcohol misuse was not found to be significantly associated with non-medicinal poisoning in children.

Two US papers reported on studies which examined the impact of parental alcohol abuse and/or dependency upon sleep in children [52, 53]. These studies of small samples sizes of 30 [53] and 49 [52] healthy adolescents showed no signs of sleep disruption in children whose parents had a history of alcohol abuse and/or dependency compared to those whose parents did not.

Impact of parental drug misuse

One paper reported on the impact of exposure of children aged 18 months to 5 years to cocaine. Hair samples of children attending an emergency paediatric department in Spain were taken to determine exposure to second hand smoke, accidental ingestion, and contact with users and contaminated surfaces [54]. The study reported that a significantly higher

proportion of cocaine exposed children presented with a weight under the 10th percentile (11.8% of exposed children compared to 1.6% of unexposed children). Given the small sample size of 90 children (21 of which were cocaine exposed) and methodological issues, caution must be used when considering these results.

Impact of parental substance misuse

Raitasalo et al (2015) conducted a large retrospective population study based on Finnish health care registers [55]. Biological mother and child entries were linked, enabling examination of the association between maternal substance abuse (identified via health records) and child hospitalisation due to injury or illness. The authors found that children of substance abusing mothers were hospitalised due to injury or illness significantly more frequently than children whose mothers did not abuse substances. Sixty four percent of children with a substance-abusing mother and 37% of children in the comparison group had been hospitalised during the study period (OR = 1.79, 95% CI 1.58–2.03, $p < 0.0001$). The number of inpatient care episodes per 1000 children was almost double in the group of children with substance-abusing mothers to that of the comparison group (2117 versus and 1184). The combined use of alcohol and drugs increased the odds of hospitalisation approximately twofold for all categories of illness and injury. Further, children whose mothers were substance abusers tended to stay in hospital for longer than children of mothers who did not abuse substances (mean length of each inpatient episode: 3.3 days versus 2.4 days, p(t) < 0.0001).

Cornelius et al (2004) examined the impact of paternal substance use disorders (SUDs) upon the dental health of 385 boys. The fathers in the US study met the DSM III criteria for cannabis use disorder (63.0%), cocaine use disorder (38.4%), opioid use disorder (26.0%), amphetamine use disorder (24.7%), sedative use disorder (13.7%), hallucinogen use disorder (5.5%), and phencyclidine (PCP) use disorder (5.5%). An alcohol use disorder was also noted in 86.3% of these fathers. Sons of fathers with SUD were found to be significantly more likely to experience poor dental health than sons of fathers without SUD and more likely to have a range of dental health problems [56]. At recruitment into the study (aged

10-12 years) these children were less likely to regularly brush than children whose fathers did not have SUD (FET = 11.30, *p*=.005) and at follow-up were more likely to have current dental problems (OR 1.84, *p*=0.004), to suffer toothache (OR 3.23, *p*=0.020) and to have had pain in their teeth or gums in the last 3 months (OR 1.89, *p*=0.008). Paternal SUD was also found to be significantly associated with the child needing dental care at the time of study follow-up (OR 1.75 P=.022), however sons of fathers with SUD were less than half (OR 0.48, *p*=.014) as likely to feel that they received necessary dental care.

Greater health and dental care needs and lower healthcare service usage of children entering care due to parental substance misuse was reported in a study conducted in South Australia. This particularly vulnerable group of children were also found to have sub-optimal diets and hygiene issues. Children within this cohort were found to be at risk of physical injury, notably when exposed to domestic violence [57]. This study was however limited by a small sample size, preventing statistical testing. Furthermore, the study relied upon details recorded in Department of Children and Families case files and did not utilise a validated measure of parental substance misuse or harm experienced by the child.

Table 2: Health Impact

Author, date, country	Cohort number	Age of child participants	Measure of parental use	Health harm	Evidence	Study quality
Baker (2015) UK	N=26,117	Birth-5yrs	Medical records documenting maternal problem alc use.	Long-bone fracture	OR 2.33, 95% CI 1.13 to 4.82, p< 0.05	High
Cornelius (2004) USA	N=385	10-16yrs	Fathers were considered to have had a substance use disorder if they met lifetime *DSM-III-R* criteria for any substance abuse disorder or any substance dependence disorder other than those for nicotine or caffeine	Dental abnormalities in sons: a) dental problems, b) toothache, c) pain d) needing dental care	a) OR 1.84, p=0.004; b) OR 3.23, p=0.020; c) OR 1.89, p=0.008; d) OR 1.75 P=.022;	Low
Jeffreys (2009) Australia	N=99	<12 months-15yrs	Social work assessment of problem use	Diet, dental hygiene and healthcare usage	No statistical analysis conducted	Low
Joya (2009) Spain	N=90	18 months-5yrs	Child hair tested for cocaine exposure	Child low weight (under the 10th percentile).	11.8% of exposed children vs 1.6% of unexposed children	Low
Raitasalo (2015) Finland	N=54,519	0-7yrs	Mothers with register entries related to substance abuse in the period 1998–2009 were defined as having a substance abuse problem.	Maternal substance abuse and child hospitalised	Unadjusted OR=1.79, 95% CI= 1.58-2.03, p<0.0001	High
Tarokh (2010) USA	N=30	9-10yrs	DSM-IV criteria applied in parental interviews (with both parents when available)	Sleep disturbance	NS	Low
Tarokh (2012) USA	N=48	Cohort 1; 9-10yrs Cohort 2; 15-16yrs	DSM-IV criteria applied in parental interviews (with both parents when available)	Sleep disturbance	NS	Low
Tyrrell (2012) UK	N=19,528	0 -≥ 37 months	Read Codes indicating problematic drinking, frequent high levels of alc intake, adverse health outcomes due to alc, or specific treatment for alc addiction	Medicinal position ≤year before injury	OR= 5.44, CI=1.99-14.91	High

Figure 5: Psychological impact of parental alcohol misuse upon children

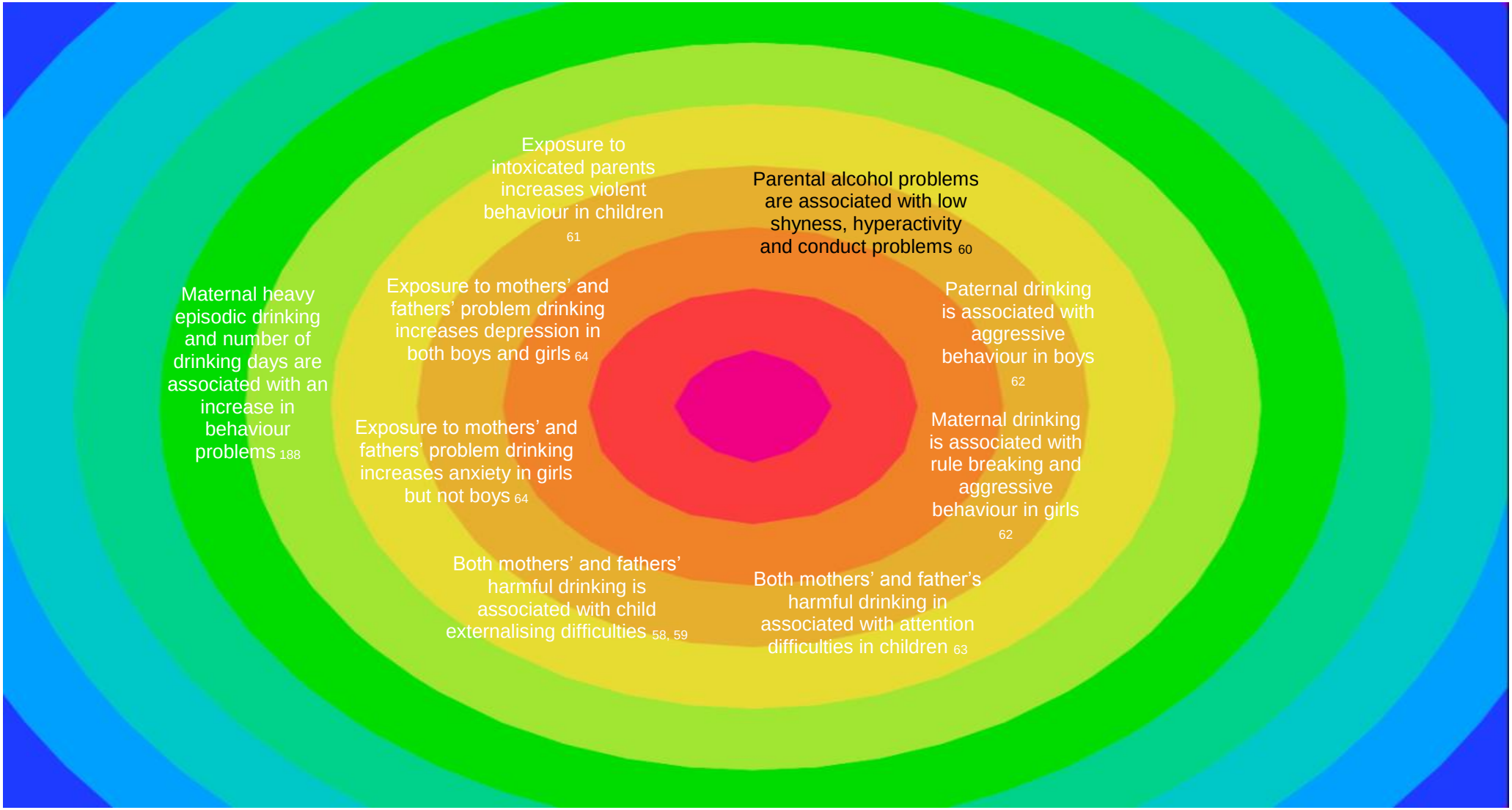
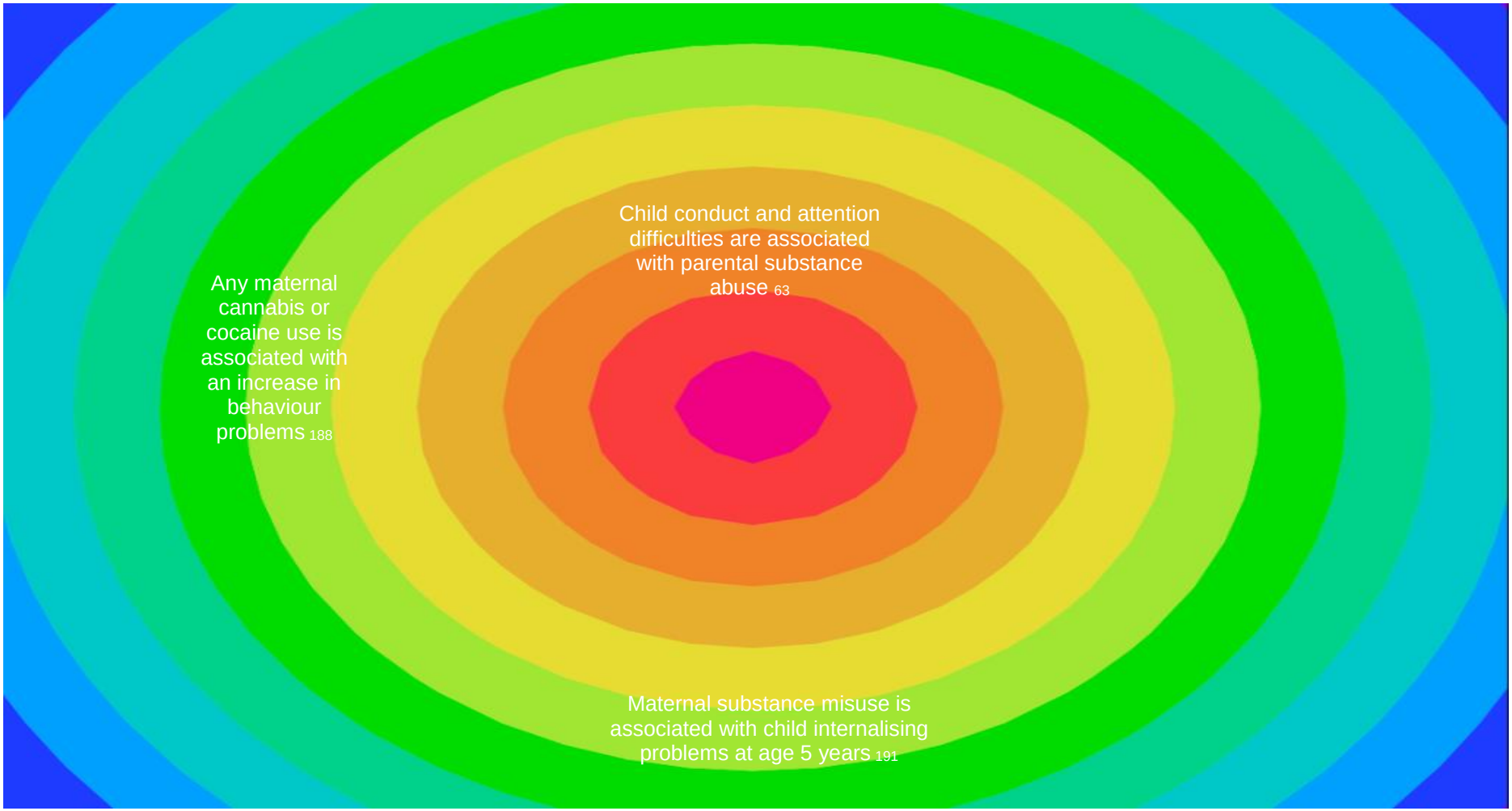


Figure 6: Psychological impact of parental drug or substance misuse upon children



3.2.2 Psychological impact

Main findings:

- There is evidence that parental alcohol misuse impacts negatively upon child psychological health
- In particular, association between parental alcohol misuse and externalising difficulties
- Less evidence for an association between parental alcohol and/or drug misuse and internalising difficulties such as depression or anxiety

We reviewed evidence of the impact of non-dependent parental substance misuse upon child psychological well-being, searching for literature which examined both internalising (difficulties which are directed inwards within the individual e.g. depression, anxiety, eating disorders) and externalising problems (problem behaviours that are directed toward the external environment including physical aggression, disobeying rules and antisocial and offending behaviours). We identified nine papers which examined the impact of non-dependent parental substance misuse upon psychological well-being in children.

Impact of parental alcohol misuse

Four papers reporting on three unique studies reported significant associations between parental alcohol misuse and externalising problems [58-61]; one of which was a study conducted in the UK [60]. Malone et al conducted two linked studies in the US; one regarding the impact upon the psychological health of the child of alcohol consumption by the father [58] and another about the impact of alcohol consumption of the mother [59]. Using a measure of the maximum alcohol consumption ever consumed in a 24 hour period to identify harmful levels, these studies found that both maternal and paternal alcohol misuse was associated with externalising disorders. Paternal and maternal alcohol misuse was found to be particularly associated with conduct disorder, oppositional defiant disorder (ODD) and any defiant disorder; with the exception of maternal alcohol misuse and male

children's experience of ODD, which was found to be insignificant. Importantly, all effects were consistent after controlling for alcohol dependence. Both maternal and paternal alcohol problems were found to have a modest and significant direct association with low shyness, hyperactivity, and conduct problems in childhood and early adolescence as well as delinquent behaviour in UK children at age 15 [60]. Maternal drinking was found to be significantly associated with rule breaking (β = -0.09, $p< 0.01$) and aggressive behaviour (β = 0.25, $p< 0.05$) in girls but not in boys. Paternal drinking was found to be significantly associated with aggressive behaviour in boys (β = 0.26, $p< 0.05$), but not girls [62]. In addition, frequent exposure to intoxicated parents was shown to be associated with violent behaviour in children aged 13-19 years [61].

There were mixed findings relating to attention difficulties in the children of harmful alcohol users. In Malone et al's large longitudinal studies neither maternal nor paternal alcohol misuse were found to be associated with attention deficit hyperactivity disorder (ADHD) in children [58, 59]. Whilst in contrast a large Norwegian longitudinal study found parental, particularly maternal, alcohol abuse to be associated with attention difficulties [63]. It should be noted that these difficulties were below diagnostic thresholds and not suggestive of a disorder.

There was limited evidence of a significant association between maternal or paternal harmful alcohol use and internalising disorders in children. Whilst one study found a significant association between fathers' high risk alcohol use, this association was lost after controlling for parental alcohol dependence [58], no association was found between mothers' alcohol misuse and depression in children. In a further study both paternal and maternal high risk alcohol misuse were related to depression ($r = .18$, $p < .001$; $r = .19$, $p < .001$, respectively) and anxiety ($r = .13$, $p < .01$; $r = .13$, $p < .01$, respectively) for girls but not for boys [64]. The moderating effect of parent-child communication on predicting depression from paternal problem drinking was considered. Significant and direct interactions were found between paternal problem drinking and adolescent–father communication problems (β = –.16, $p < .05$) and between paternal problem drinking and

adolescent–mother communication problems (β = –.16, $p < .05$) for girls. The interaction model was not significant for boys. Whilst open communication was found to be protective of psychological adjustment with significant interactions being found between paternal problem drinking and adolescent–father open communication problems (β = –.14, $p < .05$) and between paternal problem drinking and adolescent–mother open communication (β = –.16, $p < .05$) for girls. This moderating effect of parent-child communication on maternal alcohol consumption predicting adolescent depression was significant.

A child's exposure to parental intoxication has been found to be negatively and significantly associated with children's resilience and in turn, low levels of resilience were found to be significantly and indirectly associated with internalising and externalising disorders. In a small cohort study of Korean school children aged 12-16 years, parental harmful drinking was found to be directly and significantly associated with both internalising and externalising disorders [65]. When controlling for resilience in children, the study found that parental harmful drinking was significantly and positively associated with both internalising and externalising behaviours. The effect was found to be stronger upon internalising problems. Resilience levels were found to have a moderating effect, particularly on externalising problems. At low levels of resilience the association between parental alcohol use and externalising behaviours were found to be significant. At average levels of resilience, there remained an association but this was non-significant. At high levels of resilience no association was found. At both low and average levels of resilience a significant relationship was found between parental drinking and internalising behaviours. Only high levels of resilience were found not to be significantly associated.

Table 3: Psychological impact upon children – Externalising problems

Author, date, country	Cohort number	Age of child participants	Measure of parental use	health harm	Evidence	Study quality
Finan (2012) USA *Linked to Ohannessian (2013)*	N=492	Mean 16.15yrs	Child report - SMAST	Maternal drinking: a) rule breaking in girls, b) aggressive behaviour in girls c) rule breaking in boys, d) aggressive behaviour in boys, Paternal drinking: e) child aggressive behaviour, f) rule breaking in girls, g) aggressive behaviour in girls, h) rule breaking in boys i) aggressive behaviour in boys	Unadjusted: a) β=0.40, p<0.001; b) β=0.25, p<0.01; c) NS; d) NS; e) NS; f) β=0.26, p<0.05; g) NS; h) NS; i) β=0.26, p<0.01;	High
Kendler (2013) UK	N=4231	Birth - 12yrs	Abuse/dependence	Maternal alc probs: a) child conduct difficulties 42 months b) child hyper-activity 42 months, c) child conduct symptoms 13 yrs d) antisocial behaviour at 15 yrs, Paternal alc probs: e) child conduct difficulties 42 months, f) child hyper-activity 42 months, g) child conduct symptoms 13 yrs, h) antisocial behaviour at 15 yrs	a)) NS; b NS; c) NS; d) NS; e) NS; f) β=0.060, SE= 0.020, p<0.01; g) NS h) β=0.131, SE=0.027, p<0.0001;	High
Lee (2008) Korea	N=482	12-16yrs	Child report - CAST	Externalising behaviour	β= -0.22, SE = 0.081 and t= -2.67, p<0.01	medium
Malone (2002) USA *Linked to Malone* 2010	N=2766	13-16yrs	Max alc consumption ever consumed in 24 hr	Paternal alc misuse: a) conduct disorder, b) oppositional defiant disorder c) ADHD, d) any disruptive disorder	a) OR= 1.65, CI=1.21-2.25, p<0.01; b) OR=1.25, CI=0.98-1.60, p=NS; c) OR= 1.17, CI=0.85-1.62, p=NS; d) OR+ 1.35, CI=1.09-1.68, p<0.01;	High
Malone (2010) USA *Linked to Malone (2002)*	N=2766	17yrs	Max alc consumption ever consumed in 24 hr	Maternal alc misuse: e) attention deficit hyperactivity disorder, f) oppositional defiant disorder, g) conduct disorder, h) disruptive disorder	e) NS, f) significant (for females only), g) significant, h) significant	High
Rossow (1999) Norway	N=10839	12-20yrs	Child report – frequency of parental intoxication (several times a week/month considered wet)	Violence	Significant direct association	Medium

Torvik (2011) Norway	N=8984	13-19yrs	Parental alc use measured using CAGE. Adolescents were also asked if they had seen their parent drunk and the frequency of this (never to a few times per week)	Maternal sub abuse: a) attention difficulties, b) conduct problems Paternal sub abuse: c) attention difficulties d) conduct	a) d=0.27, 95% CI=0.06-0.49, p<0.05; b) d=0.27, 95% CI= 0.07-0.48, P<0.01; c) d=0.21, 95% CI=0.05-0.36, P<0.01; d) d= 0.18, 95% CI=0.01-0.34, P<0.05	High

Table 4: Psychological impact upon children – Internalising difficulties

Author, year	**Cohort number**	**Age of child participants**	**Measure of parental use**	**Health harm**	**Evidence**	**Study quality**
Lee (2008) Korea	N-482	12-16yrs	Child report – CAST	Internalising behaviours	β= -0.21, SE = 0.104 and t= -2.07, p<0.05	Medium
Malone (2002) *linked to Malone (2010)*	N=2766	13-17yrs	Assesses paternal max alc consumption ever consumed in 24 hr period	Depression	OR=1.07, CI=0.71-1.60, p=NS	High
Malone (2010) USA	N=2766	17yrs	Assesses maternal max alc consumption ever consumed in 24 hr period	Major depression	Forest plot provided but no precise data: NS	High
Ohannessian (2013) USA *Linked to Finan (2012)*	N=1001	Mean=16.09yrs	Child report – SMAST	Paternal alc. use mediated by parent-child communication: a) depression in boys, b) depression in girls Maternal alc. use mediated by parent-child communication: c) depression in boys, d) depression in girls	a)$F(5,233) = 4.24$, $p < .01$,$R_2=.28$, b) $F(5,289) = 11.36$ $p < .001$, $R_2 = .27$ c) $F(5,231) = 4.17$, $p < .01$, $R_2=.27$, and d) $F(5,288) = 10.81$, $p < .001$, $R_2=.27$	Medium

Figure 7: Impact of maternal alcohol misuse upon children's substance use

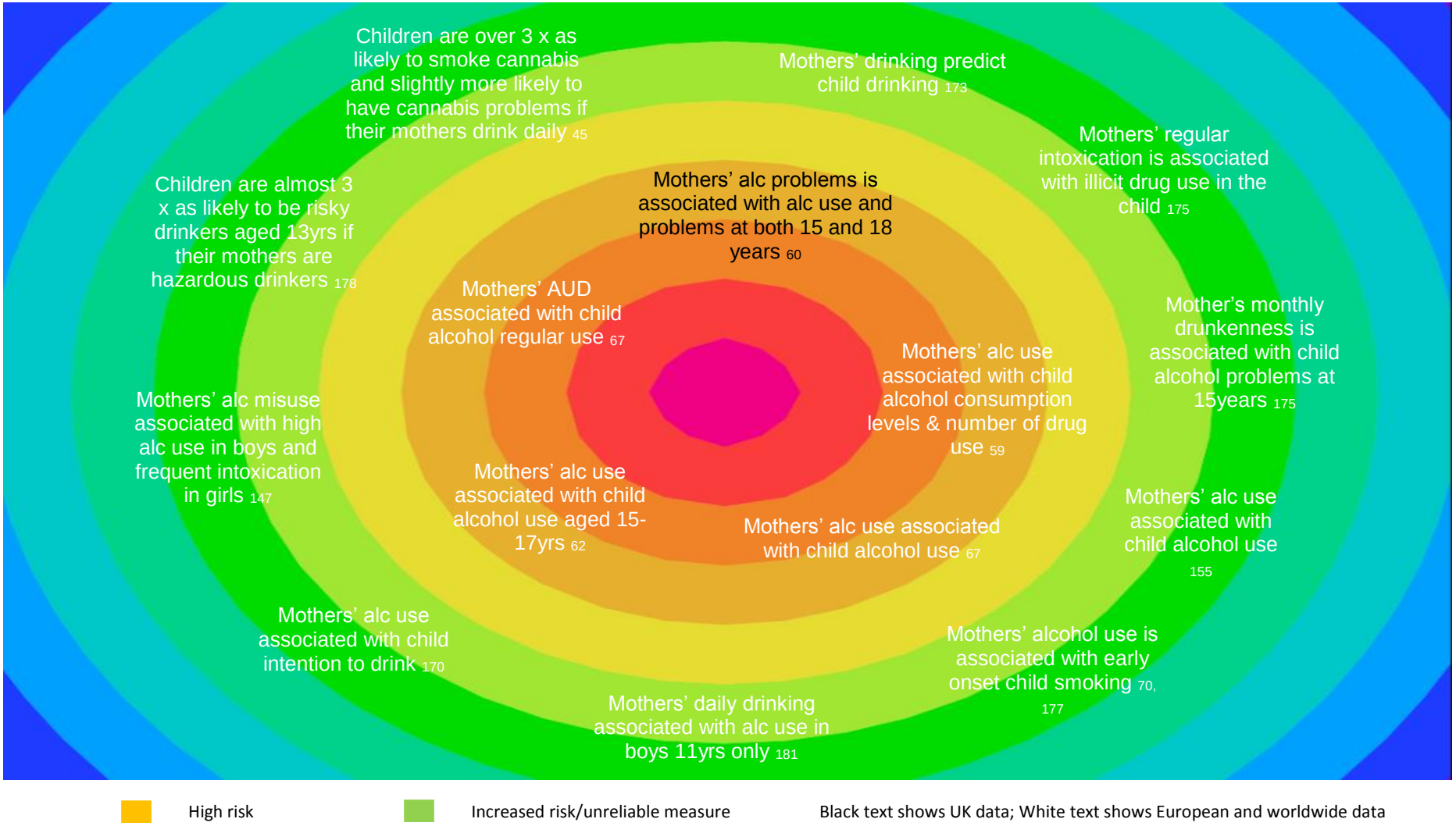


Figure 8: Impact of paternal alcohol misuse upon children's substance use

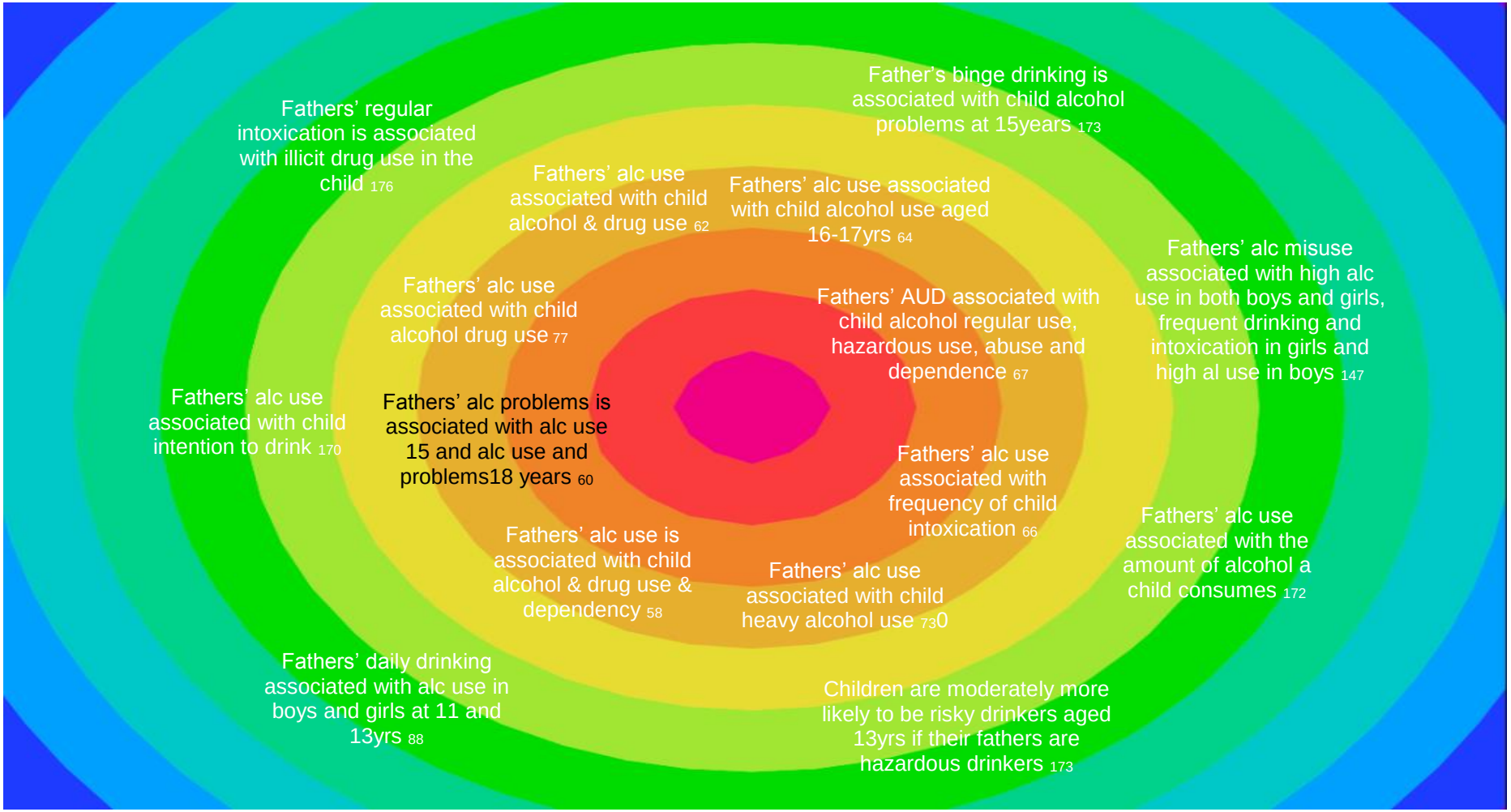
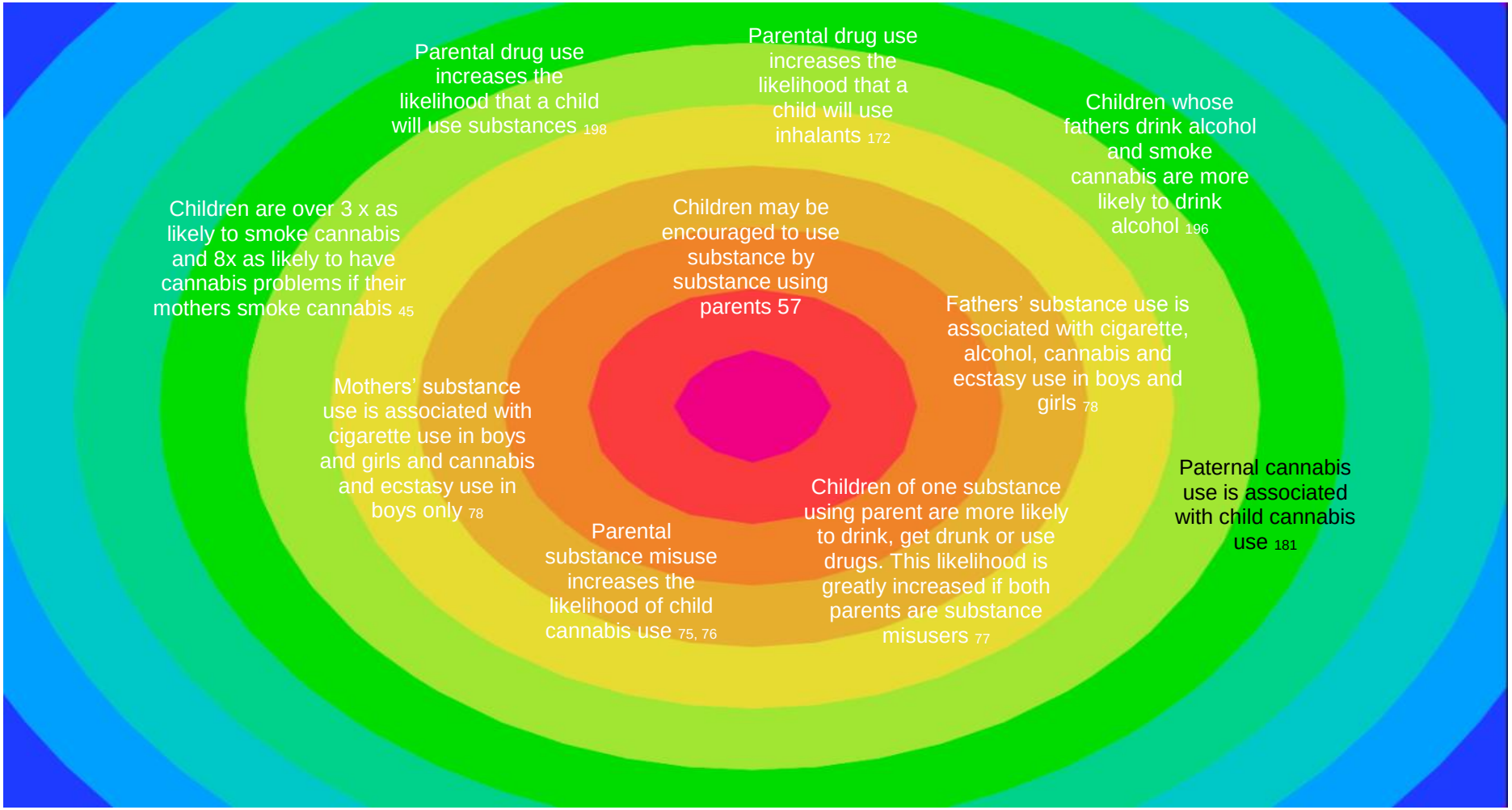


Figure 9: Impact of parental drug or substance misuse upon children's substance use



3.2.3 Impact upon children's substance use/misuse

Main findings:

- Strong evidence that parental substance misuse impacts upon substance misuse in children
- Parental alcohol and drug misuse increase the likelihood that their children will use substances, use regularly and experience substance problems
- If both parents are substance misusers, the likelihood that their children will use/misuse substances is greater

We reviewed evidence of the impact of non-dependent parental substance misuse upon substance misuse by children, searching for literature which examined onset, frequency, levels of intoxication and problematic use. We identified 19 papers which met the inclusion criteria.

Impact of parental alcohol misuse

There is convincing evidence that parental alcohol misuse influences children's own substance use, with all nine included studies reporting a significant association [58-60, 66-71]; one of which was conducted in the UK [60]. One study examined the association between parental alcohol misuse and early onset adolescent drinking [71]. Whilst maternal and paternal alcohol use uniquely contributed to early onset adolescent use, only the mothers' ($p< 0.05$) and not the fathers' ($P< 0.06$) alcohol use was significant. Child exposure to parental intoxication was significantly associated with early alcohol use in children, and partially mediated by the mothers' alcohol use (indirect effect $\beta = 0.8$, $p< 0.05$). Whilst mothers' and fathers' alcohol misuse were associated with child alcohol intoxication [61, 72]. A further three studies considered the impact of parental harmful drinking and child substance use, finding a significant and direct association between parental alcohol misuse and child substance use [58, 59, 72]. One study found that maternal and paternal alcohol

misuse correlated positively, but marginally with adolescents' alcohol consumption (.02 ≤ r ≤ .19) [68] and a further small study of American Indian families found two-parent households where only one parent had an alcohol problem did not significantly increase the likelihood of children's alcohol use; significant associations were only present when both parents had a diagnosed alcohol problem [69]. Indeed, having two parents who are harmful alcohol users significantly increased this risk compared to those with no harmful drinking parents (Cumulative OR = 2.88; 95% CI = 1.83-4.53).

Some of the studies disagreed as to whether the mothers' or fathers' alcohol use had the greatest effect upon child alcohol and/or drug use. One study found that intergenerational transmission of alcohol use disorders was not significant between mothers and children (OR = 0.71; 95% CI 0.15-3.37; *p*=0.67) or fathers and children (OR = 1.49; 95% CI 0.50-4.42; *p*=0.47) [73]. Whilst a further study found paternal alcohol misuse a robust predictor of alcohol use in children [74]. Cranford et al (2010) reported that whilst both mothers' and fathers' alcohol misuse was significantly associated with adolescent sons' drinking, mothers' alcohol use was positively related to the number of adolescent sons' drinking days with a small effect (β=1.03, $p< 0.05$), but not frequency of intoxication. Fathers' alcohol use however was significantly associated with adolescent sons' frequency of intoxication, with larger effect (β=3.35, $p< 0.05$) but not the number of drinking days [66]. This parent-child modelling of drinking patterns was also reported by Jennison (2014) who found that sons of problem drinking fathers, compared with sons of non-problem drinking fathers, were nearly three times more likely to model their drinking after their fathers (adjusted odds ratio: 2.79, 95% Cl: 1.72–4.53). This study did not report on the impact of daughters however. Paternal alcohol misuse has found to be predictive of both alcohol use [62, 64] and drugs use by children [62]. Whilst maternal drinking was found to be directly associated with child alcohol use in one study [62], but not in another [64]. Studies have also shown an increased risk of developing hazardous alcohol and dependent patterns of alcohol use in the children of harmful alcohol users. Indeed both alcohol consumption and alcohol problems at aged 15 years were found to be positively and significantly related to both maternal and paternal alcohol problems, an affect that was also found at hazardous levels of parental drinking [60]. A further study found a strong effect for the transition of children's use to hazardous use,

alcohol abuse and dependence [67]. Mothers alcohol use (cumulative OR = 1.65; 95% CI=1.17-2.32) and fathers alcohol use (cumulative OR = 1.65; 95% CI = 1.05-1.73) were found to be positively and significantly associated with increased risk categories in children. Maternal history was associated with a higher probability of progression from occasional to regular use, whereas paternal history was associated with progression from regular to hazardous use. Paternal alcoholism increased the risk for first onset of hazardous use and alcohol dependence between the ages of 14-17, and for an earlier onset of the alcohol outcomes in offspring.

Some studies have found varying effect of parental alcohol misuse depending upon the gender of the child. Parents' alcohol misuse was significantly associated with weekly drinking in boys (OR=2.2; 95% CI=1.6-3.0) but not girls, unless they had been exposed to high frequency parental drinking [72]. Whilst both boys and girls of alcohol misusing parents were significantly more likely to report other substance use behaviours than those children whose parents do not misuse alcohol, boys in particular reported effect (drinking to intoxication: OR=3.7; 95% CI=2.7-5.1 compared to OR=2.0; 95% CI=1.5-2.6; experiment with drugs: OR=2.6; 95% CI=1.7-3.9 compared to OR=1.6; 95% CI=1.1-2.2).

Impact of parental drug misuse

A history of familial substance-use disorder contributed significantly to an increased risk of trying cannabis in early adolescence, and also to the risk of becoming a "regular" user (COR=1.54; 95% CI 1.18-2.00; *p*= 0.001) [75]. Such familial history may include family members other than the parents. Indeed siblings who used cannabis, as well as parents, have been shown to increase the likelihood of child cannabis use [76]. Whilst these studies do not analyse the association by gender of the caregiver, a further study found significant associations between exposure to maternal drug use disorders and the development of a drug use disorder in children (OR= 7.04; *p*= 0.03), but not paternal drug use disorders [73].

Few studies examined the impact of parental drug use other than cannabis upon the substance use of children. Delaney-Black et al (2011) included analysis of current caregiver cocaine use. This study found that in univariate analysis children aged 14 years were significantly more likely to use cocaine if the caregiver was a current cocaine user (p<0.001). After controlling for important covariates including prenatal exposure to parental cocaine use, child cocaine use remained uniquely associated with current caregiver cocaine use (p<0.001). A review of case files of children entering care due to parental substance misuse reported that some children were encouraged to engage in substance use by their substance using parents or those in their substance using networks [57], however no statistical evidence was presented to support this claim. As such, this finding should be considered critically.

Impact of parental substance misuse

Two papers, including one conducted within the UK [77], reported on parental alcohol and/or drug use and found significant direct associations with the substance use of children, including: alcohol use [77, 78]; frequent alcohol intoxication [77]; and use of illicit drugs with the exception of inhalant use [77, 78]. Having two parents who misused substances was highlighted as being particularly predictive of adolescent substance use, with regular alcohol use being almost four times as likely (OR=3.83, 95% CI= 1.65-8.89, p< 0.01) and past year illicit drug use almost six times as likely (OR=5.90, 95% CI=2.54-13.07, p<0.001) as adolescents whose parents do not misuse substances [77]. Both mothers' and fathers' substance misuse was significantly associated with both boys' and girls' [77, 78], although there was some variability between these papers. Keeley et al (2015) reported that the impact of parental substance misuse upon children was not significantly different according to the gender of the parent or the child [77]. A study by Shorey et al (2013) found that paternal substance misuse was more important in predicting use of a range of substances in both boys and girls. This study found statistically significant associations between paternal substance misuse and all licit and illicit measures of child substance use except lifetime inhalant use, for both boys and girls. Maternal substance misuse was associated with fewer types of substances. These were: cigarette and illicit prescribed drug use for both boys and girls; alcohol use in girls and cannabis and ecstasy use in boys. Much of the impact of

maternal substance misuse was mediated by maternal closeness to the child, particularly when considering adolescent alcohol use, whilst the impact of paternal substance misuse was mediated by parental monitoring. Effective monitoring being when a parent is aware of a child's activities both in and outside of the home.

Table 5: Impact of mothers' substance misuse upon children's substance use

Author, year	Cohort number	Age of child participants	Measure of parental use	Health harm	Evidence	Study quality
Cranford (2010) USA	N=259	9-11yrs, 12-14yrs and 15-17yrs	SMAST	Maternal AUD: a) any drinking, b) no. of drinking days, c) any intoxication, d) no. of times intoxicated	NS	Medium
Finan (2015) USA	N=492	Mean=16.15yrs	Child report- SMAST	Maternal alc use: a) alc use; b) alc in girls, e) drug use in girls, f) binge drinking in girls, g) alc in boys, h) drug use in boys, i) binge drinking in boys	a) β=0.14, p<0.05; d)NS; e) β=0.15, p< 0.001; f) NS; g) β=0.14, p<0.01; h) NS; i) NS;	High
Kendler (2013) UK	N=4231	Birth-12yrs	Abuse/dependence	Maternal alc use: a) alc use at 15 b) alc problems at 15 years, c) alc use at 18 years, d) alc problems at 18 years	a) β=0.127, SE= 0.030, p<0.0001; b) β=0.119, SE= 0.029, p<0.0001; c) β=0.085, SE=0.032, p<0.01; d) β=0.088, SE= 0.031, p<0.01;	High
Kerr (2012) USA	N=125	13yrs	Alc problems were measured using a seven-item scale (e.g., "Have you ever thrown up from drinking?", "Have you been drunk in a public place?")	Mother's alc use and child early alc use	β = .20, p<0.05;	Medium
Lieb (2002) Germany	N=2427	14-24yrs	M-CIDI	Maternal AUD: a) occasional alc use, b) regular alc use, c) hazardous alc use, d) alc abuse, e) alc dependence	a) NS; b) COR=1.76, CI=1.16-2.65, p<0.05; c) NS; d) NS; e) NS;	High
Malone (2010) USA	N= 2766	17yrs	Assesses maternal max alc consumption ever consumed in 24 hr period	Maternal alc use: a) number of drugs younger cohort, b) number of drugs older cohort, c) max alc. consumption younger cohort, d) max alc. consumption older cohort	a) β= 0.231, CI=0.102-0.360, p<0.001; b) β= 0.225, CI=0.130-0.320, p<0.001; c) β= 0.195, CI=0.114- 0.276, p<0.001; d) β= 0.239, CI=0.155-0.323, p<0.001;	High
Ohannessian (2013) USA	N=1001	Mean = 16.09yrs	Child report – SMAST	Maternal alc use and child alc use	NS	Medium
Shorey (2013) USA	N=927	14-16yrs (96.8%)	Child-report: if their mother's (or mother figures) "drinking or drug use had ever caused problems with her health, family, job, or police."	Mothers' substance misuse: a) boys any alc b) girls any alc e) boys cigarette use f) girls cigarette use i) boys any cannabis j) girls any cannabis m) boys ecstasy use n) girls ecstasy use	a) NS; b) X^2= 8.34, p<0.01; e) X2= 7.85, p<0.01; f) X2= 13.37, p<0.001; i) X2= 5.78, p<0.05; j) NS; m) X2= 11.31, p<0.01, n) NS;	Medium
van der Zwaluw (2008) Netherlands	N=428	Cohort 1=15.2yrs Cohort 2=13.4yrs	CAGE, SMAST, shortened version of the SAAST.	a) level of alc use (older child cohort aged 16-17 years); b) level of alc use (younger child cohort aged 15-16 years);	a) β = .16, p<0.01; b) β = .14, p<0.01;	Medium
Yule (2013) USA	N=465	Mean =17.92yrs	Diagnostic interview	a) maternal any SUD, b) maternal drug use disorders	a) NS, b) unadjusted OR+ 7.40, CI=1.17-49.92, p=0.03)	Low

Table 6: Impact of fathers' substance misuse upon children's substance use

Author, year	Cohort number	Age of child participants	Measure of parental use	Health harm	Evidence	Study quality
Cranford (2010) USA	N=259	9-17yrs	SMAST—Version IV	Paternal AUD: a) Any child drinking, b) no of drinking days, c) any intoxication, d) no. of times intoxicated	a) NS; b) NS; c) NS; d) β=3.35, p<0.05	Medium
Finan (2015) USA	N=492	Mean 16.15yrs	Child report- SMAST	Paternal drinking: a) alc use b) drug use; c) alc in girls, d) drug use in girls, e) binge drinking in girls, f) alc in boys, g) drug use in boys, h) binge drinking in boys	a) β=0.16, p<0.05; b) β=0.15, p<0.05; c) NS; d) NS; e) NS; f) β=0.16, p<0.01; g) β=0.15, p<0.01; h) NS	High
Jennison (2014) USA	N=4648	Mean 16.3yrs	Quantity-frequency in past 30 days and year	Child heavy alcohol use	OR=2.79, CI=1.72-4.53, p<0.001	
Kendler (2013) UK	N=4231	Birth-12yrs	Abuse/ dependence	Paternal alc problems: a) alc use at 15yrs, b) alc problems at 15yrs, c) alc use at 18yrs, d) alc problems at 18yrs	a) β=0.086, SE= 0.026, p<0.001; b) NS; c) β=0.121, SE= 0.027, p<0.0001; d) β=0.131, SE=0.027, p<0.0001	High
Kerr (2012) USA	N=125	13yrs	Alc problems were measured using a seven-item scale	Paternal alc misuse and child early alc use	β = .22, p<0.06	Medium
Lieb (2002) Germany	N=2427	14-24yrs	Dependence/abuse collapsed into AUD.	Paternal AUD: a) occasional alc use, b) regular alc use, c) hazardous alc use, d) alc abuse e) alc dependence	a) NS; b) COR=1.40, CI=1.05-1.88, p<0.05; c) COR=1.72, CI=1.06-2.78, p<0.05; d) OR=1.66, CI= 1.25-2.20, p<0.05; e) OR=2.31, CI= 1.60-3.34, p<0.05	High
Malone (2002) USA	N=2766	14yrs	Assesses paternal max alc consumption ever consumed in 24 hr period	Paternal alc use: a) tobacco, b) alc c) illicit drug use, d) any use, e) ever intoxicated (alc), f) nicotine symptoms, g) alc symptoms, h) drug symptoms, i) any symptoms	a) OR= 1.45, CI 1.18-1.77, p<0.001; b) OR=1.36, CI=1.13-1.64, p<0.001, c)OR= 1.49, CI=1.14-1.94, p<0.01; d) OR=1.38, CI=1.15-1.66, p<0.001; e) OR=1.59, CI=1.20-2.12, p<0.01; f) OR=1.69, CI=1.15-2.49, p<0.01; g) OR=1.84, CI= 1.13-3.01,p<0.05; h) OR-2.16, CI=1.22-3.80, p<0.01; i) OR=1.71, CI=1.20-2.44, p<0.01	High
Ohannessian (2013) USA	N=1001	Mean = 16.09yrs	Child report - SMAST	Paternal alc misuse and child alc use	β=0.16, p<0.001	Medium
Shorey (2013) USA	N=927	14-16yrs (96.8%)	Child-report: problem drinking	Father's substance use: a) boys any alc use, b) girls any alc use, c) boys cigarette use, d) girls cigarette use, e) boys any cannabis, f) girls any cannabis, g) boys ecstasy use, h) girls ecstasy use	a)X2= 12.74, p<0.001; b)X2= 9.40, p<0.01; c) X2=14.61, p<0.001; d) X2= 29.09, p<0.001; e) X2=33.06, p<0.001; f) X2= 7.91, p<0.01; g) X2= 11.63, p<0.01; h) X2= 15.88, p<0.001;	Medium
Van der Zwaluw (2008) Netherlands	N=428	Mean 13.4yrs; 15.2yrs	CAGE, SMAST, shortened version of SAAST.	Paternal alc use and child alc use level	β = .19, p<0.01	Medium
Vermeulen-Smit (2012)	N=2319	15yrs	Heavy drinking defined as 6-9 units on 4 occasions per week	Child alc initiation and development aged 12-15 years a) mothers' incidental drinking and father heavy drinking, b) both parents heavy weekend drinkers	a) β -.42, p<0.001; b) β -.26, p<0.05	High

Table 7: the impact of either/both parents' substance misuse upon children's substance use

Author, year	Cohort number	Age of child participants	Measure of parental use	Child substance use	Evidence	Study quality
Delaney-Black (2011) USA	N-559	14yrs	Biologic specimens	a) Current caregiver cocaine and teen cocaine use; b) all other current caregiver substance misuse (opiate, marijuana, alc)	a) β = 1.79, p<0.001, b) NS	Medium
Haughland (2012) Norway	N=2399	Mean 18.3yrs	Child report – Frequency of parental intoxication (a few times a month/ week considered frequent)	a) repeat intoxication, b) frequent alc use, c) experimented with drugs	a) OR=6.5 95% CI=2.8-15.1, p<0.001; b) OR=3.8, 95% CI=2.4-6.2, p<0.001, /c) OR=3.0, 95% CI=1.7-5.2 p<0.001	Medium
Hofler (1999) Germany	N=1877	14-17yrs	M-CIDI	Child's cannabis use	COR=1.54, CI=1.18-2.00, P<0.001	Medium
Hopfer (2003) USA	N=781	Mean 15.7yrs	Diagnostic interview DSM-IV	Child's cannabis use	Unadjusted RR: 0.28	Medium
Jeffreys (2009) Australia	N=99	15yrs	Social work assessment of problem use	Parental substance misuse and child encouraged to use substances	No statistical analysis conducted	Low
Keeley (2015) Ireland	N=2716	15-17yrs (99.4%)	Child report of parental problem use	One parent misuser: a) child frequent alc. use, b) frequent intoxication, c) drug use in past month, two parents misusers: d) child frequent alc. use, e) frequent intoxication, f) drug use in past month	a) OR= 1.56, CI=1.08-2.27, p<0.05; b) NS; c)OR= 1.54, CI=1.11-2.15, p<0.01; d) OR= 3.83, CI=1.65-8.89, p<0.01; e) OR= 2.42, CI=1.09-5.35, p<0.05; f) OR= 5.90, CI=2.54-13.7, p<0.001	Medium
Rossow (1999) Norway	N=10839	12-20yrs	Child report – frequency of parental intoxication (several times a week/month considered wet)	alc intoxication	Frequency correlates with frequency of parental intoxication	Medium
Swain (2011) USA	N=251	13-18yrs	Parents alc use was assessed using diagnostic criteria abuse/dependence	a) Parental alc misuse and child past 30 day alc use, b) both parents having alc. problems and child alc problems at 18 years	a) NS, b) significant but data not reported	Medium
Yule (2013) USA	N=465	Mean 17.92yrs	Diagnostic interview	a) relationships between child ADHD, parental SUD and development of child SUD, b) parental any SUD and child development of SUD, c) maternal any SUD, d) maternal drug use disorder	a) NS, b) NS, c) NS, d) unadjusted OR+ 7.40, CI=1.17-49.92, p=0.03)	Low

Figure 10: Parental alcohol misuse and the educational impact upon children

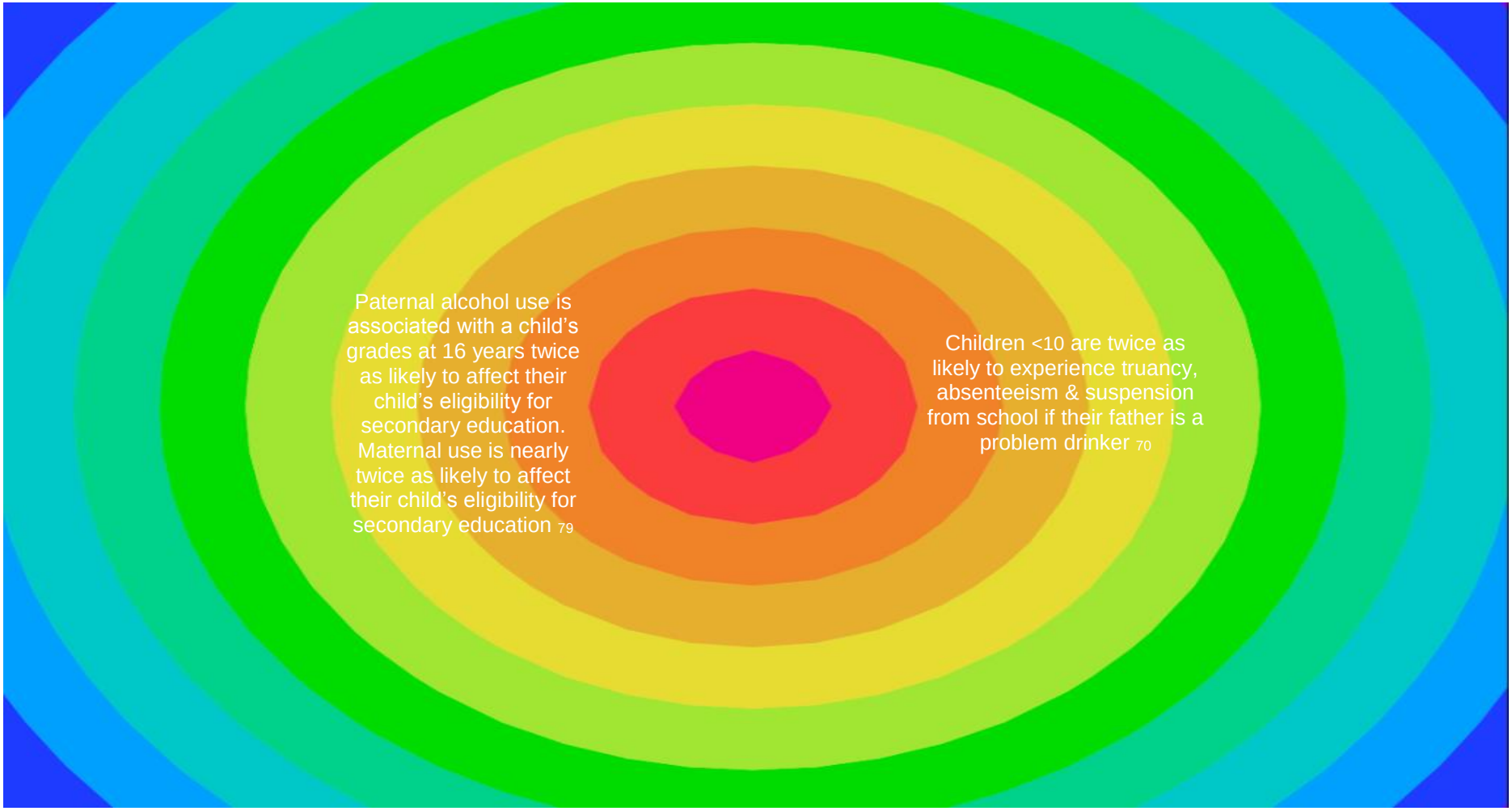


Figure 11: Parental drug or substance misuse and the educational impact upon children

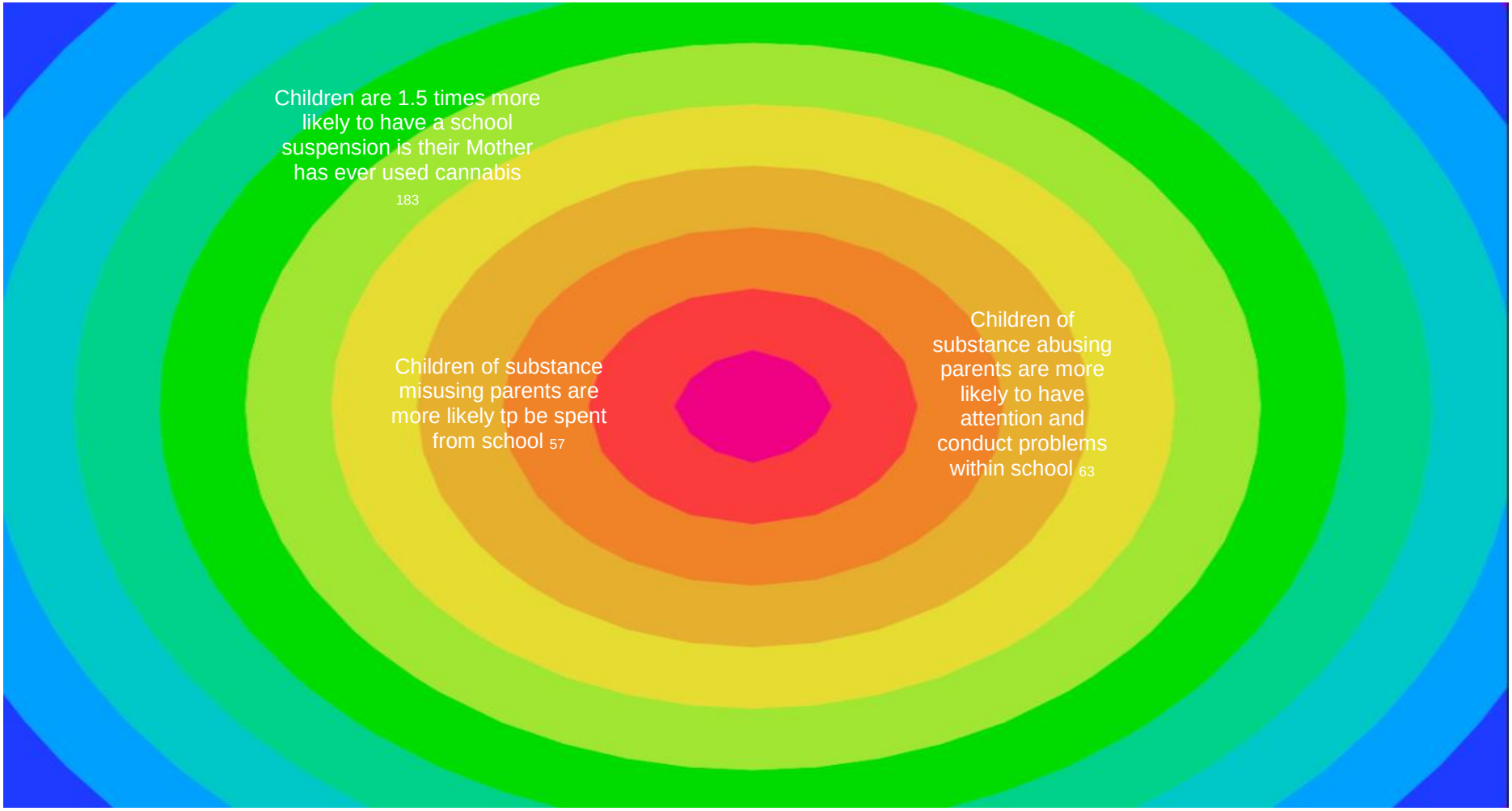


Figure 12: Parental alcohol misuse and the social impact upon children

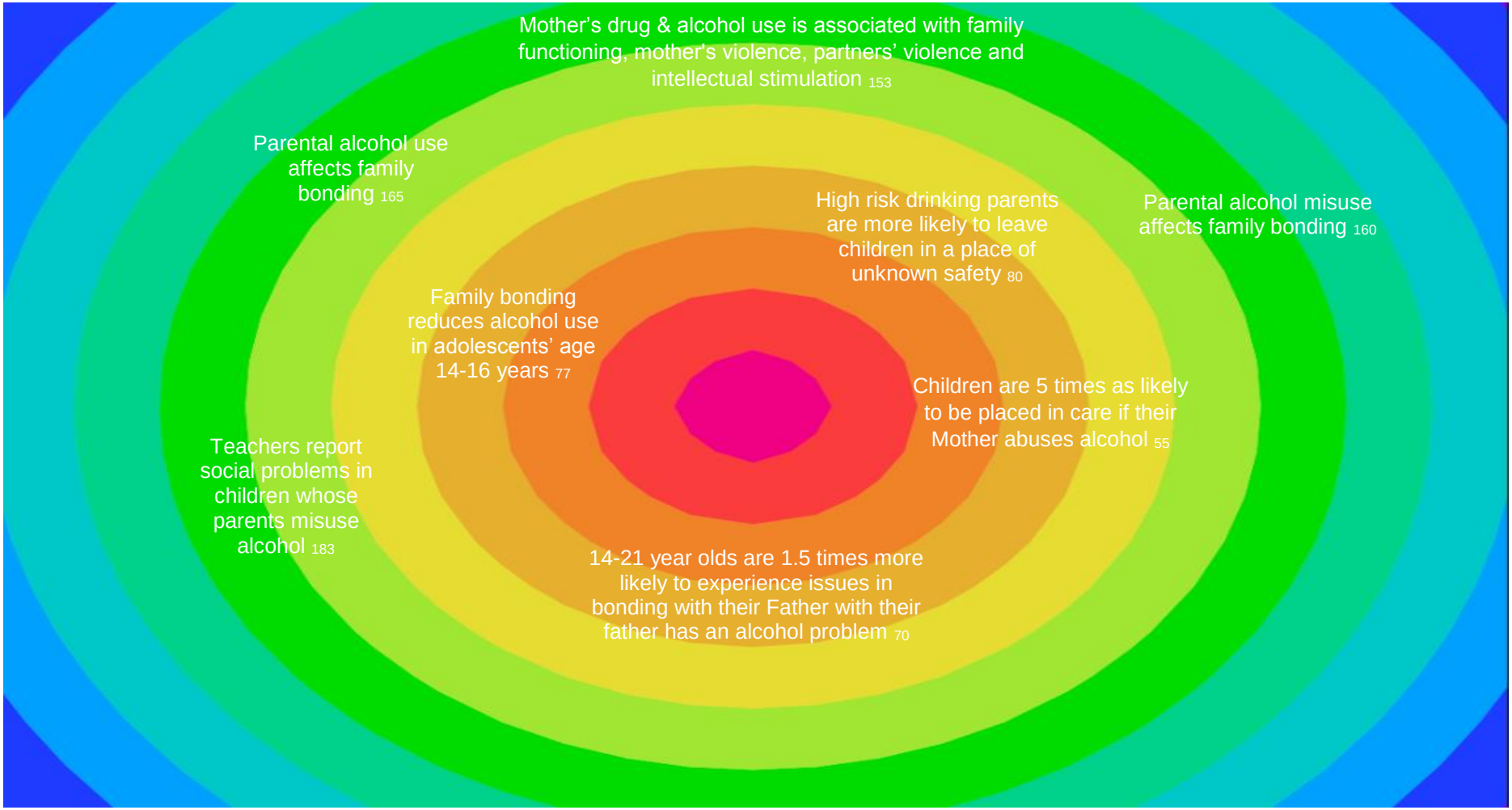
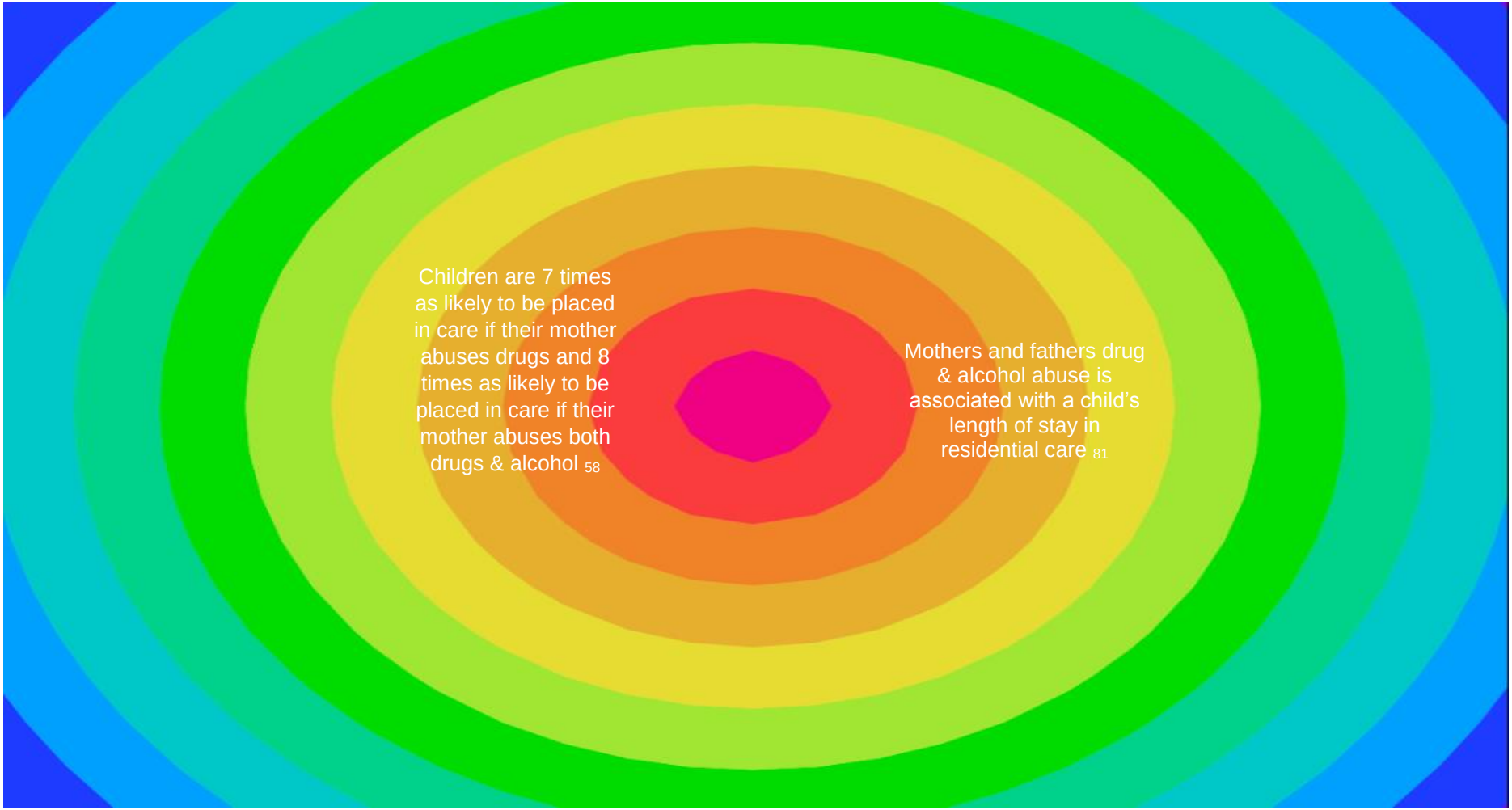


Figure 13: Parental drug or substance misuse and the social impact upon children



3.2.4 Educational and social impact upon children

Main findings:

- Parental alcohol misuse can have a negative impact upon children's education
- Parental substance misuse increases the likelihood of children being removed from the family home and placed in care
- There was conflicting evidence about the impact of parental alcohol use on the quality of the parent-child relationship and parental supervision of children.

We searched for literature which examined the impact of non-dependent parental substance misuse upon children's educational (e.g. school attainment, punctuality, truancy or suspension) and social impact (e.g. parent-child relationship quality, family functioning and home environment, parent supervision and experience of abuse). We identified seven papers which met the inclusion criteria.

Educational impact

Three papers reporting on parental alcohol use found a significant effect upon the education of children. Using a large cohort of over 740,000 Swedish individuals, Berg et al (2016) found that alcohol-related hospital admissions in parents were associated with lower school performance in adolescents aged 15-16 years. The impact of maternal alcohol misuse was stronger for girls than boys whilst father's alcohol misuse affected both boys and girls. The statistically significant indirect effect of parental alcohol misuse upon educational attainment was lost after including psychosocial factors in the model, including parental psychiatric disorders, illicit drug use, criminality and receipt of welfare benefits [79]. Child attention and conduct problem scores have been found to be modestly increased by parental substance abuse, particularly relating to maternal alcohol abuse [63]. School behavioural problems was shown to be directly associated with paternal alcohol-related problems in early childhood, with a threefold risk of truancy, absenteeism, suspensions and

conduct problems aged 16 years [70]. Family dysfunction, conflict and ineffectual parenting were found to greatly increase the adverse school outcomes for children in families with a heavy drinking father. Notably also were the low levels of attachment and bonding to biological fathers, found to increase the school-related behavioural problems of children. A small study in Australia also found children of problem substance users were more often absent or late for school [57]. We did not identify any research examining the impact of parental substance misuse upon the education of children from the UK.

Social impact

There is research examining the social impact of parental alcohol misuse upon children, however this evidence is mixed. One study reported that children of problem drinking parents were significantly less likely to feel emotionally close to their father, either due to the impact of alcohol upon the father's behaviour, conflict within the home, abdication of family responsibilities or estrangement [70]. A further study found that parental bonding and the parent-child relationship as well as parental monitoring were significantly and indirectly associated with both paternal and maternal substance misuse [78]. Whilst one study reported that parents who are high risk alcohol misusers were reported to be significantly more likely than an abstainer to leave their child in a place of unknown safety, other neglectful parenting practices were found to be unrelated to high risk drinking. Indeed, some measures of neglectful parenting practices were significantly more likely in lower risk alcohol users as compared to high risk alcohol misusers [80]. A further study found no significant impact upon the support provided to children from alcohol misusing parents [68]. A small cohort study in the UK found that 52% of child protection cases included at least one parent with substance misuse considered by the social worker to be of concerning levels [47]. A significant association with a particularly large effect size was shown in the number of children of substance abusing mothers who were placed in care [55]. The children of harmful drinkers were five times as likely as children whose parents were not harmful drinkers to be placed in care by their seventh birthday, those of drug abusing mothers were over seven times as likely, whilst the risk of children whose mothers were both an alcohol and drug abuser being placed in care was almost nine fold. These effects were found after controlling for the child's gender and mothers' socioeconomic

status. Once in care, children of problem drinking mothers were discharged 183% faster than those children whose mothers did not drink, most of whom (76.8%) were both alcohol and drug users [81]. This somewhat counterintuitive finding is most likely to relate to an accelerated decision to place the children in permanent care rather than reunification of the family. A cohort study of children taken into care also reported on the range of abuse children may experience whilst living within problem substance using homes [57]. Due to the small sample size in this study, no statistical testing could be conducted. As such, the existence of a correlation between parental substance misuse and abuse are unknown.

Table 8: Educational impact upon children

Author (year)	Cohort number	Age of child participants	Measure of parental use	Educational harm	Evidence	Study Quality
Berg (2016) Sweden	N= 740,618	16 yrs	Mother's and father's alc-related hospital admissions	maternal alc-related disorder: a) child grades; b) maths test; c) eligibility for secondary education; paternal alc-related disorder: d) child grades; e) maths test score; f) eligibility for secondary education; Both parents AUD:g) and grades, h) maths test score; i) eligibility for secondary education	a) z-score= -0.42 (-0.45,-0.39); b) z-score= -0.36 (-0.39,-0.33); c) OR= 1.99, CI=1.84-2.15; d) z-score= -0.42 (-0.43,-0.40); e) z-score= -0.31 (-0.33,-0.29); f) OR= 2.04, CI=1.95-2.15; g) z-score= -0.53 (-0.63,-0.43); h) z-score= -0.48 (-0.58,-0.37); i) OR=2.70, CI=2.14-3.41	High
Jeffreys (2009) Australia	N=99	<12months – 15 yrs	Social work assessment of problematic parental substance misuse	Parental substance misuse and poor school attendance	No statistical analysis conducted	Low
Jennison (2014) USA	N=4648	Mean 16.3 yrs	Parent alc misuse measured using quantity-frequency measure in past 30 days and year	School related behaviour problems (truancy, absenteeism, suspensions) a) father problem drinking when child <10; b) father problem drinker and poor marital quality between biological parents	a) OR=2.08, CI= 0.95-4.56, p<0.05; b) OR= 3.40, CI= 1.73-6.70, p<0.001	Medium
Torvik (2011) Norway	N=8984	13-19yrs	CAGE	Maternal sub abuse: a) attention difficulties, b) conduct problems Paternal sub abuse: c) attention difficulties d) conduct	a) d=0.27, 95% CI=0.06-0.49, p<0.05; b) d=0.27, 95% CI= 0.07-0.48, P<0.01; c) d=0.21, 95% CI=0.05-0.36, P<0.01; d) d= 0.18, 95% CI=0.01-0.34, P<0.05	High

Table 9: Social impact upon children

Author (year)	Cohort number	Age of child participants	Measure of parental use	Social harm	Evidence	Study Quality
Freisthler (2014) USA	N=3023	≤ 12yrs	Frequent heavy drinkers (drank 5 or more drinks 3–5 days per week or daily)	Parental alc misuse and leaving a child in a place of unknown safety	β= 1.096, se= 0.453, p<0.05	Medium
Hussey (2005) USA	N=126	Mean 9.86yrs	Social work assessment of problem use 'alc and drug abuse'	Length of stay in child residential care a) Parental alc abuse; b) parental drug abuse	a) HR= 2.92, p<0.01; b) 0.87, NS	Low
Jeffreys (2009) Australia	N=99	<12months – 15yrs	Social work assessment of problematic parental substance misuse	Parental substance misuse and experience of abuse	No statistical analysis conducted	Low
Jennison (2014) USA	N=4648	Mean 16.3yrs	Parent and child alc use measured using quantity-frequency measure in past 30 days and year	Fathers' alc use and bonding to Father	OR=1.55, CI 1.16-2.0, p<0.05	Medium
Van der Zwaluw (2008) Netherlands	N=428	13-15yrs	CAGE, SMAST, shortened version of SAAST	Parental alc use and support of adolescents	NS	Medium

3.4.5 Discussion

There is a large body of evidence suggesting that non-dependent parental substance misuse impacts negatively upon children. In early childhood, the evidence shows that the likelihood of experiencing an injury or health concern, resulting in children requiring medical care, is associated with high risk parental substance misuse (which includes alcohol and/or drug use). Maternal alcohol misuse in particular is highlighted in the literature as a key risk factor for negative impact upon child health. This may in part relate to the greater role mothers tend to play in the child's early years. However, there was a paucity of research considering fathers' substance misuse which may result in a misleading over focus on risk due to mothers.

The literature suggests that high risk parental alcohol misuse impacts negatively upon child psychological health. In particular, there is evidence of parental alcohol misuse increasing the likelihood of externalising problems in children. There was only weak evidence of an association between parental substance misuse and internalising problems, where child exposure is not specified or without the presence of other parental psychological disorders. The presence of additional parental psychological disorders is likely to increase risk of externalising difficulties in children also due to reduced child resilience.

There was a large and robust evidence base for the impact of parental alcohol and/or drug misuse upon children's own substance use. Children of parents who misuse substances are more likely to drink alcohol at a younger age, drink more alcohol and use drugs and develop problematic patterns of use. Social learning theory explains that we learn behaviour from observing, imitating and modelling those around us [82]. It is possible that where children observe their parents consuming alcohol and/or drugs, this encourages the development of normative views about substance use. Further, the availability of alcohol or other substances within the home, regardless of the frequency or intensity of the parental use, may increase the likelihood of adolescent use [83].

There were conflicting results on gender-specific effects. There was a tendency for studies to report that maternal alcohol misuse had a greater impact upon the psychological well-being of children, particularly in girls. This finding has been found in much of the literature reporting on dependent maternal substance misuse [84, 85]. Further, maternal substance misuse is more frequently found to relate to alcohol and licit drug use. Conversely, paternal use is often associated with externalising difficulties inclusive of illicit drug use. Often this association is found in boys. There are exceptions to this however. Maternal substance misuse appears to affect younger children more significantly than older children which may be explained by the fact that most care-giving during early years is carried out by mothers. As the children progress through adolescence, the literature suggests more gender-specific role modelling.

There was also emerging evidence that parental alcohol misuse has a negative impact upon children's education and the likelihood of a child being removed from the family home and placed in care. The evidence of other social impacts is however mixed. There was some suggestion that parental alcohol misuse was associated with lower levels of parent-child bonding, communication and overall relationship quality. However, evidence of neglectful parenting or inadequate parental supervision was limited.

Much of the evidence identified within this review comes from research conducted in countries other than the UK. There were only five studies from the UK; 12 studies from other European counties and 19 studies from other countries around the world; most of which (n=17) were from the US. There are likely to be important cultural and healthcare differences, particularly in countries outside of Europe, which need to be considered when interpreting the findings.

3.4.6 Limitations

Due to correlation-based evidence, the direction of reported relationship cannot be ascertained. For example, it is entirely possible that children's conduct difficulties could be a result of parental alcohol misuse. It may be however that parents whose child has conduct

difficulties may struggle to cope and their alcohol use increases in response. Whilst longitudinal studies can highlight the temporal associations between variables, and may offer greater insight into causation many studies do not consider the wide range of confounding factors in the relationship or the mediators and moderators that may affect the impact upon children. Indeed, a number of studies which fell outside of the inclusion criteria for this review highlight genetic predisposition [86]: it is possible that the interaction between genes and the environment [87] may result in intergeneration transmission of substance misuse. A number of environmental and behavioural mediators and moderators of the impact of parental substance misuse upon the child have been highlighted within this review of the literature. This has included alcohol permissive parenting, alcohol expectancies, parent-child relationship quality and family conflict [64, 88-93]. Further, child resilience may reduce the impact of non-dependent parental substance misuse upon children [65]. Additionally, it should be noted that an absence of evidence relating to the impact of parental drug misuse upon the child is not evidence that there is not an association. Rather, this absence of evidence is due to a paucity of research in this area. There is also a paucity of research considering the impact of paternal alcohol and drug misuse upon child health, maternal and paternal alcohol and drug misuse upon child's education and social wellbeing.

Table 10: Overview of the impact of non-dependent parental substance misuse upon children

Age of children	Potential impact upon children
0-5	Greater likelihood of being involved in an accident, self-poisoning incident and sustaining an injury. Requirement for medical attention and admittance to hospital. More likely to require inpatient care for a longer period. Inadequate diet and underweight. Children may be left in places of unknown safety.
Early adolescence	Poor dental hygiene resulting in higher likelihood of dental problems however may not access dental care. Low shyness, hyperactivity, attention difficulties and conduct problems. Early onset alcohol use, cigarette use and illicit drug use. Externalising and internalising difficulties may begin to emerge.
Middle adolescence	Externalising difficulties including conduct problems, delinquent behaviour, rule breaking, aggressive behaviour, attention difficulties. Internalising difficulties including depression and anxiety. Regular substance misuse including frequent intoxication, illicit drug use and the development of substance misuse problems, poor school attendance relating to truancy, absenteeism and punctuality. Poor attachment to parents, relationship and communication problems within the family.
Late adolescence	Violent behaviour, attention difficulties, alcohol and drug problems, school-based conduct difficulties.

3.2.7 Recommendation for further research, policy and practice

Further research into the impact of non-dependent parental substance misuse, inclusive of research examining illicit drug misuse is needed, particularly in relation to the educational and social impact upon children where evidence is weakest. UK-based research would strengthen salience of the findings to a UK population. Research which includes both fathers and mothers and is sufficiently powered to enable analysis of the impact of mothers versus fathers use upon male and female children, would advance the field. Research that utilises longitudinal design would best offer opportunity for causal inferences and also enable age-related and temporal associations to emerge. Further there is a need for consistency in the use of terminology describing levels of parental substance misuse. The significant variation in how substance misuse patterns are described within research has presented great challenge to this review, and ultimately in advancing knowledge in this area. Whilst the purpose of this review was to consider the evidence for the impact that non-dependent parental substance misuse has upon children, and as such the focus has invariably been upon risk, there is also a need to consider the protective factors that may be present. Whilst this review has highlighted the clear evidence of harm that can come from one parent misusing substances, this harm is increased when both parents are substance misusers. Put another way, the non-substance misusing parent offers some protection. Using the language of protection, rather than risk, affords an opportunity to view such protective factors as a possible intervention mechanism to enhance resilience from harm. Given the further evidence identified that factors such as maternal closeness, attachment and parent-child relationship quality are moderators of negative impact, future research should include a range of mediators and importantly, moderators of harm, which may inform intervention development. There is also a need to examine the impact of non-dependent parental substance misuse from the perspective of the child. A recent public inquiry included a survey of children, providing important insights [94]. An evidence review focusing upon the views of the child would provide valuable intelligence to inform child-centred practice in this area.

4. Findings

REA ii. The effectiveness of psychological and social interventions to reduce dependent and non-dependent parental substance misuse

4.1 The effectiveness of psychological and social interventions to reduce dependent and non-dependent parental substance misuse

Main findings:

- Evidence for effective psychological and social interventions is weak
- There is a lack of suitably powered trials of interventions, preventing conclusions of effect to be made
- There is a paucity of research with non-dependent users and substance misusing fathers
- Intensive case management and family-level interventions offer promise
- Further research is needed to determine effectiveness of interventions for dependent and non-dependent substance misusing parents

4.1.1 Professional interventions delivered to the individual parent

Nineteen papers reporting on 14 unique trials examined the effectiveness of professional interventions delivered to the individual parent. Six papers reporting on five unique trials examined the effectiveness of an intensive case management intervention for parents who misuse substances, with most showing a significant effect. The case management interventions typically consisted of outreach, coordination, facilitated access to treatment services including transportation and/or onsite services and child care. One of the trials included parent skill training [95] and a further trial was conducted within the context of a multidisciplinary family drug court [96]. Comparison interventions included usual care. These were outpatient drug and alcohol treatment relevant to assessed need without intensive case management [97-100] or attendance at a family court (with tradition jurisdictional process overseen by a judge and not a multidisciplinary team) [96]. The total number of participants in the trials ranged from 56-302 (mean 148) participants. The trial participants were required to be dependent upon alcohol and/or drugs in all trials with the exception of one, which included treatment-seeking mothers [98]. It is likely however that most of these participants were dependent upon substances.

The trials found that intensive coordination and management increased the number of treatment services a parent engaged with [96-99]. Whilst one trial found that participants were no more likely to be retained

in the treatment than the comparison group [97], other trials reported significantly higher rates of retention in treatment services [95], with some being double that of the comparison group [99]. Successful treatment completion was also found to be associated with the intensive case management intervention [96]. Some trials found substance misuse to significantly decrease in participants who received the case management intervention [98, 99], with one trial reporting that mothers receiving intensive case management were twice as likely to report abstinence at 15 month follow-up than the comparison group ($p< 0.0025$) [99]. Whilst a further trial of opiate and/or cocaine dependent postpartum women found that intensive case management was not significantly associated with a reduction in self-reported substance misuse, it was associated with a reduction in a positive urine toxicology result for cocaine [97]. Whilst these interventions were delivered on an individual level, child and family outcomes were measured in two of the trials, showing mixed results. One trial of intensive case management for women in receipt of social welfare found that there was no significant effect upon child incident reports and only minimal effect upon child placements, which lessened over time [100]. A further trial of a multidisciplinary family treatment drug court found that reunification and discharge from child welfare services was significantly more likely [96].

Four trials measured the effect of psychological interventions; three delivered one-to-one and in a group setting. These consisted of brief motivational interviewing (MI) [101], cognitive behavioural therapy (CBT) [102] and the community reinforcement approach (CRA) [103, 104], an approach also informed by behavioural psychology. Both the CRA trials included some form of monetary/ecological intervention, with one trial of CRA including the provision of housing, rental assistance and short-term utility payments on a non-contingent basis [103], whilst another examined the effect of the addition of contingency management to CRA within a three arm trial (CRA plus contingency management versus CRA versus usual care). The women randomised to the CRA plus contingency management received financial rewards for negative urine toxicology results alongside the behavioural intervention [104]. These trials compared the experiment interventions against ‘treatment as usual’ which consisted of standard assessment without motivational enhancement [101], emergency shelter and access to services [103] and twelve step facilitation [102, 104]. The total number of participants in the trials ranged from 48-145 (mean 78) participants. With the exception of one trial which included participants who had been referred to treatment [101], a stated inclusion criteria for the trials was alcohol and/or drug dependence.

There were mixed results reported in the trials of psychological therapies. A trial examining the effect of a motivationally enhanced approach to assessing substance misuse parents needs found that parents who received this enhancement were significantly more likely to attend at least one treatment session than the comparison group [101]. Further, CRA plus contingency management was found to be significantly associated with more weeks of continuous abstinence from cocaine and a higher proportion of cocaine negative urine toxicology results than twelve step facilitation, whilst no significant differences were found between CRA (without contingency management) and twelve step facilitation [104]. Similarly, in a further trial of CRA, no significant reduction in illicit drug use was reported. Alcohol misuse was however found to decrease at a significantly faster rate in the CRA group than in the comparison group [103]. Between-group analysis did not show any significant difference in the reduction in alcohol misuse in domestically abusive, problem drinking, men [102].

Nine papers reported on five unique trials that examined family-centred interventions delivered to the parent only. Typically these interventions sought to enhance parent skill or parent-child relationships through education, non-judgemental support and psychological therapies. Whilst these trials all measure substance use outcomes, the intervention rarely directly addresses substance use through the provision of substance misuse treatment. Rather alcohol and/or drug use is indirectly addressed within the context of positive parenting. The interventions were compared to parent education [105-107], brief awareness raising video on substance use risks [108] and standard drug treatment including methadone maintenance [107, 109, 110] or drug counselling [111-113]. The total number of participants in the trials ranged from 31-127 (mean 64) participants. One trial explicitly included non-dependent alcohol misusing parents [108], three trials recruited treatment-referred parents, many of whom were likely to be dependent [105, 106, 111, 113] and three trials explicitly included dependent participants only [107, 109, 110, 112].

The trials of family focused interventions showed mixed results. A trial of the Parents Under Pressure (PUP) intervention in addition to methadone prescription showed that there was a significant reduction in methadone dose in the PUP group in comparison with both methadone maintenance only, and brief parent education plus methadone maintenance. There was no change in AUDIT score however. The trial found significant reduction (both statistically and clinically) in child abuse potential in both the PUP and brief parent education group compared to standard care, with PUP showing the greatest effect [107]. The cost effectiveness analysis of PUP suggested that for every 100 methadone maintained parents who

received PUP there would be an expected reduction of 20 cases of child maltreatment. The authors estimated that this would result in a lower-bound saving of AU$2.4 million (£1.3 million) and in the cost consequences of maltreatment (AU$1.5 million/£800,000 net savings) [109], assuming that individuals do not revert back to abuse. Two linked papers reporting on a trial of an attachment based mothers and toddlers programme reported that mothers in the intervention group showed better caregiving behaviour and reduced their drug use, however this reduction was not significant in comparison to reductions made by the group who received parent education [105, 106]. A further trial similarly reported improvements of parenting skill but limited change in relation to parental substance misuse [113]. Mothers attending a relational psychotherapy group had significantly fewer positive urine toxicology results at the end of a 6-month treatment phase [110, 112], however these results were no longer found at 6 month follow-up in one of the trials [112]. Further trials which reported on substance use outcomes only, showed no significant change in substance misuse [108, 111].

4.1.2 Professional interventions delivered to two or more family members

Fifteen papers from fourteen unique trials reported on the effectiveness of interventions delivered to more than one family member. Two trials reported on the effectiveness of behavioural couple's therapy plus parent training, where only the father was the substance misuser [114, 115], three trials reported on interventions involving the mother and child [116-118] and ten trials involving the family unit [119-128]. The trials involving the mother and the child examined a diverse array of interventions including health visiting [116], a psychotherapy group focusing upon mother-child attachment [117] and residential rehabilitation [118]. Of the trials of family level interventions, three unique trials examined the effectiveness of the Engaging Moms program, an intervention based upon the theory and method of multidimensional family therapy [120, 121, 124]. A further trial examined family systems therapy targeting dysfunctional interactions linked to the development of problem behaviours [123]. Two quasi-experimental trials measured the effect of family drug and alcohol court [125-127]. Two trials measured the effectiveness of cognitive behavioural therapy; one trial of CBT with individual families plus contingency management [122] and a trial of group-based CBT (6-10 families) and parent skill training [119]. A quasi-experimental trial measured the effect a crisis intervention service, 'Option 2', which combines motivational interviewing, solution focussed practice and intensive family work with families where serious child protection concerns relate to parental drug and alcohol misuse [128]. The number of

participants in each trial ranged from 27-1220 (median 103[3]) participants. Of these trials, 11 included participants with a diagnosis of substance abuse or dependence or who were highly likely to be dependent (for example in receipt of methadone, attending chemical dependency clinic, in long-term residential rehabilitation) [114, 115, 117-124] and a further two trials where the level of substance misuse was sufficient to be assessed as a key factor in care proceedings [125-127].

Trials of couple's therapy showed conflicting results. One of the trials examining behavioural couple's therapy compared the intervention (with and without the addition of parent skills training) to individual CBT. This small pilot trial of only 10 participants per treatment group found that all groups significantly increased the number of days abstinent, but there was no significant difference between groups [115]. Behavioural couple's therapy was also examined in a trial compared to an intervention group of individual CBT and a control group of couples based substance use education. This trial showed significant between group results in favour of the behavioural couple's therapy in comparison with both of the other groups, in the percentage of days abstinent in both an alcohol abusing group and drug abusing group [114].

The mother-child intervention trials also showed mixed results. A trial of midwife delivered health visiting compared to a minimal intervention of one home visit found no significant results on mother's substance misuse, immunisation rates of the infant and breastfeeding [116]. Whilst both groups showed significant reductions in substance misuse in a trial comparing the effectiveness of group psychoanalytical counselling to individual psychosocial support, there were no significant between- group differences [117]. A quasi experimental trial of residential care for mothers and their children did find that mother's substance misuse significantly reduced in the intervention group when compared to a day treatment. The treatment and support services offered in these two interventions were similar. The authors however highlighted that the main variance was that the day treatment was not organised around the women's other commitments resulting in a large amount of missed sessions and the children were placed with a relative, or in state care during treatment [118].

The Engaging Moms program is a family-level intervention, which seeks to motivate the mother to change, strengthen the mother's attachment to her child and the family, and engage the mother with a range of

[3] Median used due to outliers in sample size

services. Initially, Engaging Moms was trialled with mothers recruited from maternity hospitals [121] and then those involved in family drug court [120, 124], comparing the intervention effects to that of usual drug treatment [121] and intensive case management typically provided via family drug courts. These trials found that women involved in Engaging Moms were significantly more likely to be engaged and retained in drug treatment [121] and they were significantly more likely to graduate from drug court and be reunified with their children [120]. Both Engaging Moms and the intensive case management comparison group were found to significantly reduce drug and alcohol misuse, and whilst effect sizes were greater for several outcomes in the Engaging Moms intervention group, between group analyses were not significant [124]. A further study of family therapy based upon an ecological model showed that alcohol, cannabis and cocaine all decreased at a significantly faster rate in the intervention group than the health education comparator group [123]. Quasi experimental trials of Family Drug and Alcohol Court (FDAC) have been conducted in London [125, 126] and the US [127]. These trials reported significant results favouring the FDAC intervention. Harwin et al (2014) found that whilst most parents in both the experimental and comparison intervention group continued to use substances, between-group analysis found those receiving FDAC were significantly more likely to have stopped misusing substances. At five year follow-up, a significantly higher proportion of FDAC mothers: ceased substance misuse (46% vs 30%, p=0.017); were reunified (37% vs 25%, p=0.047). Of those FDAC mothers that were reunified with their children, a significantly higher proportion than comparisons: maintained cessation (58% vs 24% p=0.007); were estimated to experience no family stability disruption (51% vs 22%, p=0.007) [126]. It should be noted however that only 44 families were reunified within the FDAC group and 22 families within the comparison group, and as such caution should be applied when considering these results. Worcel et al (2008) found that a significantly larger proportion of mothers entering FDAC entered drug treatment, doing so significantly faster, were retained in treatment for longer and were more likely to complete at least one episode of treatment. Whilst there was no between group differences relating to the likelihood of out-of-home placement, children whose mothers were attending FDAC spent significantly less time in out-of-home placements and were significantly more likely to be reunified with their parents than the comparison group. Conversely the comparison group reached permanency significantly faster. A quasi-experimental trial of an intensive family preservation service for families where there were serious child protection concerns relating to parental drug and alcohol misuse found that families who received the intensive intervention were more likely to reduced or stopped misusing drugs or alcohol (94% vs 58%) and less likely to have entered care (8% vs 44%) or reached permanency (none vs 38%) [128]. No statistical testing was conducted on this small sample however. Family therapy based upon behavioural psychology also showed some effect. In a trial of family therapy and skills training wherein both the intervention and the control group were methadone

maintained, significant reduction in heroin and cocaine were found at 12 months follow-up in favour of family therapy with skills training [119]. A further trial of behavioural family therapy took a two by two design comparing family behavioural therapy by treatment as usual by neglect type (child had been exposed to drugs as a foetus versus other form of neglect). Whilst cocaine and heroin use reduced significantly in both treatment groups, this trial was not able to find significant results which were consistently in favour of the family intervention [122].

4.1.3 Peer-delivered interventions

Four papers reporting on three unique trials measure the effectiveness of interventions delivered by individuals with personal experience of substance misuse or the specific community in which the families lived. One of the trials was concerned with an intervention that is delivered to individual parents [129, 130] and two trials of peer intervention with a family [131, 132]. These interventions endeavoured to empower the mothers/families by building the personal and social resources, supporting access to services and advocacy. The number of participants in these three trials were 96 [133], 131 [129, 130] and 531 adults from 322 families [132]. Whilst formal assessment of dependence was not reported in these trials, the participants in two trials were mothers who had continued to use substance during pregnancy [129-131], with one trial specifying they had targeted the highest risk women [131] and a further trial was of families who had been referred to substance misuse treatment [132].

A trial of individual peer support provided initially weekly then biweekly visits for between 6 and 18 months. Despite intensive intervention, the mothers in this group were not found to reduce their substance misuse more than the comparison group [129, 130]. A peer-delivered support intervention for families showed better results however. Peer advocates supported the family for up to 3 years, whilst the comparison group received 6 monthly telephone or postal contact over the study period. The trial did not conduct statistical tests, however reported similar rates of abstinence for 6 months and for one year in both groups. More parents in the intervention group reported accessing drug treatment services [131]. The final trial examining the Sobriety Treatment and Recovery Team (START) however did show effect. This intervention consisted of Child Protection Service (CPS) workers and family mentors with at least 3 years sobriety. Mentors had an average of 6 contacts per month over a 14 month period, with active involvement from fathers encouraged. This quasi experimental trial found that the START treatment group were almost twice as likely to achieve sobriety as the matched comparison group of CPS involved families

and child placement in state custody was half as frequent. The cost savings from the 198 children reported to have been diverted from state custody receiving the START intervention was estimated at $5,940,000 [132].

Table 11: Effectiveness of psychological and social interventions by intervention type

Trial details	Participants	Interventions	Comparison	Outcomes	Estimated cost
Intensive case management					
Bruns (2012) USA Quasi-experimental design, medium risk of bias	152 families referred to FTDC; chemically dependent parent; 76 families randomly selected as comparison who were not admitted to FTDC	Family Treatment Drug Court (FTDC) duration 12-24 months	Dependency court	Treatment admission: FTDC 84% vs 57%; x^2 (1) = 12.79, p < .001). Treatment retention: FDTC were in treatment for longer (log-rank x^2 = 3.7, p= .053, Breslow x^2 = 5.4, p= .02, Tarone-Ware x^2 = 5.0, p = .03). Treatment completion: FDTC FTDC: 72% vs 54%, x^2 (2) = 6.4, p = .04)	£547.40
Marsh (2000) USA Quasi-experimental trial, high risk of bias	148 treatment seeking mothers	Enhanced care (transportation, childcare and outreach)	Usual care	Mothers' substance misuse significant reduced compared to usual care	Not estimated
Morgenstern (2006) (index paper) Dauber (2012) (linked paper) USA RCT, ow risk of bias	302 DSM-IV substance dependent mothers	Intensive case management (ICM), 24 months duration	Usual care (UC)	ICM more likely to be abstinent for a period of one month compared to UC (β= .56; SE= .18, odds ratio = 1.75; 95% CI = 1.22, 2.51: p=.0025) ICM clients attended significantly more treatment appointments than UC (t(298)=4.0, p<.001).	£1560.66
Jansson (2005) USA RCT, low risk of bias	56 opiate and/or cocaine dependent women	Intensive case management (ICM) 4 months duration	Routine case management (RCM)	Self-reported drug use: NS. RCM more likely to test positive for cocaine (17% vs 0%, p=.05). ICM remained in substance misuse treatment for a longer postpartum (p<.013) nut differences NS at 4 month follow-up.	£429.20
Volpicelli (2000) USA RCT, high risk of bias	84 cocaine dependent mothers	Psychosocially enhanced treatment program (PET 2 sessions per week	Case management (CM)	No significant results	Not estimated
Psychological interventions					
Carroll (2001) USA RCT, medium risk of bias	60 treatment referred parents	Motivational evaluation (MI) 1 hour evaluation	Standard evaluation (SE	More MI than SE attended at least one treatment session (p = .03). Attending 3+ sessions: no significant results found	£232

Schottenfeld (2011) USA RCT, medium risk of bias	145 cocaine dependent mothers	Group 1: Community reinforcement approach (CRA), 24 weeks, Group 2: Contingency management (CM). 12 weeks duration	Comparison 1. Twelve steps facilitation TSF Comparison 2: Non-contingent, voucher control (VC). Vouchers were provided regardless of results of toxicology	CM achieved significantly greater max weeks of continuous cocaine abstinence (m=4.6, SD=5.4) compared to VC (m=2.5, SD=3.0; f(1,141)=7.76, p<.01) more cocaine negative urine tests during treatment (m=38.6, SD=28.5) compared to VC (m=24.7, SD=28.7; f(1,141)=8.43, p<.01) and across 3, 6, 9 and 12 follow-up points (p<0.05)	£3464
Slesnick (2013) USA RCT, medium risk of bias	60 homeless mothers meeting DSM-IV criteria for substance abuse/dependence	Ecologically-based treatment EBT) counselling based upon the community reinforcement approach (CRA) up to 20 sessions continued for up to 6 months	Treatment as usual (TAU)	Drug use reduced in both groups. More women in EBT reported drug use at baseline. The reduction in the EBT group was greater than it was in TAU.	Not estimated
Smith Stover (2010) USA RCT, high risk of bias	69 men alcohol dependent and domestically violent fathers	Substance abuse and domestic violence treatment (SADV): 12 weekly 90 min group therapy sessions. Based on CBT	Twelve step facilitation (TSF)	No significant between group analyses	Not estimated
Family-centred, individual interventions					
Black (1994) USA RCT, medium risk of bias	60 mothers who used heroin or cocaine prenatally	Home intervention: 1hr, biweekly visits for 18 months Ecological model	Usual primary care (no home visitation)	Women in home intervention arm marginally more likely to report being drug-free. This was approaching significance (p < .059 at 18 months)	£2886
Dawe (2007) Index paper Dalziel (2015) Link paper Australia RCT, medium risk of bias	64 parents receiving methadone	Group 1. Parents Under Pressure (PUP) Group 2: Brief intervention (BI). 10-12 weeks	Standard care (SC):	PUP showed significant reduction in methadone dose (z=2.355, p <.001) where BI and SC did not. There were clinically significant reduction in risk status for child abuse in 36% of the PUP group and 17% of BI.	£2596
Gwadz (2008) USA RCT, medium risk of bias	118 mothers with risky alcohol misuse	Family First (FF) based on CBT and MI 7 sessions	Brief video intervention BVI)	Reductions in alcohol misuse in both arms showing medium effect sizes. Between group differences not significant.	£1554

Luthar (2000) USA RCT, medium risk of bias	61 heroin addicted mothers Mean age 34.7 years	Relational psychotherapy mothers' group (RPMG). 24 sessions	Methadone plus 1 hr weekly drug counselling (DC) groups.	RPMG were significantly less likely to test positive for opiates compared to DC group ($p < .01$). Reductions in cocaine positive test results NS	
Luthar (2007) USA RCT, low risk of bias	127 heroin addicted mothers	Relational psychotherapy mothers' group (RPMG), 24 sessions	Recovery training (RT). 24 group sessions	RPMG group and increased in RT however treatment gains no longer apparent at 6 month follow-up	£6552
Saldana (2015) USA RCT, high risk of bias	31 substance mothers with SUDs (use of substances other than alcohol and cannabis)	Families Actively Improving Relationships (FAIR); behaviour programme targeting parenting and substance misuse	Treatment as usual	FAIR mothers reported significant substance misuse improvements as rated by Addiction Severity Index (ASI). The FAIR mothers were not significantly more likely to achieve abstinence however.	£1776
Suchman (2011) Index paper Suchman (2010) Link paper USA RCT, medium risk of bias	47 mothers enrolled in substance abuse treatment and caring for a child aged birth-36 months	Mothers and toddles programme (MTP) attachment-based individual psychotherapy intervention 12 weeks duration	Parent education (PE): 12 –week dose control.	No significant results	staff costs would exceed £10,000
Couples therapy					
Kelley (2002) USA RCT, low risk of bias	135 men with alcohol or drug abuse or dependence	Group 1. Behavioral couples therapy (BCT) Group 2. Individual based treatment (IBT) 32 sessions	Couples –based psychoeducational attention control treatment (PACT)	All groups reported significant higher percentage of abstinence days at 6 and 12 month than pre-treatment ($p < .05$). Between group analysis showed that BCT reported significantly more percentage of abstinent days than the other two intervention groups at both 6 and 12 month ($p < .05$).	£2368
Lam (2009) USA RCT, low risk of bias	30 fathers alcohol abuse/dependence,	Group 1: Behavior couples therapy (BCT). Group 2: parent skills and BCT (PSBCT) 24 sessions	Individual-based therapy (IBT)	All groups showed clinically significant increases in number of days abstinent with effect sizes medium to large. Between group differences in drug/alcohol misuse NS	£1776
Mother-child interventions					
Bartu (2006) Australia RCT, low risk of bias	152 drug using mothers attending chemical dependency clinic	Health visiting intervention 8 session	Minimum contact	No significant results	£888

Belt (2012) Finland Quasi-experimental, medium risk of bias	51 Finnish drug-abusing mothers (>3 year history and attending treatment) and their children	Psychoanalytic mother-infant therapy group (PGT); 20-24 weekly sessions (3 hrs each)	Psychosocial support (PSS); lasting 8-12 months. Weekly-twice weekly	Both PGT and PSS made considerable reductions in substance misuse from baseline to 4 month follow-up, and maintained into 12 months. No between group differences were found to be significant	£1638
Sowers (2002) USA Quasi-experimental design, high risk of bias	41 mothers attending residential rehabilitation for substance misuse treatment	Susan B. Anthony Center (SBAC) – residential rehabilitation	Broward Addiction Recovery Center (BARC). Day treatment	38.5% of SBAC had used substances compared to 53.3% of BARC. No statistical testing undertaken.	Not estimated
Family-level interventions					
Catalano (1999) USA RCT, low risk of bias	144 parents in receipt of methadone	Focus on Families: combined parent skill training & case management services 16 week duration	Standard methadone treatment	FOF less likely to report heroin use (6.89 (SD 15.81) FOF vs 19.68 (SD 36.82) adjusted mean score; p <0.01) and less likely to report cocaine use (14% FOF compared to 26% control) 1.78 (SD 7.35) FOF vs 12.16 (SD 45.72) p < 0.1)	£3922
Dakof (2003) USA RCT, medium risk of bias	103 cocaine misusing black mothers	Engaging Moms Program (EMP)	Services as usual (SAU	More women in EMP group entered treatment than SAU (X^2(1, N = 103) = 20.62, p = .000) 88% in EMP enrolled compared to 46% SAU EMP women more likely to be retained in treatment for 4 weeks (X^2(1, N = 103) = 8.12, p = .004) with 66.7% of EM remaining in treatment vs 38.5% of SAU. 90 day retention: NS	£1480
Dakof (2010) USA RCT, low risk of bias	62 drug using mothers with a diagnosis of substance abuse or dependence	Engaging Moms Program (EMP) (family court) 12-15 month duration	Intensive Case Management Services (ICMS)	Both groups showed steep declines in alcohol and drug use. Between group NS	staff costs would exceed £10,000
Dakof (2009) USA RCT, medium risk of bias	80 drug using mothers attending drug dependency court	Engaging Moms Program (EMP) (family court) 12-15 month duration	Intensive Case Management Services (ICMS)	Significantly more mothers receiving EMP successfully graduated from dependency/ family drug court compared to 38% of the mothers receiving CMS (72% vs 38%, p = .002)	Not estimated
Donohue (2014) USA RCT, low risk of bias	72 drug abusing or dependent mothers	Family behaviour therapy (FBT). 20 sessions, 75mins, 6 months plus contingency management	Treatment as usual (TAU)	Significant main effect for time from baseline to 6 month post randomisation f(1,68)=15.424 p<.001, partial η2 = -155 and baseline to 10 month f(1,68) -12.484 p<.001, partial η2 = -155 indicating hard drug use reduced over time	£1702

Forrester (2012) UK Quasi-experimental, high risk of bias	27 families where there were serious child protection concerns due to parental misuse of drugs or alcohol	Motivational interviewing, solution focussed and intensive family work	Natural comparison group	Families who received the intensive intervention were more likely to reduced or stopped misusing drugs or alcohol (94% vs 58%) and less likely to have entered care (8% vs 44%) or reached permanency (none vs 38%)	Not estimated
Harwin (2014) index paper Harwin (2016) link paper UK Quasi-experimental, high risk of bias	190 families where parental substance misuse was the key factor in care proceedings 240 (inclusive of 50 new referrals) were followed up in 2016	Family Alcohol and Drug Court (FDAC) which includes coordination or a variety of services	Usual care proceedings	Most parents in both the FDAC and comparison intervention group continued to use substances, between-group analysis found those receiving FDAC were significantly more likely to have stopped misusing substances. At 5 year follow-up, a significantly higher proportion of FDAC mothers: ceased substance misuse (46% vs 30%, p=0.017); were reunified (37% vs 25%, p=0.047). Of those FDAC mothers that were reunified with their children, a significantly higher proportion than comparisons: maintained cessation (58% vs 24% p=0.007); were estimated to experience no family stability disruption (51% vs 22%, p=0.007)	£8740 (cost estimated in 2014, may now exceed £12000)
Slesnick (2016) USA RCT, low risk of bias	183 mothers with diagnosed drug use disorder	Multi systemic family therapy based upon social ecological 12 sessions	Women's health education	MSFT reduced their drug use at a significantly quicker rate	Not estimated
Worcel (2008) USA Quasi-experimental, high risk of bias	1220 drug and alcohol misusing mothers	Family drug and alcohol court (FDAC)	Usual care proceedings	FDAC mothers were significantly more likely to enter treatment, do so faster, were retained longer and more likely to successfully complete at least one episode of treatment. There were no between group differences on the likelihood of out-of-home placements, however FDAC children spent significantly less time in out-of-home placements and were more likely to be reunified with their parents. Comparison children reached permanency significantly faster.	Not estimated

Peer interventions					
Ernst (1999) USA RCT, low risk of bias	96 drug/alcohol abusing mothers Targeted highest risk women, who were abusing alcohol or drugs during pregnancy.	Seattle model of paraprofessional Advocacy.	Received telephone calls or letter every 6 months to trace participants for follow-up.	No significant results	£6216
Huebner (2012) USA Quasi-experimental, high risk of bias	322 treatment referred families	Sobriety Treatment and Recovery Teams (START): integrated program including family peer mentor and child welfare workers, 6 contacts per month over 14 months	Treatment as usual	START almost twice as likely to achieve sobriety as the matched comparison group of CPS involved families and child placement in state custody was half are frequent.	£6032
Schuler (2000) Index paper Schuler (2002) Link paper USA RCT, low risk of bias	174 mothers who misused drugs during pregnancy	Weekly home visits from a peer mentor until 6 month post-partum then biweekly visits from 6-18 months.	Brief monthly home tracking visits to reduce attrition.	No significant results	£666

4.1.4 Discussion

The trials of psychological and social interventions to reduce parental substance dependence showed mixed results. Intensive case management and family-level interventions seem to offer the most promise, however more research is needed before achieving the strength of evidence required to make recommendations for practice.

4.1.5 Limitations

Whilst the studies typically utilised randomised trial design, and as such are often assessed as being of medium to low risk of bias, the strength of evidence is greatly reduced by the small sample sizes. The trials are typically pilot trials and as such are not sufficiently powered to conduct reliable statistical testing or cost effectiveness analysis. The results reported in the trials are therefore at risk of both type I and type II error, wherein the null hypothesis is either incorrectly rejected or retained. Further, the trials often compared the experimental intervention to active interventions, many of which have an evidence base within adult substance misusing populations. Whilst there are ethical reasons as to why a control group of 'no intervention' would not be acceptable with substance misusing parents, the use of active and on occasions, highly intensive comparison interventions is likely to reduce the ability of the trial to identify significant effects achieved by the intervention. Indeed, many of the trials were able to demonstrate that the intervention significantly reduced substance misuse by the parent; it was the superiority of effect that was not significant.

4.1.6 Recommendation for further research, policy and practice

In addition to the weaknesses identified, there are a number of notable gaps in the evidence. The literature is mostly conducted in the USA, with no trials from a UK context. Important cultural and healthcare differences are likely to effect the relevance of interventions to a UK population and as such, future UK-based research in needed. Trials which have large samples that allow for both effectiveness and cost effectiveness to be determined. The literature is largely a maternal literature with many trials exclusively involving mothers, or large proportions of their samples being mothers. As such, the evidence for interventions for fathers is limited. This is a concern given that the review of evidence of the impact of parental substance misuse presented in the first part of this report highlights that there is evidence for harm to the child from both mothers' and father's substance misuse, and that the presence of two parents

who use substances is a particular risk for children. Moreover, the current intervention literature is entirely focused on dependent substance misusing parents. Given the extensive harms to both the parent and child from dependent levels of use, this is an important area for future research. However, a series of guidance documents have stressed the importance of intervening early to address parental risk factors [27, 29, 30]. Given the current absence of evidence for interventions to reduce hazardous and harmful substance misuse by parents, no recommendation can be made on how best to respond to this important public health and safeguarding priority.

Whilst there is currently a paucity of evidence of effective interventions for non-dependent illicit drug users, there is a large amount of high quality evidence which has accumulated to support the effectiveness of alcohol screening and brief interventions with adults who have an alcohol use disorder [134, 135]. Indeed, the evidence base for brief interventions represents the largest, most robust body of evidence for alcohol interventions [136]. Most of this evidence has been in primary care, although other settings have learned from these studies and examined the benefits to their patients. Indeed, there have been a number of systematic reviews and individual studies of brief interventions in emergency departments [137, 138] and with other populations such as young people [139, 140] and pregnant women [141] showing some effect. However, there are no studies examining the effectiveness of alcohol screening and brief interventions with parents, including those whose children have been involved in children's social care due to concerns regarding the well-being of their child. Given the evidence that parental non-dependent alcohol misuse has an impact upon the health of both the parent and the child, the absence of secondary preventative intervention studies is a missed opportunity. Promoting the parent's ability to link their drinking with adverse experiences and risk of negative outcomes for their child, as well as to themselves, may replicate the 'teachable moment' found to be conducive of behaviour change following the delivery of brief interventions within other settings [142]. To fill this gap, some of the authors of this report are conducting a feasibility trial of alcohol brief interventions to reduce risky drinking by parents whose children have been referred into children's social care (further details are provided in the following section of this report). This study will adapt current evidence-based alcohol brief interventions for relevance to a parent population, before piloting the interventions in children's social care. Ultimately, this feasibility trial will inform the development of a protocol for a definitive trial examining the effect of alcohol brief interventions with risky drinking parents where there is a concern for the child's wellbeing.

4.1.7 Review conclusions

Non-dependent parental substance misuse is prevalent. Whilst the most vulnerable families with established Local Authority involvement have particularly high rates of parental substance misuse, there is evidence that large numbers of parents who misuse substances, and their children, are not known to services or if they are do not have their risky levels of substance misuse identified. Non-dependent parental substance misuse has been found to have a negative impact upon children. This REA has found a large evidence, particularly relating to parental substance misuse impact upon substance misuse by children and externalising difficulties in children. Local Authorities and their partners should seek to identify substance misuse by the parents accessing their services. This REA has found a dose-response relationship between parental substance misuse and impact upon the child. Existing validated screening tools with acceptable levels of sensitivity and specificity may assist Local Authorities and their partners to identify risky substance misusing parents. Examples include the Alcohol Use Identification Test (AUDIT) [43] and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)[143].

Despite the evidence that parental non-dependent substance misuse impacts upon children, there is a lack of research examining effective interventions with this group. Early intervention is essential if the impact of parental substance misuse upon children is to be addressed. Brief interventions that have been adapted for a parent population are likely to be appropriate for increased risk substance misusing parents, in order to assist them to understand the impact their misuse may have upon their child. High risk substance misusers are most likely to benefit from extended intervention. Our review found that family-level interventions, particularly those that offer intensive case management, or those with clear extrinsic motivation for the parent (such as those linked to care proceedings) show promise in reducing parental dependent substance misuse. Although further research is needed to determine effectiveness, an intervention that seeks to develop motivation based the benefits of behaviour change for the family is most likely to bring about positive change in substance misusing parents.

6. Appendix A

Search Strategy

Example MEDLINE search (REA i):

1. ((Drug consumption or drug misuse or drug disorder* or illicit drugs or heroin or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine or crystal meth or amphetamine* or cannabis or marijuana or LSD or magic mushrooms or mephedrone or khat or cathinone or ketamine or Gammahydroxybutrate or GHB or amyl nitrate or recreational drug) adj3 (parent* or mother or father or maternal or paternal)).ab,ti.
2. ((Alcohol consumption or alcohol misuse or alcohol intoxicat* or alcohol drinking or alcohol disorder* or binge drinking or social drinking or risky drinking or substance misuse or substance disorder or hazardous drinking or hazardous alcohol or harmful alcohol or harmful drinking or Alcohol consumption) adj3 (parent* or mother or father or maternal or paternal)).ab,ti.
3. alcoholism/ or binge drinking/ or amphetamine-related disorders/ or cocaine-related disorders/ or inhalant abuse/ or marijuana abuse/ or neonatal abstinence syndrome/ or phencyclidine abuse/
4. 1 or 2 or 3
5. (mother* or father* or maternal or paternal or parent*).ab,ti.
6. parents/ or single-parent family/
7. 5 or 6
8. (prevalence or rates or extent or frequency or occurrence or predominance or epidemiolog* or estimate* or longitudinal).ab,ti.
9. incidence/ or prevalence/
10. (Harm* or risk* or impact* or affect or effect* or damage or maltreatment or hazard or detriment or outcome* or advers* or injury or trauma or school or education or problem or health or behavio?r or mental health or substance ?use or drugs or alcohol or offending) adj3 (child* or adolescen*).ab,ti.
11. (protective or resilience).ab,ti.
12. risk/ or logistic models/ or protective factors/ or risk assessment/ or risk factors/ or uncertainty/
13. 8 or 9 or 10 or 11
14. 4 and 7 and 13
15. exp animals/ not humans.sh.
16. 14 not 15

Example search strategy for MEDLINE (REA ii)

1. substance-related disorders/ or alcohol-related disorders/ or amphetamine-related disorders/ or cocaine-related disorders/ or drug overdose/ or inhalant abuse/ or marijuana abuse/ or opioid-related disorders/ or phencyclidine abuse/ or psychoses, substance-induced/ or substance abuse,

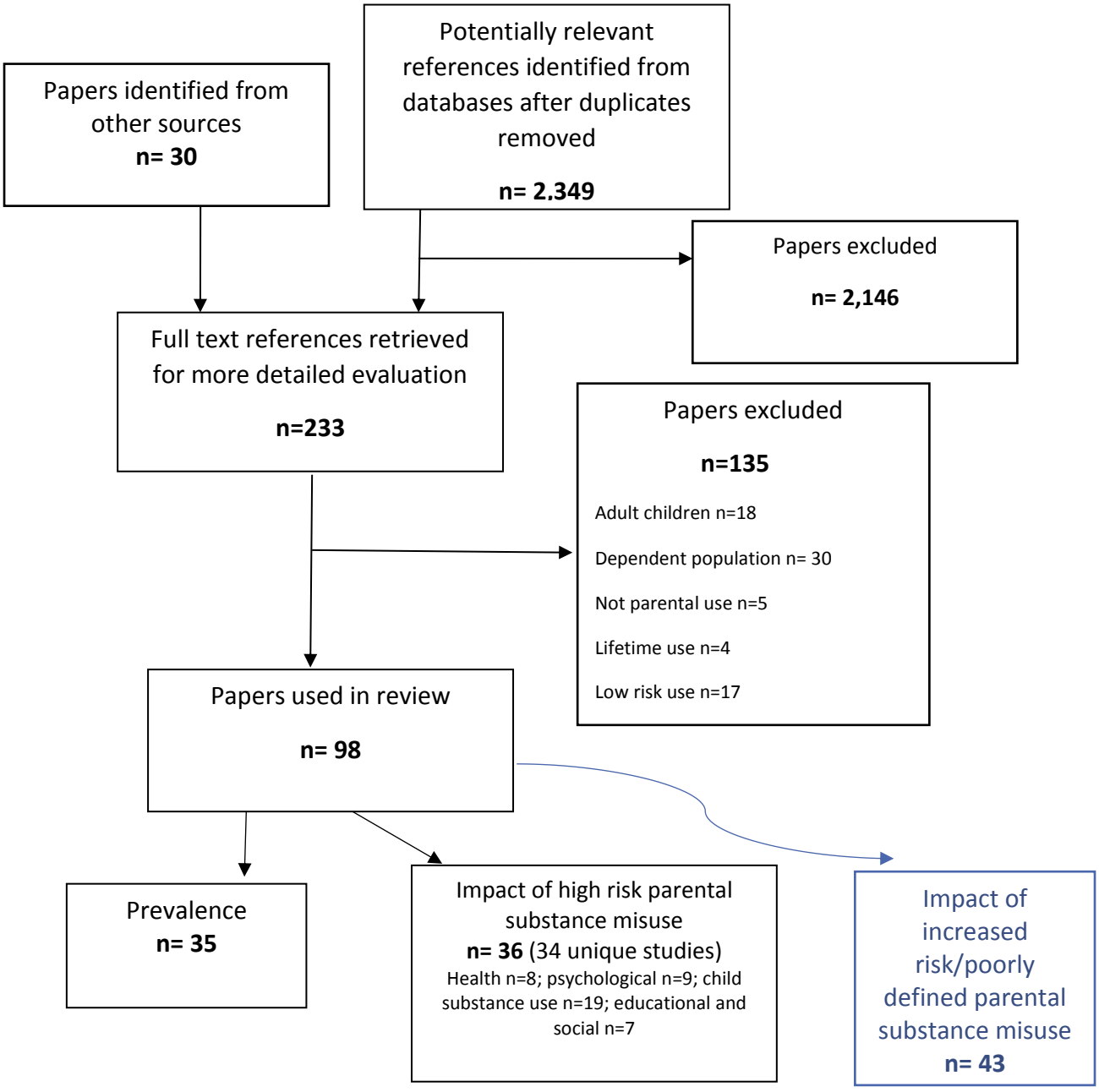
intravenous/ or substance withdrawal syndrome/ or alcohol withdrawal delirium/ or alcohol withdrawal seizures/

2. ((stimulant* or polydrug* or drug* or substance) adj6 (abus* or dependen* or addict* or disorder* or intoxicat* or misuse*)).ab,ti.
3. exp alcohol drinking/
4. (alcohol adj3 (dependen* or drink* or intoxicat* or abus* or misus* or risk* or consum* or excess* or reduc* or intervention*)).ab,ti.
5. (drink* adj3 (excess or heavy or heavily or harm or harmful or hazard* or risky or binge or harmful or problem*)).ab,ti.
6. (addict* or abstain* or abstinen*).ab,ti.
7. (heroin or methadone or temegesic or subutex or opiate* or crack cocaine or cocaine or ecstasy or methamphetamine* or crystal meth or amphetamine* or cannabis or marijuana or marijuana or lsd or magic mushrooms or mephedrone or khat or cathinone or ketamine or gammahydroxybutrate or ghb or amyl nitrate).ab,ti.
8. 1 or 2 or 3 or 4 or 5 or 6 or 7
9. maternal deprivation/ or parent-child relations/ or father-child relations/ or mother-child relations/ or parenting/ or paternal behavior/ or paternal deprivation/ or nuclear family/ or exp parents/ or single-parent family/
10. (parent or parents or parental or guardian* or mother or maternal or father or paternal or mum or dad).ab,ti
11. 9 or 10
12. psychotherapy/ or exp behavior therapy/ or exp cognitive therapy/ or exp relaxation therapy/ or gestalt therapy/ or narrative therapy/ or nondirective therapy/
13. play therapy/ or exp psychoanalytic therapy/ or exp psychotherapeutic processes/ or psychotherapy, brief/ or psychotherapy, multiple/ or psychotherapy, psychodynamic/
14. psychotherapy, rational-emotive/ or reality therapy/
15. socioenvironmental therapy/
16. counseling/ or exp directive counseling/
17. (motivat* adj5 (interview* or therap* or consult* or intervention* or enhance*)).ab,ti.
18. (brief adj3 intervention*).ab,ti.
19. (cognit* adj2 (train* or behavior* or therap* or technique* or skill*)).ab,ti.
20. ((psychodynamic or psychosocial) adj2 (therap$ or treatment$ or intervention$ or program$)).ab,ti.
21. (psychotherap* or counsel* or residential rehabilitation).ab,ti.

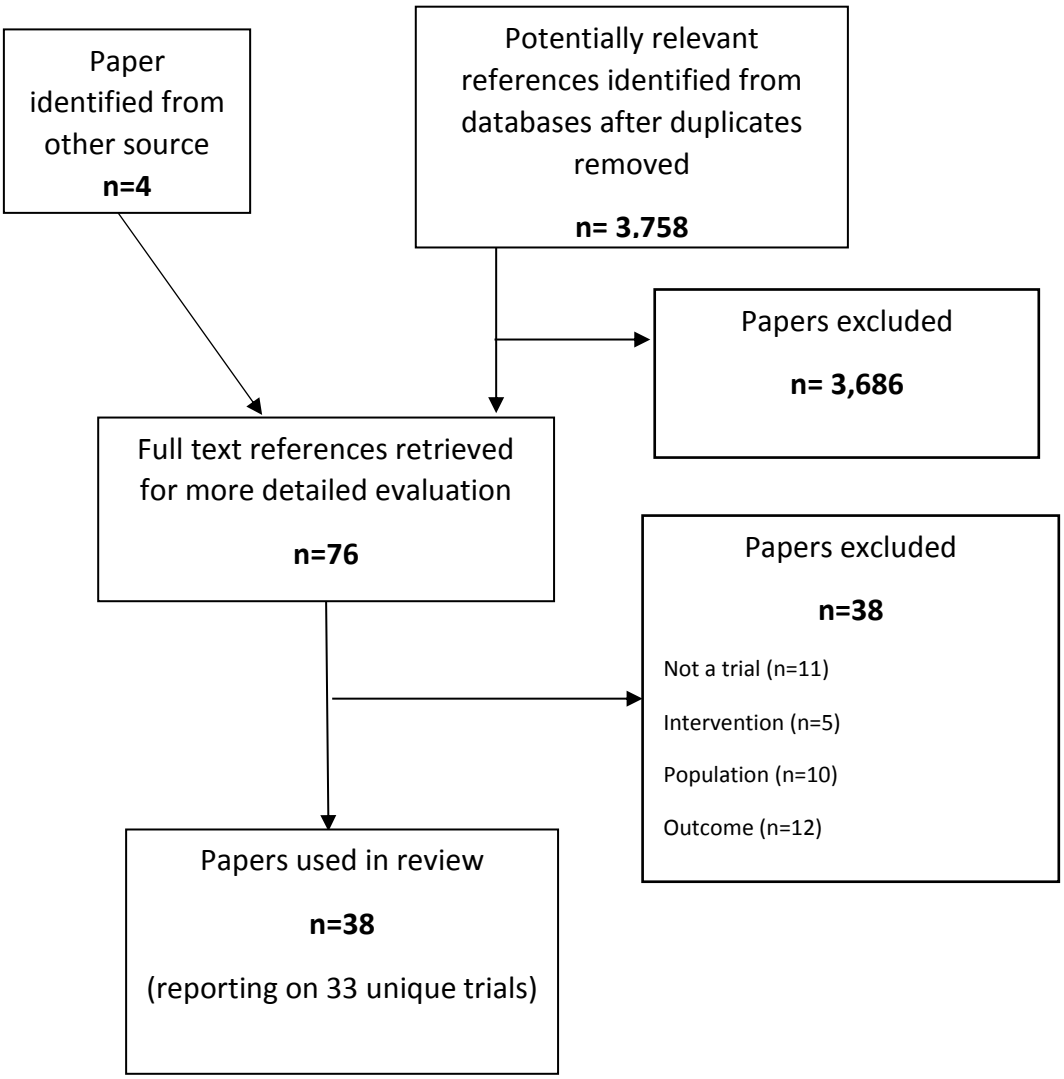
22. ((relaxation or imagery) adj2 (therap$ or technique$)).ab,ti.
23. (family adj2 therap*).ab,ti.
24. (case adj2 management).ab,ti.
25. ((coping skill* or cbst or self control or assertive*) adj2 (training or therap*)).ab,ti.
26. 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25
27. (randomized controlled trial or controlled clinical trial).pt.
28. (randomized or placebo).ab.
29. clinical trials as topic.sh.
30. randomly.ab.
31. trial.ti.
32. 27 or 28 or 29 or 30 or 31
33. exp animals/ not humans.sh.
34. 32 not 33
35. 8 and 11 and 34

7. Appendix B

7.1 REAi: prevalence of parental substance misuse and the health, psychological, substance use, educational and social impact upon the child



7.2 REAii: The Effectiveness of psychological and social interventions to reduce parental substance misuse



8. Appendix C

8.1 Description of included studies

8.1 Prevalence

In total, 32 papers reported on the prevalence of parental non-dependent substance misuse. Five of these papers were from the UK [40-42, 45, 47], ten from other European countries [54, 55, 63, 67, 68, 144-148] and the remaining papers reported on studies conducted in USA [80, 149-157] or other countries worldwide [57, 158-162]. Seven papers reported on the prevalence rates of both harmful and hazardous levels of parental substance misuse [40-42, 63, 67, 80, 149, 153], six papers reported on the prevalence of harmful levels of parental substance misuse [47, 55, 57, 68, 152] and 17 papers reported on hazardous levels of substance misuse [45, 144-148, 150, 151, 154-162]. Twenty-two papers reported on the prevalence rates of parental alcohol misuse only [45, 63, 67, 80, 144-148, 150, 151, 153-162], one reporting on the prevalence rates of parental illicit drug use [54] and eight reporting on the prevalence of both parental drug and/or alcohol misuse [40-42, 47, 55, 57, 149, 152]. Seven papers examined the prevalence of maternal drug and/or alcohol misuse [45, 55, 149, 151, 153, 155, 158], one reported on paternal drug and/or alcohol misuse [144] whilst the remaining papers reported on the prevalence of combined parental drug and/or alcohol misuse.

In addition three UK national surveys which collected data on substance misuse and parenting status were accessed [16, 46, 163].

8.2.1 Physical health

Eight papers consider the impact of high risk parental substance misuse upon child health [50-57]. Four papers are concerned with parental alcohol misuse [50-53], one with parental illicit drug use [54] and three with both alcohol and drug use [55-57]. Four of the papers examine the impact of the misuse of both parents [52-54, 57], three papers examine the impact of maternal substance misuse [50, 51, 55] and one paper examined the impact of father's substance misuse [56].

8.2.2 Psychological impact

Eight papers reporting on six unique studies examined the impact of parental substance misuse upon child psychological health [58-65]. All papers examined the impact of alcohol misuse only [58-65]. One paper was concerned with maternal alcohol misuse [59], one paper with paternal alcohol misuse [58] whilst the remaining papers examined parental misuse of substances [60-65]. The correlation between both externalising and internalising disorders and parental misuse of alcohol was examined by three papers [58, 59, 65], four papers considered just externalising disorders [60-63] and one paper focused upon internalising disorders only [64].

8.2.3 Children's substance use

Nineteen papers from 17 unique studies reported on the impact of parental substance misuse upon the substance use of their child. [58-60, 66-71], three reported harmful drug use [76, 164] and three reported harmful drug and/or alcohol misuse [57, 73, 75]. All of the papers reporting on harmful levels of use, examined the impact of combined parental substance misuse with the exception of two; one paper reported paternal alcohol misuse only [58] and one maternal alcohol misuse only [59]. Despite assessing both maternal and paternal substance misuse, one further study only reported findings relating to fathers' use [70] and one mostly mothers' misuse [164]. Eight papers reported the impact of parental substance misuse upon the child's alcohol use [60, 66-71], two papers reported the impact upon child illicit drug use [76, 164] and six papers reported on the child's alcohol and/or drug use [57-59, 73, 75].

Nineteen papers considered child reported measures of parental use: nine papers focused on harmful levels [61, 62, 64, 72, 77, 78, 165-167]; and ten on hazardous levels [88, 89, 168-174]. Fifteen papers reported parental alcohol misuse [61, 62, 64, 72, 88, 89, 165, 166, 168-173], three drug and alcohol misuse [77, 78, 167] and one just illicit drug use [174]. Regarding the child's subsequent substance use, twelve papers considered alcohol [61, 64, 88, 89, 165, 166, 168-173], six considered alcohol and/or drug use [62, 72, 77, 78, 167] and one considered illicit drug use (solvents) [174]. All nineteen papers in this section included both mothers and fathers.

Sixteen papers report on hazardous parental substance misuse and the impact upon the child's substance use; eleven of which examine the impact of parental alcohol misuse [74, 90, 91, 147, 148, 154, 155, 175-178], four examining the impact of parental substance misuse (alcohol and/or drugs) [45, 179-181] and one

examining parental illicit drug misuse only [182]. Of these sixteen papers, four focused upon the mothers' substance misuse [45, 155, 177, 179], whilst the remaining papers included both parents. With regards to the child's use of substances, twelve papers reported on alcohol use and/or cigarette use [74, 90, 91, 147, 148, 154, 155, 175, 177, 178, 180, 181], two on illicit drug and/or alcohol use [179, 182] and illicit drug use only [45, 176].

8.2.4 Educational and social impact

Fourteen papers reported on the educational and social impact of parental substance misuse on the child; nine of which are concerned with harmful levels of use as assessed by parent-reported measures [55, 57, 68, 70, 79, 81, 93], using child-reported measures [78, 165] or using social worker reported concern of a degree which would equate to harmful levels [47], whilst four paper considered hazardous levels [80, 153, 183, 184]. Seven papers examined alcohol misuse by the parent [68, 70, 79, 80, 93, 165, 184] and seven papers examined parental alcohol and/or drug use [47, 55, 57, 78, 81, 153, 183]. Eleven papers assessed both mothers' and fathers' substance misuse [47, 57, 68, 70, 78-81, 93, 165, 184], although one of these papers only reported on the impact of paternal use [70] and three further studies examined the impact of maternal use upon the child's [55, 153, 183]. Four papers examined the educational impact; one examining the child's educational attainment [79] and three being concerned with school-related behaviour problems such as truancy and suspension [57, 70, 183]. One paper reports on social problems (undefined) [93], five examined the impact of parental substance misuse upon the quality of the parent-child relationship and family environment [68, 78, 153, 165, 184], three were concerned with neglectful parenting practices and abuse [57, 70, 80], one paper reported on the presence of concerning levels of parental substance misuse within child protection cases [47] and two examined the relationship between parental alcohol and/or drug use and the child being removed and placed in residential care [55, 81].

8.2.5 Interventions

Thirty-five papers reporting upon 31 unique trials met the inclusion criteria for the review. Of these papers, 22 reported the effect of an intervention for parents who misuse alcohol and/or drugs [96, 98-106, 108, 111, 114, 115, 117, 118, 122-125, 131, 132] and 13 reported on the effect of an intervention for illicit drug using parents [95, 97, 107, 109, 110, 112, 113, 116, 119-121, 129, 130]. The trials mostly included participants who were mothers, with 26 papers from 23 unique trials exclusively involving substance misusing mothers [95-100, 103-106, 108, 110-113, 116-118, 120-124, 129-131]. This compared to three papers of unique trials which included substance misusing fathers exclusively [102, 114, 115] and six

papers (reporting on five trials) which included substance misusing mothers and/or fathers [101, 107, 109, 119, 125, 132]. Twenty-one of the papers (reporting on 17 unique trials) examined the effects of an intervention that was delivered to an individual parent [95-113, 129, 130], whilst 14 papers each reporting on a unique trial, examined the effects of an intervention wherein two or more family members were recipients of the intervention [114-125, 131, 132]. The experimental interventions frequently have multiple overlapping components, however, can be broadly grouped by intervention type to: individual alcohol and/or drug treatment focusing upon the substance misuse needs of the parent [95-104]; parent training [107-109, 113, 115, 119]; family-centred interventions including relational psychotherapy with individual parents, couples and family therapy [105, 106, 110-114, 116, 117, 121, 123] family drug and alcohol court [96, 120, 124, 125] and peer support [129-132].

9. Appendix D

9.1 The impact of increased risk parental substance misuse upon the child

Our review identified 43 papers which examined the impact of non-dependent parental substance misuse upon the child, but the papers did not meet our criteria for 'high risk' substance misuse. These papers reported on a level of misuse which was above the recommended low risk drinking levels [36] but below high risk levels or infrequent drug misuse (once or less per month). Or did not utilise a reliable, valid and/or diagnostic tool to measure parental substance misuse reduce confidence with which parental substance misuse can be assessed as high risk.

9.1.1 Health impact

Increased risk parental substance misuse has been reported to have a negative effect upon the health of the child. Barczyk et al (2013) found that children (mean age of 6.6, SD 4.5 years) admitted to hospital following unintentional injury were more likely to report inconsistent helmet use if one or both of their parents were risky drinkers (OR=1.58; 95% CI 1.06-2.36; $p \leq 0.05$), than children whose parents were not risky drinkers [156]. Balsa & French (2012) examined the impact of parental heavy episodic drinking upon health care utilisation, as a proxy measure for injury and illness [185]. They found children of heavy episodic drinking parents were significantly more likely to visit a paediatrician during the past year ($p<0.01$). The effect was more pronounced if either the heavy drinking parent or the child was female. Moreover, the likelihood of at least three paediatric care visits in the past year (a measure suggestive of acute or chronic care needs rather than preventative routine care) was significantly associated with parental heavy episodic drinking ($p<0.01$). The remaining two studies examined risk factors for sudden infant death syndrome (SIDS) [186, 187]. Paternal cannabis use within the postnatal period was shown to be significantly associated with SIDS, after controlling postnatal tobacco smoking and alcohol use during the conception period (OR 2.8; 95% CI 1.1-7.3; $p=0.04$). No analysis relating to maternal recreational drug use was possible in this study due to the small number of mothers who reported drug use [186]. Maternal alcohol consumption of > 2 units was the strongest single factor increasing the odds of sudden infant death syndrome SIDS by 41 times (OR 41.62, 95% CI 5.45-318.09 $p=0.0003$). However, parental use of illicit drugs in the past 24 hours was not significantly associated, potentially due to the low numbers involved. When the combined effect of co-sleeping and parental alcohol or drug use was evaluated the odds ratio of SIDs increased further (OR 53.26, 95% CI 4.07-696.96, $p=0.002$) [187].

9.1.2 Psychological impact

Most studies which examined the impact of increased risk parental substance misuse upon child externalising problems. A large longitudinal study found that maternal substance misuse was significantly associated with child behaviour problems [188]. In particular, the number of drinking days and heavy episodic drinking in past month as well as any cannabis or cocaine use in past year was found to be positively associated with an increase in the Behaviour Problem Index (BPI) score. However, when maternal cigarette smoking and psychiatric disorders are controlled for only maternal cannabis and cocaine use remains statistically significant [188]. The impact of parental alcohol and cannabis use upon child rebellious behaviour was also found in a study by Brook et al (2006), however the association lost significance after controlling for child personality [189]. This association between both paternal and maternal alcohol misuse and child externalising problems was found by two linked studies to be mediated by parent-child conflict [92, 93]. One study reported significantly higher rates of parental substance abuse in a population of children with ADHD than parents of children without ADHD [190]. This study had a small sample size and is assessed as being of low quality. Whilst one study examining maternal substance misuse [191] and one study examining parental alcohol misuse [192] found no association with child externalising difficulties.

There was less evidence for an association between parental alcohol and/or drug misuse and child internalising difficulties. A smaller longitudinal study recruiting over 700 mothers and their children reported significant associations between maternal substance misuse and child internalising difficulties at 5 years of age [191]. Whilst a further study showed no statistically significant association between parental alcohol misuse and internalising or disorders [192]. A further study reported significant associations between father's alcohol misuse and child internalising problems but not maternal alcohol misuse [92, 93]. The significant impact from paternal alcohol misuse was lost however after key confounders were controlled for, with maternal depression being the most consistent mediator of child internalising problems [92].

Two studies examined associations between parental substance misuse and child IQ; one found no association between caregiver cocaine use and IQ [193], whilst the other reported significant association between paternal alcohol consumption and a lower child IQ score [144]. However, the difference in IQ

between the group of children whose father's misused alcohol and those that did not was so slight that there was no clinical significance (-2.5 points, 95% CI -3.4, -1.6).

9.1.3 Children's substance use/misuse

Studies examining the impact of parental hazardous alcohol and/or drug use mostly found evidence of an impact upon the child's substance use. Parental alcohol misuse has been found to be related to intention to drink in children aged 7-13 years of age [170] and alcohol use at 11 years [88] and 13 years of age [88, 171] and increase the likelihood of child alcohol experimentation [171, 194], frequency of alcohol use [165] and alcohol intoxication [165], particularly if both parents are hazardous drinkers [168]. Further, children were found to be significantly more likely to participate in problem-related drinking (e.g. missing school or getting into trouble), but not risky drinking (e.g. before school or in combination with other substances) [169] if their parent misused alcohol. Parental warmth and monitoring however have been shown to moderate the association [90]. Studies also found an increased likelihood [182, 194, 195] and frequency of illicit drug use [194], inhalant use [174] and cigarette smoking [182] if a parent misused substances. A further study however found no significant association between parent increased risk alcohol use (measured as drinking ≥ four times per week) and child alcohol use, heavy child alcohol use or child cannabis use [167]. One longitudinal study found no significant associations between parental hazardous alcohol use and child alcohol use in a sample of maltreated children [154]. It should be noted however that the age range of this sample was 9-17 years, (mean age 12.37 years) and as such, this young sample may be yet to reach the age in adolescent when alcohol use is initiated.

Whilst some studies reported that both mothers' and fathers' hazardous drinking was associated with child alcohol use [178], others reported conflicting evidence for the detrimental effects of fathers' versus mothers' substance misuse. Paternal alcohol misuse is a robust predictor of drug use in boys [176]. However, in two studies examining the impact of mothers' and father's alcohol misuse adolescent alcohol use, only mothers' alcohol misuse was found to be significant [166, 196]; it was only following the addition of cannabis use that paternal and maternal use was significantly associated [196]. Two papers reporting on the Avon Longitudinal Study of Parents and Children (ALSPAC) investigated the influence of early adversity upon cannabis use of the child. This study found that paternal and maternal cannabis use or daily drinking were not associated with child alcohol use aged 10 years. However, a consistent association was found between mother's less than daily alcohol use and child alcohol use aged 10 years despite controlling for confounders [181]. For a child 16 years of age, maternal alcohol misuse and cannabis misuse were

associated strongly with the child's cannabis use, with maternal cannabis misuse increasing the odds of child cannabis use eightfold [45]. The latter paper did not report on the impact of paternal substance misuse however so no comparisons can be made.

A further three studies examined the impact of just maternal substance misuse. Maternal cannabis use was significantly and independently associated with child substance use [179]. Early onset of cigarette smoking (aged 14 years) was related to maternal alcohol misuse. This relationship disappeared in multivariate analysis, suggesting that the relationship may be mediated through environmental or interpersonal factors [177]. Similarly, the adolescent children of binge drinking mothers were significantly more likely to misuse alcohol, however this effect disappeared as the child reached late adolescence and after adding maternal-child attachment to the model [155]. The mediating role of mothers was also highlighted in a study examining parent alcohol socialisation within adolescence. The most substantial increases in alcohol use was found in adolescents when either one or both of their parents misused alcohol and mothers communicated permissive messages about alcohol [91].

When also considering the gender of the child, the father's drinking was shown to be a risk for alcohol and illicit drug use in boys, but not girls. Four studies found that the fathers' alcohol misuse was more significant, with associations being shown between both male and female children [88, 89, 172, 173], whilst maternal drinking was found to be associated with younger boys [88] or girls [89]. This association was reported to be mediated by different family variables including: increased levels of maternal emotional closeness, decreasing adolescent alcohol use [88], and parental disapproval of alcohol decreasing adolescent alcohol use [88, 89].

9.1.4 Educational and social impact

A study involving 2,300 mothers and their children reported on the impact of maternal substance misuse upon school suspension. This study found that maternal cannabis and cocaine use were associated with the school suspension, however cannabis use was the most robust variable, remaining significant within all multivariate models. Conversely maternal alcohol misuse was not associated with suspension. Within this study much of the variance however was explained by factors other than maternal substance misuse including race and marital status (both being the strongest predictors), maternal criminality and depression [183].

Studies considering the impact of substance misuse upon family functional and environment did not agree. One study showed no significant impact upon the social problems experienced by the child [93]. Whilst no significant association was found between parental alcohol misuse and the child's emotional security within the context of family relationships [184], a further study found parental bonding and the parent-child relationship to be significantly and negatively affected by parental alcohol misuse [165]. Families with a mother who was an alcohol misuser have been found to be at significant risk of multiple family-related problems for school-aged children [153]. This included being three times more likely to have poor family functioning, more than twice as likely to have inadequate intellectual stimulation within the home and almost threefold likelihood of domestic violence. Whilst a further study reported that parents who binge drink 2-3 times per month are more likely than abstainers to place their child at risk by leaving them home alone, although this relationship lost significance after controlling for child and parent characteristics [80].

Table 12: Impact of increased risk parental substance misuse upon the child

Author, date, country	Cohort number	Age of child participants	Measure of parental use	Harm	Evidence	Study quality
Health impact						
Balsa (2012) USA	N=65926	< 12yrs	Parental high intensity drinking (mothers 4> drinks, fathers 5> drinks per episode)	Use of paediatric healthcare a) use in last yr b) at least three visits in past yr	a) adjusted ATT=0.019, p<0.05; b) NS when adjusted	High
Barczyk (2013) USA	N=693	Mean 6.6yrs	Parental risky alc was assessed is parent drank 5 or more drinks in one occasion in the past 12 months.	Inconsistent helmet use	unadjusted OR=1.58 95% CI= 1.06-2.36, p≤0.05	Medium
Blair (2009) UK	N=167	0-2yrs	More than 2 units of alc considered risky as it exceed recommended levels.	SIDS:a) past 24 hours drug use, b) mother ≥ 2 units alc c) co-sleeping & parental alc/drug use	a) NS; b) OR= 26.81, 95% CI= 4.36-164.99, p=0.0004; c) OR=11.76, 95% CI=1.4-99.83, p=0.02	High
Klonoff (2001) USA	N=478	0-12mnth	Any drug use during breast feeding, or smoking cannabis in the presence or vicinity of the infants.	SIDS: paternal cannabis misuse	OR 2.8, 95% CI 1.1-7.3; p=0.04	High
Psychological impact – externalising problems						
Bayer (2012) Australia	N=733	1.5-5yrs	Kemper and Kelleher's (1996) health service screening (mother self-report)	Externalising problems	Co-efficient: 1.79; CI: 2.57-6.15, p=0.42	Medium
Brook (2006) USA	N=210	6-12.5yrs	Child report - child's perception of his/her mother's and father's cigarette and alc use, and cannabis	Externalising behaviour	NS	Medium
Chatterji (2001) USA	N=6194	14-21yrs	Quantity-frequency measure	Maternal: a) no of days drinking impact upon BPI b) binge drinking impact upon BPI, c) cannabis misuse and BPI, d) cocaine use and BPI	a) OLS=0.033 (0.89); b) OLS=0.925 (1.19); c) OLS=5.915(7.13); d) 6.004(4.04)	Medium
El-Sheikh (2001) El-Sheikh (2003) USA	N=216	9-10yrs	MAST used to assess parental drinking score of 5 or more was considered problem drinking	a) fathers alc and child externalising problems, b) mothers alc and child externalising problems	a) β=0.27, p<0.001; b) β=0.30, p<0.001	Medium
Farokhzadi (2012) Iran	N=400	6-18yrs	SADS	ADHD	F=22.92, P=0.00, Ratio -4.60. DF 797.00	Low

Pajarn (2012) Thailand	N=148	3-4yrs	AUDIT (5-item) with a threshold of 5 or more being positive	Emotional and behavioural; a) overall combined problems; b)hyperactivity; c) emotional problems; d) conduct; e) peer problems	Unadjusted ORs NS	Low
Torvik (2011) Norway	N=8984	13-19yrs	Parental alc use measured using CAGE. Adolescents were also asked if they had seen their parent drunk and the frequency of this (never to a few times per week)	Maternal at risk sub use: a) attention difficulties, b) conduct problems Paternal at risk sub use: c) attention difficulties, d) conduct problems	a) d= 0.09 95% CI=0.01-0.17, ns; b) d= 0.08 95% CI=0.00-0.16, ns; c) d= 0.11 95% CI=0.03-0.16, P<0.01; d) d= 0.11 95% CI=0.03-0.19, P<0.01	High
Psychological impact – internalising problems						
Bayer (2012) Australia	N=733	1.5-5yrs	Kemper and Kelleher's (1996) health service screening (mother self-report) questions measured maternal substance misuse	Internalising problems	Coefficient: 5.26; CI:1.61-8.91, p=0.005	Medium
El-Sheikh (2001) El-Sheikh (2003) USA	N=216	9yrs	MAST used to assess parental drinking score of 5 or more was considered problem drinking	a) fathers drinking and child internalising problems, b) mothers drinking and child internalising problems	a) β=0.20, p<0.05; b) β=0.02, NS	Medium
Impact of mothers' substance misuse upon the child's substance use						
Alati (2014) Australia	N=752	13.5yrs	Mothers reported on own and fathers alc use classifying as 1) none drinker 2) ex-drinker 3) occasional 4) moderate/heavy drinker	Maternal drinking and child high risk drinking.	a) OR= 2.77, CI = 1.86-4.13, P<0.001;	Medium
Capaldi (2016) USA	N=146	11-18yrs	Alc and cannabis quantity and frequency measures over 12 month period	a) mothers alc misuse predicts child alc use, b) mothers cannabis misuse predict child alc use,	a) t= 1.58, p=<0.05, b) NS,	Medium
Chapple (2006) USA	N=756	mean= 15.9yrs	Maternal cannabis assessed as never, more than 1 year ago, last year use. Alc use assessed frequency of intoxication (6 drinks or more) never, or three times or more in last year	a) substance use predicted by mother's recent cannabis misuse, b) substance use predicted by mother's drinking	a) β = -0.19; p<0.05; b) NS	Medium
Haughland (2013) Norway	N=5032	13-19yrs	CAGE	Maternal alc misuse: a) high alc use in girls, b) frequent alc intoxication in girls, c) frequent alc drinking in girls, d) high alc consumption in boys, e) frequent alc intoxication in boys, f) frequent alc drinking in girls	a) NS; b) OR = 1.8, CI=1.0-3.1, p= 0.035; c) NS d) OR = 0.2, CI=0.1-0.6, p= 0.005; e) NS; f) NS	High
Hayatbakhsh (2013) Australia	N=3039	14yrs	Grouped as abstainers, ≤ 1 glass and ≥ 1 glass per day	Maternal alc misuse and early onset of smoking	NS after adjusting	Medium

Heron (2013) UK	N=4159		Maternal cannabis use: yes/no to use at any use and yes/no daily alc use at 2, 8, 21, 33 months postnatal	Maternal cannabis misuse a) child cannabis use, b) child problem cannabis use, Maternal daily alc use c) child cannabis d) child problem cannabis	a) OR= 1.72, CI = 1.43 - 2.07, p<0.001, b) OR= 8.15, CI=5.11-13.0, p<0.001, c) OR= 3.51, CI=2.55-4.83, p<0.001, d) OR= 1.39, CI=0.92-2.09, p<0.001	High
Kelly (2011) Australia	N=6837	Data not available	Child report - Mother's and father's alc use on 5-point Likert scale: 1 = never, 2 = occasionally, 3 = most days, 4 = every day, 5 = ex-drinker	maternal everyday drinking and child alc use: a) boys (aged 11), b) boys (aged 13), c) girls (aged 11), d) girls (aged 13)	a) OR= 3.16, CI- 1.53-6.55, p<0.01; b) NS; c) NS; d) NS;	Medium
Korhonen (2008) USA	N=4740	14-17.5yrs	Frequency of intoxication (drinking more than 5 drinks. Mother's frequency variables were never, less than monthly, monthly or more often	Mothers' monthly intoxication predicting child illicit drug use	a) OR= 2.78, CI= 1.91-4.04, p<0.001;	Medium
Macleod (2008) UK	N=6895	10yrs	Mothers reported own and partners use of alc, cannabis and tobacco both during pregnancy and childhood. Alc use categories as never, <3 units and > 3 units (in line with recommended levels)	Child smoking tobacco and drinking at 10 years a) maternal cannabis misuse, b) maternal daily alc use	a) OR = 0.7,CI = 0.2-2.4, P= 0.55; b) OR=0.7, CI = 0.2-2.5, P=0.55;	High
Rehorcikova (2013) Slovakia	N=2494	15yrs	Child report - Parental drinking coded as never, sometimes or everyday	Impact of mothers alc misuse on child's drinking per week	NS	Medium
Seljamo (2013) Finland	N=1278	15yrs	Frequency/quantity measure of parental drinking. Heavy alc use defined as drinking more than once a week	Maternal frequent drunkenness and child problematic alc use at 15	COR=2.4, CI= 1.4-4.3, p= 0.008;	Medium
Tripovik (2014) Croatia	N=701	14-19yrs	Child report – structured questionnaire with questions about alcoholism within family	Mothers' alc misuse and amount of alc consumed by child	NS	Low
Tyler (2007) USA	N=542	14yrs	Maternal binge drinking more than 5 drinks in a single day	Maternal alc misuse and child alc misuse	β = 0.171, p<0.01	Medium
Van der Vorst (2014) Netherlands	N=127	Mean 10.0yrs	Child report – parental alc use (1) ''No.'' (2) ''Once,'' (3) ''A couple of times,'' (4) ''Every day''	Children's intention to drink alc	a) β= -0.22, p<0.01	Low

Impact of fathers' substance misuse upon the child's substance use						
Alati (2014) Australia	N=752	13.5yrs	Mothers reported on own and fathers alc use classifying as 1) none drinker 2) ex-drinker 3) occasional 4) moderate/heavy drinker	Paternal alc misuse and child high risk drinking	OR = 1.40, CI= 1.04-1.89, P=0.029	Medium
Capaldi (2016) USA	N=146	11-18yrs	Alc and cannabis use quantity-frequency measure	a) father's alc misuse predicts child alc use, b) fathers cannabis misuse predict child alc, c) fathers alc x cannabis misuse predict child alc use	a) NS, b) NS, c) t=1.49, p=<0.05	Medium
Haughland (2013) Norway	N=5032	13-19yrs	CAGE	Fathers' alc misuse: a) child high alc consumption in girls, b) frequent alc intoxication in girls, c) frequent alc drinking in girls, d) high alc consumption in boys, e) frequent alc intoxication in boys, f) frequent alc drinking in boys	a) OR = 1.5, CI=1.1-2.1, p= 0.02 b) OR = 1.5, CI=1.1-2.1, p= 0.02; c) NS; d) OR = 1.6, CI=1.1-2.3, p= 0.018; e) NS; f) NS	High
Kelly (2011) Australia	N=6837	Data not available	Child report - Mother's and father's alc use was assessed with this item: "Does your mother/father drink alc" (5-point Likert scale: 1 = never, 2 = occasionally, 3 = most days, 4 = every day, 5 = ex-drinker)	Paternal everyday drinking: a) boys alc use (aged 11), b) boys alc use (aged 13), c) girls alc use (aged 11), d) girls alc use(aged 13)	a) NS; b) OR= 2.22, CI- 1.25-3.94, p<0.01; c) OR= 2.22, CI- 1.10-4.48, p<0.05; d) OR= 3.07, CI- 1.74-5.40, p<0.001;	Medium
Korhonen (2008) USA	N=4740	14-17.5yrs	Frequency of intoxication (drinking more than 5 drinks. Mother's frequency variables were never, less than monthly, monthly or more often	Fathers' weekly intoxication predicting child illicit drug use	OR= 1.59, CI= 1.21-2.08, p<0.01	Medium
Rehorcikova (2013) Slovakia	N=2494	15yrs	Child report - Parental drinking coded as never, sometimes or everyday	Impact of father's alc misuse on child's drinking per week	OR=2.23, 95% CI= 1.19-4.18, p<0.05	Medium
Sanchez (2013) Brazil	N= 17,371	13-18yrs	Child report - Alc use and binge drinking by parents indicate the perception that the student has of their parents' drinking (eg, Does your mother usually drink? Does your mother usually get drunk?)	Paternal alc use and early onset of alc use	NS after adjusted	High
Seljamo (2006) Finland	N=1278	15yrs	Frequency/quantity measure of parental drinking. Parents drinking was considered light if they used alc rarely, moderate if they had used alc a few times a month, heavy if they had used alc more than once a week	paternal alc use of 5> units in an occasion	COR=1.8, CI=1.1-2.8, p=0.042	Medium

Tripovik (2014) Croatia	N=701	14-19yrs	Child report – structured questionnaire with questions about alcoholism within family	Fathers' alc misuse and amount of alc consumed by child	X^2 =4.13, df=4, p<0.02	Low
Van der Vorst (2014) Netherlands	N=127	Mean 10.0yrs	Child report - ''Did your father drink beer or wine last week?'' and ''Did your mother drink beer or wine last week?'' Answer categories were the following: (1) ''No.'' (2) ''Once,'' (3) ''A couple of times,'' (4) ''Every day''	Fathers' drinking and children's intention to drink alc	β=0.31, p<0.05;	Low
Impact of either parents' substance misuse upon the child's substance use						
Bailey (2016)	N=383	1-13yrs	Parents and caregivers each reported the frequency of their cannabis use in the month before the interview. Frequency >30 was rare, so responses were recoded to 0-30+. When two caregivers were present, use frequencies were averaged across parents at each wave	Parent current cannabis: a) child alc, b) child cannabis use	a) NS; b) NS	Medium
Bendtsen (2013)	N=2911	Cohort 1 Mean=13.7yrs Cohort 2. Mean= 15.7yrs	Child report - Parental drinking was assessed by two questions about mother's and father's frequency of alc intake (daily, weekly, monthly, rarely/never, and do not know), categorized as "both drinking daily," "one drinking daily," or "less".	Child intoxication a) both parents drinking daily, b) one parent drinking daily	a) OR=2.42, CI=1.66-3.53, p<0.001; b) OR=1.47, CI=1.10-1.96, p<0.001	Medium
Cheng (2010)	N=1591	Mean= 12.37yrs	Parental problem drinking assessed as dichotomous measure of whether parent has consumed 3 drinks (assessed level of intoxication) in past 12 months	Alc use	NS	Medium
Connell (2010)	N=1236	Mean= 14.26yrs	Child report - Family history of problem drug use : "no history", "prior history", and "current history" of problem use	a) alc experiment, b) occasional poly use, c) frequent poly use	a) OR= 2.42, 95% CI= 1.26-4.67; p<0.01; b) OR= 3.51 95% CI = 1.33-9.29, p<0.05; c) OR=3.61, 95% CI= 1.05-12.50, p<0.05	Medium
Donaldson (2016)	N=7857	Mean= 15.89yrs	Parents were asked how often they consumed alc in past month	Teen binge drinking	significant association p<0.001	High

Ellickson (2001)	N=6527	12-13yrs	Child report – children were asked how often the adult that is most important to them drinks (0 = never, 3 = 4 - 7 days a week)	a) problem-related drinking at grade 12, b) high-risk drinking at grade 12, c) high consumption at grade 12	a) OR= 1.14, 95% CI=1.04-1.25, p<0.01; b) NS c) NS	Medium
Ennett (2016)	N=5220	Mean= 13yrs	Mothers reported own and father's alc use. Highest value of the two used to capture max adolescent exposure. Frequency	High parental alc misuse and tolerant of child alc use association with child alc use	Significant association	High
Ewing (2015)	N=193	Mean= 16.54yrs	Child report – children were asked how often the adult most important to them drinks alc and uses cannabis. Responses ranged from 1 = "Never" to 4 = "4–7 times a week. Due to low cannabis use, this was converted to any use	Parent alc misuse ≥4 days per week: a) alc use; b) heavy alc use; c) cannabis use; parent any cannabis use: d) chil cannabis d alc use; e) heavy alc use; f) cannabis use;	a) NS. b) NS; c) NS; d) β = 0.16, p<0.01; e) β = 0.14, p<0.05; f)β = 0.19, p<0.01	Medium
Haughland (2015) Norway	N=2306	Mean= 16.2yrs	CAGE	Seeing parent intoxicated: a) alc intoxication in girls, b) alc intoxication in boys	a) OR 3.3, CI=2.3-4.7, p<0.05; b) OR 3.4, CI=2.4-4.7, p<0.05	High
Howard (1999)	N=304	11-20yrs	Child report – children were asked whether either of their parents "smoked cannabis" or used "drugs other than alc or cannabis."	Solvent use	X^2 = 1.98, ES 0.20, P<0.05	Medium
Hung (2015)	N=3972	14-15yrs	Child report – parent drinking frequency. Several times or last month/every day over last month were classified as frequency	Child alc use	Data not reported	Medium
Kuendig (2006)	N=3448	Mean= 14.77yrs	Child report – perceived excessive parental drinking.	a) frequency of alc use b) frequency of drunkenness	a) β = 0.068, t-2.8, p,0.01, b) β = 0.085, t= 3.9, p=0.001	Medium
Korhonen (2008)	N=4740	14-17.5yrs	Parental alc use was assessed as frequency of intoxication (drinking more than 5 drinks. Mother's frequency variables were never, less than monthly, monthly or more often. Father's frequency were never, less than weekly, weekly and more often	a) Maternal frequency of drunkenness more than once per month, b) paternal alc use of 5> units in an occasion	a) COR=2.4, CI= 1.4-4.3, p= 0.008; b) COR=1.8, CI=1.1-2.8, p=0.042	Medium

Seljamo (2006)	N=1278	15yrs	Frequency/quantity measure of parental drinking. Parents drinking was considered light if they used alc rarely, moderate if they had used alc a few times a month, heavy if they had used alc more than once a week.	a) Maternal frequency of drunkenness more than once per month, b) paternal alc use of 5> units in an occasion	a) COR=2.4, CI= 1.4-4.3, p= 0.008; b) COR=1.8, CI=1.1-2.8, p=0.042	Medium
Van der Vorst (2013)	N=608	Mean= 13.89yrs	Child report – children completed a single item describing the perceived intensity of alc use of each parent at time 1. Responses were based on a seven-point Likert scale, ranging from 'never' to 'very heavy'	Adolescent drinking	Correlation at p<0.05	Medium
Social and educational impact						
El-Sheikh (2003) USA	N-216	6-12yrs	MAST (score of ≥5 considered problem drinking)	Parental alc misuse and teachers reports of social problems	β=0.27, p<0.01;	Medium
Jester (2000) USA	N=231	7.5yrs	Number of drinks per day	Parental substance misuse: a) family functioning, b) mother's violence, c) partners violence, d) intellectual stimulation	a) β-0.21, p< 0.01; b) β-0.26, p< 0.01; c) β-0.31, p< 0.001, d) β-0.26, p< 0.001	Medium
Kuendig (2006) Switzerland	N=3448	Mean= 14.77yrs	Child report – perceived excessive parental drinking	Parental alc misuse and family bonding	*r*= -0.20, p<0.001	Medium
Miskell (2014) USA	N=158	6-12yrs	Drinking motives questionnaire and AUDIT	Parental alc misuse and emotional security	No significant results	Medium
Smith-McKeever (2010)	N=2300	Data not available	Frequency of alc assessed in past month (no alc use, 4 or less days, 5 or more days) cannabis and cocaine – lifetime reports	School suspensions a) mother ever used cannabis, b) frequent maternal drinking	a) OR=1.68, ≤0.01; b) NS	Medium

10. Appendix E

Table 13: REAii risk of bias within studies

Study	Random sequence	Allocation concealment	Blinding of participants and personnel	Blinding (subjective outcomes)	Blinding (objective outcomes)	Attrition bias (short term)	Attrition bias (long term)	Subjective reporting	Overall risk of bias
Intensive case management									
Bruns (2012)	High	High	High	Unclear	Unclear	Low	Low	Low	**Medium**
Marsh (2000)	High	High	High	High	High	Unclear	Unclear	Unclear	**High**
Morgenstern (2006) Dauber (2012) (linked paper)	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Jansson (2005)	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Volpicelli (2000)	Low	Unclear	Unclear	Unclear	Unclear	Unclear	High	High	**High**
Psychological interventions									
Carroll (2001)	Low	Unclear	Unclear	Unclear	Unclear	Low	Low	Low	**Medium**
Schottenfeld (2011)	Low	Low	Unclear	Unclear	Unclear	Low	Low	Low	**Medium**
Slesnick (2013)	Low	Low	Low	Unclear	Unclear	Low	Low	Low	**Medium**
Smith Stover (2010)	Low	Low	Unclear	Unclear	Unclear	Unclear	Unclear	Low	**High**
Family-centred, individual interventions									
Black (1994)	Low	Unclear	Unclear	Low	Low	Low	Low	Unclear	**Medium**
Dawe (2007) Index paper Dalziel (2015) Link paper	Low	Low	High	Unclear	Unclear	Low	Low	Low	**Medium**
Gwadz (2008)	Low	Unclear	Unclear	Unclear	Unclear	Low	Low	Low	**Medium**
Luthar (2000)	Low	Low	. Low	Low	Low	Low	Unclear	Low	**Medium**

Luthar (2007)	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Saldana (2015)	Low	Unclear	Unclear	Unclear	Unclear	Unclear	Unclear	Low	**High**
Suchman (2011) Index paper Suchman (2010) Link paper	Low	Low	Low	Low	Low	Unclear	Unclear	Low	**Medium**
Couples therapy									
Kelley (2002)	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Lam (2009) USA	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Mother-child interventions									
Bartu (2006)	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Belt (2012)	High	High	High	Unclear	Unclear	Low	Low	Low	**Medium**
Sowers (2002)	High	High	High	High	High	Unclear	Unclear	High	**High**
Family-level interventions									
Catalano (1999)	Low	Low	Unclear	Unclear	Unclear	Low	Low	Low	**Low**
Dakof (2003)	Low	Low	Low	Low	Low	Unclear	Unclear	Low	**Medium**
Dakof (2010)	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Dakof (2009)	High	High	Low	Unclear	Low	Low	Low	Low	**Medium**
Donohue (2014)	Low	Low	Low	Low	Low	Low	High	Low	**Low**
Forrester (2012)	High	High	High	High	High	High	High	Low	**High**
Harwin (2014) Harwin (2016)	High	High	High	Unclear	Unclear	Unclear	Unclear	Low	**High**

Slesnick (2016)	Low	Low	Low	Low	Low	Low	Low	Low	**Low**
Worcel (2008)	High	High	High	High	High	High	High	Unclear	**High**
Peer interventions									
Ernst (1999)	Low	Low	Unclear	Low	Low	Low	Low	Low	**Low**
Huebner (2012)	High	High	High	High	High	High	High	High	**High**
Schuler (2000) Index paper Schuler (2002) Link paper	Low	Low	Low	Low	Low	Low	Low	Low	**Low**

References

1. Degenhardt, L., et al., *Global burden of disease attributable to illicit drug use and dependence: findings from the Global Burden of Disease Stusy 2010.* Lancet, 2013. **382**: p. 1564-1574.
2. World Health Organization, *Global status report on alcohol and health 2014*. 2014: World Health Organization
3. Health and Social Care Information Centre, *Statistics On Alcohol: England, 20013*. 2013, Health and Social Care Information Centre: http://www.hscic.gov.uk/catalogue/PUB10932.
4. Degenhardt, L. and W. Hall, *Extent of illicit drug use and depedence, and their contrbution to the global burden of disease.* Lancet, 2012. **379**(9810): p. 55-70.
5. Nutt, D., L. King, and L. Phillips, *Drug harms in the UK: a multicriteria decision analysis.* The Lancet, 2010. **376**(9752): p. 1558-1565.
6. Holland, S., et al., *Parenting and substance misuse: Understanding accounts and realities in child protection contexts.* British Journal of Social Work, 2014. **44**(6): p. 1491-1507.
7. Hughes, K., et al., *Alcohol, nightlife and violence: the relative contributions of driinking before and during nights out to negative health and criminal outcomes.* Addiction, 2008. **103**(1): p. 60-65.
8. Anderson, P., D. Chrisholm, and D. Fuhr, *Effectiveness and cost-effectiveness of policies and programmes to reduce the harm caused by alcohol.* Lancet, 2009. **373**: p. 2234-2246.
9. Earnshaw, V., L.M. Smith, and M. Copenhaver, *Drug addiction stigma in the context of methadone maintenance therapy: An investigation into understudied sources of stigma.* International Journal of Mental Health and Addiction, 2013. **11**(1): p. 110-122.
10. Department for Work and Pensions, *Improving lives: Helping workless families analysis and research pack*. 2017, Department for Work and Pensions: London.
11. National Treatment Agency, *Parents with drug problems: how treatment helpd families*. 2012, Department of Health: London.
12. Pryce, R., et al., *Estimates of alcohol dependence in England based on APMS 2014, including estimates of children living in a household with an adult with alcohol dependence.* 2017, Public Health England: London.
13. Gunnarsson, N.V., H. Hemmingsson, and L. Hyden, *Mothers' accounts of healthcare encounters: negotiating culpability and fulfilling the active mother role.* Discourse & Society, 2013. **24**(4): p. 446-460.
14. Phillips, D., et al., *Factors that influence women's disclosures of substance use during pregnancy: a qualitative study of ten midwives and ten prengnant women.* Journal of Drug Issues, 2007. **37**(2): p. 357-376.
15. Forrester, D. and J. Harwin, *Parental substance misuse and child care social work: findings from the first stage of a study of 100 families.* Child & Family Sopcial Work, 2006. **11**(4): p. 325-335.
16. McManus, S., et al., *Mental health and wellbeing in England: Adult psychiatric morbidity survey 2014*. 2016, NHS Digital: Leeds.
17. Advisory Council on the Misuse of Drugs, *Hidden Harm - Responding to the needs of children of problem drug users* 2003.
18. Cleaver, H., I. Unell, and J. Aldgate, *Children's needs: parenting capacity. Child abuse: Parental mental illness, learning disability, substance misuse, and domestic violence*. 2011, Department for Education: London.
19. Bijur, P.E., et al., *Parental Alcohol Use, Problem Drinking, and Children's Injuries.* JAMA, 1992. **267**(23): p. 3166-3171.
20. Barnard, M., *Drug addiction and families*. 2007, London: Jessica Kingsley Publishers.
21. Royal College of Physicians, *Alcohol and the Young*. 1995, Royal Lavenham Press: London.
22. Kolar, A.F., et al., *Children of substanceabusers: The life experiences of children of opiate addicts in methadone maintenance* American Journal of Drug & Alcohol Abuse, 1994. **20**: p. 159-171.
23. Kandel, D.B., *Parenting styles, drug use and children's adjustment in families of young adults.* Journal of Marriage and Family, 1990. **52**(1): p. 183-196.
24. Miller, B.A., N.J. Smyth, and P.J. Mudar, *Mothers' alcohol and other drug problems and their punitiveness toward their children.* Journal of Studies on Alcohol, 1999. **60**(5): p. 632-642.

25. Suchman, N.E., et al., *Parental control, parental warmth, and psychosocial adjustment in s sample of substance-abusing mothers and their school-aged and adolescent children.* Journal of Substance Abuse Treatment, 2007. **32**(1).
26. Dube, S., et al., *Growing up with parental alcohol abuse: exposure to childhood abuse, neglect and household disfunction* Child Abuse and Neglect, 2001. **25**(12): p. 1627-1640.
27. HM Government, *Working together to safeguard children: a guide to inter-agency working to safeguard and promote the welfare of children*. 2015, HM Government: London.
28. Canfield, M., et al., *Maternal substance use and child protection: a rapid evidence assessment of factors associated with loss of child care.* Child Abuse & Neglect, 2017. **70**: p. 11-27.
29. Munro, E., *The Munro review of child protection: Final report*. 2011, Department for Education: London.
30. Department of Health, *Annual report of the Chief Medical Officer 2012. Our children deserve better: prevention pays*. 2013, Department of Health: London.
31. Kreitman, N., *Alcohol consumption and the preventive paradox.* British Journal of Addictions., 1986. **81**: p. 353-363.
32. Department of Health, *UK Chief Medical Officers' Alcohol Guidelines Review: summary of the proposed new guidelines*. 2016, Department of Health: London.
33. American Psychiatric Association, ed. *Diagnostic and Statistical Manual of Mental Disorders: DSM-5*. 5th ed. 2013, American Psychiatric Association: Washington, DC.
34. Hay, G., *Estimates of the number of children who live with opiate users, England 2011/12*. 2017, Public Health Institute: Liverpool.
35. Crawford, C., et al., *Rapid evidence assessment of the literature (REAL): streamlining the systematic review process and creating utility for evidence-based health care.* BMC Reseach Notes, 2015. **8**(631).
36. Chief Medical Officer, *Health risks from alcohol: new guidelines*. 2016, Department of Health: London.
37. HMSO, *Tackling drugs to buld a better Britain*. 1998, HMSO: London.
38. Wong, W.C.W., C.S.K. Cheung, and G.J. Hart, *Development of a quality assessment tool for systematic reviews of observational studies (QATSO) or HIV prevalence in men having sex with men and associated risk behviours.* Emerging themes in Epidemiology, 2008. **5**(23).
39. Higgins, J.P., et al., *The Cochrane Collabortation's tool for assessing risk of bias in randomised trials.* BMJ, 2011. **343**.
40. Manning, V., et al., *New estimates of the number of children living with substance misusing parents: results from UK national household surveys.* BMC Public Health, 2009. **9**: p. 377.
41. Manning, V., *Estimates of the number of infants (under the age of one year) living with substance misusing parents*. 2011, NSPCC: London.
42. Percy, A., M. Thornton, and P. McCrystal, *The extent and nature of family alcohol and drug use: findings from the Belfast youth development study.* Child Abuse Review, 2008. **17**: p. 371-386.
43. Saunders, J.B., et al., *Development of the alcohol use identification test (AUDIT): WHO collaborative project on early detection of persons with harmful alcohol consumption.* Addiction, 1993. **88**(6): p. 791-804.
44. Research Triangle Institute, *2003 National survey on drug use and health.* 2003, Substance Abuse and Mental Health Services Administration: Rockville, Maryland.
45. Heron, J., et al., *Childhood conduct disorder trajectories, prior risk factors and cannabis use at age 16: birth cohort study.* Addiction, 2013. **108**(12): p. 2129-38.
46. Department for Education, *Characteristics of children in need: 2015-2016*. 2016, Department for Education: London.
47. Forrester, D., *Parental substance misuse and child protection in a British sample: A survey of children on the Child Protection Register in an inner London district office.* Child Abuse Review, 2000. **9**(4): p. 235-246.
48. Broadhurst, K., et al., *Vulnerable birth mothers and recurrent care proceedings*. 2017, University of Lancaster: Lancaster.
49. Sidebotham, P., et al., *Pathways to harm, pathways to protection: a triennial analysis of serious case reviews 2011-2014*. 2016, Department for Education: London.
50. Baker, R., et al., *Risk factors for long-bone fractures in children up to 5 years of age: a nested case-control study.* Archives of Disease in Childhood, 2015. **100**(5): p. 432-7.
51. Tyrrell, E.G., et al., *Children at risk of medicinal and non-medicinal poisoning: a population-based case-control study in general practice.* British Journal of General Practice, 2012. **62**(605): p. e827-33.

52. Tarokh, L., et al., *Adolescence and parental history of alcoholism: insights from the sleep EEG.* Alcoholism: Clinical & Experimental Research, 2012. **36**(9): p. 1530-41.
53. Tarokh, L. and M.A. Carskadon, *Sleep electroencephalogram in children with a parental history of alcohol abuse/dependence.* Journal of Sleep Research, 2010. **19**(1 Pt 2): p. 165-74.
54. Joya, X., et al., *Unsuspected exposure to cocaine in preschool children from a Mediterranean city detected by hair analysis.* Therapeutic Drug Monitoring, 2009. **31**(3): p. 391-5.
55. Raitasalo, K., et al., *Hospitalisations and out-of-home placements of children of substance-abusing mothers: A register-based cohort study.* Drug and Alcohol Review, 2015. **34**(1): p. 38-45.
56. Cornelius, J.R., et al., *Dental abnormalities in children of fathers with substance use disorders.* Addictive Behaviors, 2004. **29**: p. 979-982.
57. Jeffreys, H., et al., *Parental substance misuse and children's entry into alternative care in South Australia*. 2009, Department for Families and Communities: South Australia.
58. Malone, S.M., W.G. Iacono, and M. McGue, *Drinks of the father: father's maximum number of drinks consumed predicts externalizing disorders, substance use, and substance use disorders in preadolescent and adolescent offspring.* Alcoholism: Clinical & Experimental Research, 2002. **26**(12): p. 1823-32.
59. Malone, S.M., M. McGue, and W. Iacono, *Mothers' maximum drinks ever consumed in 24 hours predicts mental health problems in adolescent offspring.* Journal of child Psychology & Psychiatry, 2010. **51**(9): p. 1067-1075.
60. Kendler, K.S., et al., *Dimensions of parental alcohol use/problems and offspring temperament, externalizing behaviors, and alcohol use/problems.* Alcoholism: Clinical & Experimental Research, 2013. **37**(12): p. 2118-27.
61. Rossow, I., H. Pape, and L. Wichstrom, *Young, wet & wild? Associations between alcohol intoxication and violent behaviour in adolescence* Addiction, 1999. **94**(7): p. 1017-1031.
62. Finan, L.J., et al., *Parental problem drinking and adolescent externalizing behaviors: The mediating role of family functioning.* Journal of Adolescence, 2015. **43**: p. 100.
63. Torvik, F.A., et al., *Parental alcohol use and adolescent school adjustment in the general population: results from the HUNT study.* BMC Public Health, 2011. **11**: p. 706.
64. Ohannessian, C.M., *Parental Problem Drinking and Adolescent Psychosocial Adjustment: The Mediating Role of Adolescent-Parent Communication.* Journal of Research on Adolescence, 2012. **22**(3): p. 498-511.
65. Lee, H.H. and J.A. Cranford, *Does resilience moderate the associations between parental problem drinking and adolescents' internalizing and externalizing behaviors? A study of Korean adolescents.* Drug & Alcohol Dependence, 2008. **96**(3): p. 213-21.
66. Cranford, J.A., et al., *Parental Alcohol Involvement and Adolescent Alcohol Expectancies Predict Alcohol Involvement in Male Adolescents.* Psychology of Addictive Behaviors, 2010. **24**(3): p. 386-396.
67. Lieb, R., et al., *Parental alcohol use disorders and alcohol use and disorders in offspring: a community study.* Psychological Medicine, 2002. **32**(1): p. 63-78.
68. van der Zwaluw, C.S., et al., *Parental problem drinking, parenting, and adolescent alcohol use.* Journal of Behavioral Medicine, 2008. **31**(3): p. 189-200.
69. Swaim, R.C., et al., *The effects of parental diagnosis and changing family norms on alcohol use and related problems among urban American Indian adolescents.* American Journal on Addictions, 2011. **20**(3): p. 212-9.
70. Jennison, K.M., *The impact of parental alcohol misuse and family environment on young people's alcohol use and behavioral problems in secondary schools.* Journal of Substance Use, 2014. **19**(1-2): p. 206-212.
71. Kerr, D.C.R., et al., *Intergenerational influences on early alcohol use: Independence from the problem behavior pathway.* Development and Psychopathology, 2012. **24**(3): p. 889-906.
72. Haugland, S.H., A. Strandheim, and G. Bratberg, *Is high-risk use of intoxicants more common among adolescents who have seen their parents intoxicated?* Tidsskrift for Den Norske Laegeforening, 2012. **132**(4): p. 410-3.
73. Yule, A.M., et al., *Does Exposure to Parental Substance Use Disorders Increase Substance Use Disorder Risk in Offspring? A 5-year Follow-Up Study.* The American Journal on Addictions, 2013. **22**(5): p. 460-465.
74. Vermeulen-Smit, E., et al., *The influence of paternal and maternal drinking patterns within two-partner families on the initiation and development of adolescent drinking.* Addictive Behaviors, 2012. **37**(11): p. 1248.

75. Hofler, M., et al., *Covariates of cannabis use progression in a representative population sample of adolescents: A prospective examination of vulnerability and risk factors.* Addiction, 1999. **94**(11): p. 1679-1694.
76. Hopfer, C.J., et al., *Family transmission of marijuana use, abuse, and dependence.* Journal of the American Academy of Child & Adolescent Psychiatry, 2003. **42**(7): p. 834-41.
77. Keeley, H.S., T. Mongwa, and P. Corcoran, *The association between parental and adolescent substance misuse: Findings from the Irish CASE study.* Irish Journal of Psychological Medicine, 2015. **32**(Spec Iss1): p. 107-116.
78. Shorey, R.C., et al., *The association between problematic parental substance use and adolescent substance use in an ethnically diverse sample of 9th and 10th graders.* Journal of Primary Prevention, 2013. **34**(6): p. 381-93.
79. Berg, L., et al., *Parental alcohol-related disorders and school performance in 16-year-olds--a Swedish national cohort study.* Addiction, 2016. **111**(10): p. 1795-1803.
80. Freisthler, B., M. Johnson-Motoyama, and N.J. Kepple, *Inadequate child supervision: The role of alcohol outlet density, parent drinking behaviors, and social support.* Children and Youth Services Review, 2014. **43**: p. 75-84.
81. Hussey, D.L.P.D. and S.P.D. Guo, *Forecasting Length of Stay in Child Residential Treatment.* Child Psychiatry and Human Development, 2005. **36**(1): p. 95-111.
82. Bandura, A., *Social learning theory*. 1997, Englewood Cliffs, NJ: Prentice-Hall.
83. Peeters, M., et al., *Context effects of alcohol availability at home: Implicit alcohol associations and the prediction of adlescents' drinking behaviour* Journal of Studies on Alcohol & Drugs, 2016. **77**(5): p. 749-756.
84. Goodwin, D.W., F. Schulsinger, and J. Knop, *Alcoholism and depression in adopted-out daughters of alcoholics.* Archives of General Psychiatry, 1977. **34**(7): p. 751-755.
85. Hill, S.Y. and D. Muka, *Childhood psychopathology in children from families of alcoholic female probands.* Journal of American Academy of Child & Adolescent Psyciatry, 1996. **35**(6): p. 725-733.
86. Agrawal, A. and M.T. Lynskey, *Are there genetics influences on addiction: evidence from the family, adoption and twin studies.* Addiction, 2008. **103**: p. 1069-1081.
87. Cleveland, H.H. and R.P. Wiebe, *The Moderation of Genetic and Shared-Environmental Influences on Adolescent Drinking by Levels of Parental Drinking.* Journal of Studies on Alcohol, 2003. **64**(2): p. 182-194.
88. Kelly, A.B., et al., *Family Relationship Quality and Early Alcohol Use: Evidence for Gender-Specific Risk Processes.* Journal of Studies on Alcohol and Drugs, 2011. **72**(3): p. 399-407.
89. Hung, C.C., et al., *Do parents play different roles in drinking behaviours of male and female adolescents? A longitudinal follow-up study.* BMJ Open, 2015. **5**(4): p. e007179.
90. Donaldson, C.D., L.M. Handren, and W.D. Crano, *The Enduring Impact of Parents' Monitoring, Warmth, Expectancies, and Alcohol Use on Their Children's Future Binge Drinking and Arrests: a Longitudinal Analysis.* Prevention Science, 2016. **17**(5): p. 606-614.
91. Ennett, S.T., et al., *A multidimensional model of mothers' perceptions of parent alcohol socialization and adolescent alcohol misuse.* Psychology of Addictive Behaviors : Journal of the Society of Psychologists in Addictive Behaviors, 2016. **30**(1): p. 18.
92. El-Sheikh, M. and E. Flanagan, *Parental problem drinking and children's adjustment: family conflict and parental depression as mediators and moderators of risk.* Journal of Abnormal Child Psychology, 2001. **29**(5): p. 417-32.
93. El-Sheikh, M. and J.A. Buckhalt, *Parental problem drinking and children's adjustment: attachment and family functioning as moderators and mediators of risk.* Journal of Family Psychology, 2003. **17**(4): p. 510-520.
94. Foster, J., L. Bryant, and K. Brown, *"Like sugar for adults" The effect of non-dependent parental drinking on children and families*. 2017: London.
95. Volpicelli, J., et al., *Psychosocially enhanced treatment for cocaine-dependent mothers: Evidence of efficacy.* Journal of Substance Abuse Treatment, 2000. **18**(1): p. 41-49.
96. Bruns, E.J., et al., *Effects of a multidisciplinary family treatment drug court on child and family outcomes: Results of a quasi-experimental study.* Child Maltreatment, 2012. **17**(3): p. 218-230.
97. Jansson, L., et al., *Intensity of Case Management Services: Does More Equal Better for Drug-Dependent Women and Their Children?* Social Work in Mental Health, 2005. **3**(4): p. 63-78.

98. Marsh, J.C., T.A. D'Aunno, and B.D. Smith, *Increasing access and providing social services to improve drug abuse treatment for women with children.* Addiction, 2000. **95**(8): p. 1237-1247.
99. Morgenstern, J., et al., *Effectiveness of Intensive Case Management for Substance-Dependent Women Receiving Temporary Assistance for Needy Families.* American Journal of Public Health, 2006. **96**(11): p. 2016-23.
100. Dauber, S., et al., *Impact of intensive case management on child welfare system involvement for substance-dependent parenting women on public assistance.* Children and Youth Services Review, 2012. **34**(7): p. 1359-1366.
101. Carroll, K.M., et al., *Motivational interviewing to enhance treatment initiation in substance abusers: an effectiveness study.* American Journal on Addictions, 2001. **10**(4): p. 335-9.
102. Smith Stover, C., T.J. McMahon, and C. Easton, *The impact of fatherhood on treatment response for men with co-occurring alcohol dependence and intimate partner violence.* American Journal of Drug & Alcohol Abuse, 2011. **37**(1): p. 74-8.
103. Slesnick, N. and G. Erdem, *Efficacy of ecologically-based treatment with substance-abusing homeless mothers: Substance use and housing outcomes.* Journal of Substance Abuse Treatment, 2013. **45**(5): p. 416-425.
104. Schottenfeld, R.S., B. Moore, and M.V. Pantalon, *Contingency management with community reinforcement approach or twelve-step facilitation drug counseling for cocaine dependent pregnant women or women with young children.* Drug and Alcohol Dependence, 2011. **118**(1): p. 48-55.
105. Suchman, N.E., et al., *The Mothers and Toddlers program, an attachment-based parenting intervention for substance-using women: Results at 6-week follow-up in a randomized clinical pilot.* Infant Mental Health Journal, 2011. **32**(4): p. 427-449.
106. Suchman, N.E., et al., *The Mothers and Toddlers Program, an attachment-based parenting intervention for substance using women: post-treatment results from a randomized clinical pilot.* Attachment & Human Development, 2010. **12**(5): p. 483-504.
107. Dawe, S. and P. Harnett, *Reducing potential for child abuse among methadone-maintained parents: results from a randomized controlled trial.* Journal of Substance Abuse Treatment, 2007. **32**(4): p. 381-90.
108. Gwadz, M.V., et al., *Behavioral interventions for HIV infected and uninfected mothers with problem drinking.* Addiction Research & Theory, 2008. **16**(1): p. 47-65.
109. Dalziel, K., et al., *Cost-effectiveness analysis of the Parents under Pressure programme for methadone-maintained parents.* Child Abuse Review, 2015. **24**(5): p. 317-331.
110. Luthar, S.S. and N.E. Suchman, *Relational Psychotherapy Mothers' Group: A developmentally informed intervention for at-risk mothers.* Development and Psychopathology, 2000. **12**(2): p. 235-253.
111. Black, M.M., et al., *Parenting and early development among children of drug-abusing women: effects of home intervention.* Pediatrics, 1994. **94**(4 Pt 1): p. 440-8.
112. Luthar, S.S., N.E. Suchman, and M. Altomare, *Relational Psychotherapy Mothers' Group: A randomized clinical trial for substance abusing mothers.* Development and Psychopathology, 2007. **19**(1): p. 243-61.
113. Saldana, L., *An Integrated Intervention to Address the Comorbid Needs of Families Referred to Child Welfare for Substance Use Disorders and Child Neglect: FAIR Pilot Outcomes.* Child Welfare, 2015. **94**(5): p. 167-86.
114. Kelley, M.L. and W. Fals-Stewart, *Couples- versus individual-based therapy for alcohol and drug abuse: effects on children's psychosocial functioning.* Journal of Consulting and Clinical Psychology, 2002. **70**(2): p. 417-427.
115. Lam, W.K., W. Fals-Stewart, and M.L. Kelley, *Parent training with behavioral couples therapy for fathers' alcohol abuse: effects on substance use, parental relationship, parenting, and CPS involvement.* Child Maltreatment, 2009. **14**(3): p. 243-54.
116. Bartu, A., et al., *Postnatal home visiting for illicit drug-using mothers and their infants: a randomised controlled trial.* Australian & New Zealand Journal of Obstetrics & Gynaecology, 2006. **46**(5): p. 419-26.
117. Belt, R.H., et al., *Psychotherapy groups and individual support to enhance mental health and early dyadic interaction among drug-abusing mothers.* Infant Mental Health Journal, 2012. **33**(5): p. 520-534.
118. Sowers, K.M., et al., *Optimizing Treatment Effects for Substance-Abusing Women with Children: An Evaluation of the Susan B. Anthony Center.* Research on Social Work Practice, 2002. **12**(1): p. 143-158.
119. Catalano, R.F., et al., *An Experimental Intervention with Families of Substance Abusers: One-Year Follow-Up of the Focus on Families Project.* Addiction, 1999. **94**(2): p. 241-254.

120. Dakof, G.A., J.B. Cohen, and E. Duarte, *Increasing Family Reunification for Substance-Abusing Mothers and Their Children: Comparing Two Drug Court Interventions in Miami.* Juvenile & Family Court Journal, 2009. **60**(4): p. 11.
121. Dakof, G.A., et al., *Enrolling and retaining mothers of substance-exposed infants in drug abuse treatment.* Journal of Consulting & Clinical Psychology, 2003. **71**(4): p. 764-72.
122. Donohue, B., et al., *A controlled evaluation of family behavior therapy in concurrent child neglect and drug abuse.* Journal of Consulting and Clinical Psychology, 2014. **82**(4): p. 706.
123. Slesnick, N. and J. Zhang, *Family systems therapy for substance-using mothers and their 8- to 16-year-old children.* Psychology of Addictive Behaviors : Journal of the Society of Psychologists in Addictive Behaviors, 2016. **30**(6): p. 619.
124. Dakof, G.A., et al., *A randomized pilot study of the Engaging Moms Program for family drug court.* Journal of Substance Abuse Treatment, 2010. **38**(3): p. 263-274.
125. Harwin, J., et al., *Changing lifestyles, keeping children safe: an evaluation of the first Family Drug and Alcohol Court (FDAC) in care proceedings*. 2014, Brunel University: London.
126. Harwin, J., et al., *After FDAC: outcomes 5 years later*. 2016, University of Lancaster: Lancaster.
127. Worcel, S.D., et al., *Effects of Family Treatment Drug Courts on Substance Abuse and Child Welfare Outcomes.* Child Abuse Review, 2008. **17**(6): p. 427-443.
128. Forrester, D., et al., *An evaluation of the Option 2 intensive family preservation service*. 2012, Welch Assembly Government: Cardiff.
129. Schuler, M.E., P. Nair, and M.M. Black, *Ongoing maternal drug use, parenting attitudes, and a home intervention: effects on mother-child interaction at 18 months.* Journal of Developmental & Behavioral Pediatrics, 2002. **23**(2): p. 87-94.
130. Schuler, M.E., et al., *Mother-infant interaction: Effects of a home intervention and ongoing maternal drug use.* Journal of Clinical Child Psychology, 2000. **29**(3): p. 424-431.
131. Ernst, C.C., et al., *Intervention with high-risk alcohol and drug-abusing mothers: II. Three-year findings from the Seattle model of paraprofessional advocacy.* Journal of Community Psychology, 1999. **27**(1): p. 19-38.
132. Huebner, R.A., T. Willauer, and L. Posze, *The impact of Sobriety Treatment and Recovery Teams (START) on family outcomes.* Families in Society, 2012. **93**(3): p. 196-203.
133. van Faassen, E. and O. Nemela, *Biochemistry of prenatal alcohol exposure.* 2011. **120**.
134. Kaner, E., et al., *Effectiveness of brief alcohol interventions in primary care populations.* Cochrane Database of Systematic Reviews, 2007. **Issue 2**: p. CD004148.DOI:10.1002/14651858.CD4148.pub3.
135. O'Donnell, A., et al., *The impact of brief alcohol interventions in primary healthcare: A systematic review of reviews. .* Alcohol and Alcoholism 2013. **49**(1): p. 66-78.
136. Kaner, E., *Health Sector Responses*, in *Alcohol in the European Union. Consumption, harm and policy approaches*, P.M. Anderson, L. Galea, G., Editor. 2012, World Health Organization: Copenhagen. p. 40-48.
137. Nilsen, P., et al., *A systematic review of emergency care brief alcohol interventions for injury patients.* Journal of Substance Abuse Treatment, 2008. **35**: p. 184-201.
138. McQueen, J., et al., *Brief interventions for heavy alcohol users admitted to general hospital wards.* Cochrane Database of Systematic Reviews, 2011. **Issue 8**: p. Art. No.: CD005191. DOI: 10.1002/14651858.CD005191.pub3.
139. Carney, T. and B. Myers, *Effectiveness of early interventions for substance-using adolescents: findings from a systematic review and meta-analysis.* Substance Abuse Treatment, Prevention, and Policy, 2012. **7**(25): p. doi:10.1186/1747-597X-7-25.
140. Jackson, R., et al., *Screening and brief interventions for prevention and early identification of alcohol use disorders in adults and young people*. 2009, The University of Sheffield, School of Health and Related Research (ScHARR): Sheffield.
141. Marais, S., et al., *The effect of brief interventions on the drinking behaviour of pregnant women in a high-risk rural South African community: a cluster randomised trial.* Early Child Development and Care, 2011. **181**(4): p. 463-474.
142. Babor, R.F. and M. Grant, *Project on identification and management of alcohol related problems. Report on Phase II: A randomised clinical trial of brief interventions in primary health care.* 1992, World Health Organisation: Geneva.

143. Humeniuk, R., R. Ali, and WHO Assist phase ii study group, *Validarion of the Alcohol, Smoking nd Substance Involvement Screening Test (ASSIST) and pilot brief intervention: a technical report of phase ii findings of the WHO ASSIST project*. 2006, WHO: Geneva.
144. Yang, S. and M.S. Kramer, *Paternal alcohol consumption, family transition and child development in a former Soviet country.* International Journal of Epidemiology, 2012. **41**(4): p. 1086-96.
145. Engels, R., et al., *Correspondence in collateral and self-reports on alcohol consumption: a within family analysis.* Addictive Behaviors, 2007. **32**: p. 1016-1030.
146. Bjerregaard, L.B., et al., *Identifying parents with risky alcohol consumption habits in a paediatric unit--are screening and brief intervention appropriate methods?* Scandinavian Journal of Caring Sciences, 2011. **25**(2): p. 383-93.
147. Haugland, S.H., et al., *Parental alcohol misuse and hazardous drinking among offspring in a general teenage population: gender-specific findings from the Young-HUNT 3 study.* BMC Public Health, 2013. **13**: p. 1140.
148. Haugland, S.H., et al., *Intergenerational Hazardous Alcohol Use and Area Factors: The HUNT Study, Norway.* Substance Use & Misuse, 2015. **50**(14): p. 1753-64.
149. Muhuri, P.K. and J.C. Gfroerer, *Substance use among women: Associations with pregnancy, parenting, and race/ethnicity.* Maternal and Child Health Journal, 2009. **13**(3): p. 376-385.
150. Maxson, R.T., et al., *Screening for risky alcohol use among caregivers of pediatric trauma patients: a pilot study.* Journal of Trauma-Injury Infection & Critical Care, 2009. **67**(1 Suppl): p. S37-42.
151. Liu, W., E.A. Mumford, and H. Petras, *Maternal patterns of postpartum alcohol consumption by age: a longitudinal analysis of adult urban mothers.* Prevention Science, 2015. **16**(3): p. 353-63.
152. Lane, W.G., et al., *Screening for parental substance abuse in pediatric primary care.* Ambulatory Pediatrics, 2007. **7**(6): p. 458-62.
153. Jester, J.M., et al., *The influence of maternal drinking and drug use on the quality of home environment of school-aged children.* Alcoholism: Clinical & Experimental Research, 2000. **24**(8): p. 1187-1197.
154. Cheng, T.C. and C.C. Lo, *The roles of parenting and child welfare services in alcohol use by adolescents.* Children and Youth Services Review, 2010. **32**(1): p. 38-43.
155. Tyler, K.A., S. Rosalie Torres, and B. Bersani, *Examining the Changing Influence of Predictors on Adolescent Alcohol Misuse.* Journal of Child & Adolescent Substance Abuse, 2006. **16**(2): p. 95-114.
156. Barczyk, A.N., et al., *Risky drinking among parents of pediatric trauma patients.* The Journal of Trauma and Acute Care Surgery, 2013. **75**(4): p. 676-81.
157. Wilson, C.R., et al., *Parental alcohol screening in pediatric practices.* Pediatrics 2008.
158. Lange, S., et al., *Alcohol use and self-perceived mental health status among pregnant and breastfeeding women in Canada: a secondary data analysis.* BJOG: An International Journal of Obstetrics & Gynaecology, 2016. **123**: p. 900-909.
159. Chan, G.C.K., et al., *Rural and Urban Differences in Adolescent Alcohol Use, Alcohol Supply, and Parental Drinking.* The Journal of Rural Health : Official Journal of the American Rural Health Association and the National Rural Health Care Association, 2016. **32**(3): p. 280-286.
160. Maloney, E., et al., *Prevalence and patterns of problematic alcohol use among Australian parents.* Australian & New Zealand Journal of Public Health, 2010. **34**(5): p. 495-501.
161. Sharma, S., K. Llewelyn, and J. Jureidini, *Alcohol use by parents who present their child to a paediatric emergency department.* Journal of Paediatrics & Child Health, 1999. **35**(2): p. 196-8.
162. Schluter, P.J., et al., *Alcohol consumption by parents of Pacific families residing in New Zealand: Findings from the Pacific Islands Families Study.* Alcohol, 2013. **47**(3): p. 241-248.
163. NHS Digital, *Health Survey for England 2015*. 2016, NHS digital: Leeds.
164. Delaney-Black, V., et al., *Prenatal and postnatal cocaine exposure predict teen cocaine use.* Neurotoxicology & Teratology, 2011. **33**(1): p. 110-9.
165. Kuendig, H. and E. Kuntsche, *Family bonding and adolescent alcohol use: moderating effect of living with excessive drinking parents.* Alcohol & Alcoholism, 2006. **41**(4): p. 464-471.
166. Sanchez, Z.M., et al., *Childhood alcohol use may predict adolescent binge drinking: a multivariate analysis among adolescents in Brazil.* Journal of Pediatrics, 2013. **163**(2): p. 363-8.
167. Ewing, B.A., et al., *Longitudinal family effects on substance use among an at-risk adolescent sample.* Addictive Behaviors, 2015. **41**: p. 185-191.

168. Bendtsen, P., et al., *Adolescent alcohol use reflects community-level alcohol consumption irrespective of parental drinking.* Journal of Adolescent Health, 2013. **53**(3): p. 368-73.
169. Ellickson, P.L., et al., *Prospective Risk Factors for Alcohol Misuse in Late Adolescence.* Journal of Studies on Alcohol, 2001. **62**(6): p. 773-782.
170. van der Vorst, H., K. Schuck, and R.C.M.E. Engels, *Children's responses towards alcohol in virtual reality: associations between parental alcohol use, drinking selections and intentions to drink.* Journal of Substance Use, 2014. **19**(6): p. 429-435.
171. Van Der Vorst, H., et al., *The mediating role of alcohol-related memory associations on the relation between perceived parental drinking and the onset of adolescents' alcohol use.* Addiction, 2013. **108**(3): p. 526-533.
172. Tripkovic, M., et al., *Alcohol consumption among adolescents in the City of Zagreb and the presence of alcohol drinking among their parents.* Alcoholism: Journal on Alcoholism and Related Addictions, 2014. **50**(1): p. 3-12.
173. Rehorcikova, V., et al., *Impact of family level factors on alcohol drinking in primary school children.* Central European Journal of Public Health, 2013. **21**(4): p. 202-6.
174. Howard, M.O. and J.M. Jenson, *Inhalant use among antisocial youth: prevalence and correlates.* Addictive Behaviors, 1998. **24**(1): p. 59-74.
175. Seljamo, S., et al., *Alcohol use in families: a 15-year prospective follow-up study.* Addiction, 2006. **101**(7): p. 984-992.
176. Korhonen, T., et al., *Role of individual, peer and family factors in the use of cannabis and other illicit drugs: a longitudinal analysis among Finnish adolescent twins.* Drug and Alcohol Dependence, 2008. **97**(1-2): p. 33-43.
177. Hayatbakhsh, R., et al., *Early childhood predictors of early onset of smoking: a birth prospective study.* Addictive Behaviors, 2013. **38**(10): p. 2513-9.
178. Alati, R., et al., *The role of parental alcohol use, parental discipline and antisocial behaviour on adolescent drinking trajectories.* Drug and Alcohol Dependence, 2014. **134**: p. 178-184.
179. Chapple, C.L., T.L. Hope, and S.W. Whiteford, *The Direct and Indirect Effects of Parental Bonds, Parental Drug Use, and Self-Control on Adolescent Substance Use.* Journal of Child & Adolescent Substance Abuse, 2005. **14**(3): p. 17-38.
180. Capaldi, D.M.P., et al., *The Relationships of Parental Alcohol Versus Tobacco and Marijuana Use With Early Adolescent Onset of Alcohol Use.* Journal of Studies on Alcohol and Drugs, 2016. **77**(1): p. 95.
181. Macleod, J., et al., *Parental drug use, early adversities, later childhood problems and children's use of tobacco and alcohol at age 10: Birth cohort study.* Addiction, 2008. **103**(10): p. 1731-1743.
182. Lynskey, M.T., D.M. Fergusson, and J. Horwood, *The Origins of the correlations between tobacco, alcohol, and cannabis use during adolescence.* Journal of Child Psychology & Psychiatry, 1998. **39**(7): p. 995-1005.
183. Smith-McKeever, C. and W. Gao, *African American and white mothers' substance abuse, depression, and criminality as risk factors for school suspension.* School Social Work Journal, 2010. **34**(2): p. 18-34.
184. Miskell, S. *Parental problem drinking: its effect on child emotional security*. Kaleidoscope, 2014. **11**.
185. Balsa, A.I. and M.T. French, *The impact of parental drinking on children's use of health care.* Substance Use & Misuse, 2012. **47**(4): p. 450-60.
186. Klonoff-Cohen, H. and P. Lam-Kruglick, *Maternal and paternal recreational drug use and sudden infant death syndrome.* Archives of Pediatrics & Adolescent Medicine, 2001. **155**(7): p. 765-70.
187. Blair, P.S., et al., *Hazardous cosleeping environments and risk factors amenable to change: Case-control study of SIDS in south west England.* BMJ, 2009. **339:b3666**.
188. Chatterji, P. and S. Markowitz, *The impact of maternal alcohol and illicit drug use on children's behavior problems: evidence from the children of the national longitudinal survey of youth.* Journal of Health Economics, 2001. **20**(5): p. 703-31.
189. Brook, J.S., et al., *Predictors of rebellious behavior in childhood parental drug use, peers, school environment, and child personality.* Journal of Addictive Diseases, 2006. **25**(2): p. 77-87.
190. Farokhzadi, F., et al., *Substance abuse disorders in parents of ADHD children and parents of normal children.* Acta Medica Iranica, 2012. **50**(5): p. 319-327.
191. Bayer, J.K., et al., *Development of children's internalising and externalising problems from infancy to five years of age.* Australian & New Zealand Journal of Psychiatry, 2012. **46**(7): p. 659-68.
192. Pajarn, P. and C. Theeranate, *Impact of parental alcohol consumption on emotional and behavioral problems in children age 3-4 years.* Journal of the Medical Association of Thailand, 2012. **95 Suppl 5**: p. S6-11.

193. Hurt, H., et al., *Inner-city achievers: who are they?* Archives of Pediatrics & Adolescent Medicine, 1998. **152**(10): p. 993-7.
194. Connell, C.M., et al., *Social-Ecological Influences on Patterns of Substance Use Among Non-Metropolitan High School Students.* American Journal of Community Psychology, 2010. **45**(1-2): p. 36-48.
195. Bailey, J.A., et al., *Associations between parental and grandparental marijuana use and child substance use norms in a prospective, three-generation study.* Journal of Adolescent Health, 2016. **59**(3): p. 262-268.
196. Capaldi, D.M., et al., *The relationships of parental alcohol versus tobacco and marijuana use with early adolescent onset of alcohol use.* Journal of Studies on Alcohol and Drugs, 2016. **77**(1): p. 95-103.