Introduction

Interpersonal trauma

Trauma is defined by the Diagnostic and Statistical Manual of Mental Disorders (5th Edition) (DSM-5) as exposure to actual or threatened death, serious injury or sexual violence in one or more of four ways: a) by directly experiencing the event; b) from witnessing, in person, the event occurring to others; c) by learning that such an event happened to a close family member or friend; and d) through experiencing repeated or extreme exposure to aversive details of such events (American Psychiatric Association (APA), 2013a). Interpersonal trauma (IPT) is therefore recognised as resulting from a variety of experiences including childhood maltreatment, sexual assault, physical assault, intimate partner violence (IPV), war, bereavement and crime.

Experiences of trauma are commonplace and remain embedded within global culture and economics, particularly amongst women and children. It is estimated that 1 in 4 adults worldwide have experienced physical abuse as children and many report having experienced neglect and emotional abuse (WHO, 2016). Exposure to a spectrum of violence may be also be commonplace (Finkelhorn et al. 2005). Furthermore, 1 in 5 women and 1 in 13 men report surviving childhood sexual abuse (CSA) (WHO, 2016). CSA however, rarely occurs in isolation and is commonly interrelated with other childhood adversities such as physical and emotional abuse (Draucker et al. 2011, Felitti et al. 1998, Gilson et al. 2008, Guthrie, 2004, Hillis et al. 2000, Leeners et al. 2010, Lukasse et al. 2001, Prentice, 2002, Van Der Kolk, 2014).

With regards to experiences of trauma in adulthood, 30% of women in England and Wales are reported to have experienced interpersonal abuse since the age of 16

(Office for National Statistics, 2014*).* Within Scotland, the number of reported incidents of violence against women has continued to increase since 1999. For example, there were 58,439 reported incidents in 2013-2014, which rose to 59,882 in 2014-2015 (The Scottish Government, 2016). Additionally, these incidents are not isolated events as 5% of those experiencing partner abuse in the previous twelve months, said it had happened too many times to count (The Scottish Government, 2010/11), yet just over half of these incidents are recorded as a crime or offence (Scottish Government, 2016). It therefore seems that despite the increase in reporting, acts of violence against women remains a mostly hidden crime in this country (The Scottish Government, 2012/13).

Interpersonal trauma and psychological wellbeing

Interpersonal trauma (IPT) is widely recognized as leaving an imprint on the mental and physical wellbeing of survivors and may impact on many aspects of a survivors' life, including their relationships, feelings, identity, thoughts and behaviours (Felitti, 2002, Van Der Kolk, 2014). Survivors' responses to IPT may be so significant, that their emotional and physical equilibrium is impacted (Van Der Kolk, 2014) adversely affecting many systems, functions and responses within the body (Felitti, 2002, Van Der Kolk, 2014).

Exposure to traumatic experiences in early life has been found to alter brain structure (Vythilingam et al. 2002) and is associated with an alteration in neurocognitive functioning. This is significant as the part of the brain affected, the hippocampus, is part of a group of structures that play an essential part in memory, spatial awareness, experiencing emotions such as anger and fear as well as learning and motivation (Gould et el. 2012, Luener and Gould, 2010, Tamminga, 2005, Tull, 2016).

Changes in the neuroendocrine system increase the likelihood of developing post-traumatic stress disorder (PTSD) (Pervanidou et al. 2012), which is the clinical manifestation of posttraumatic stress (APA, 2000). PTSD can significantly harm the health and wellbeing of survivors of trauma (Holditch-Davis, Bartlett, Blickman, & Shandor Miles, 2003) as they live with intrusive memories of traumatic experiences, disturbing flashbacks, nightmares and dissociative episodes (Newport et al. 2003, Van Der Kolk, 2014). Subsequent problems with self-protection, self-regulation and agency may be experienced, but many survivors never receive a diagnosis of PTSD (Seng, 2002).

More recent developments recognise that multiple or repeated experiences of IPT may lead to complex trauma (Mooren and Stofsel, 2015), whereupon survivors experience a gamut of reactions and symptoms which develop beyond PTSD symptomatology (Courtois, 2004).

Interpersonal trauma and substance use

There is a strong body of evidence supporting associations between IPT and substance use, although research to date has tended to focus on the impact of childhood trauma. Nonetheless, quantitative studies show significant and consistent associations between sexual abuse (Asberg et al. 2012, Freeman et al. 2002, Mullen et al. 1999, Ompad et al. 2005, Ullman et al. 2013), multiple forms of abuse (Afifi et al. 2012, Ahmad et al. 2013, Dube et al. 2003, Garland et al. 2013, Medrano et al. 1999), family history of violence/physical abuse (Chermack et al. 2000, Fergusson et al. 1998, Gutierres et al. 2006, Lansford et al. 2010) and substance misuse.

Associations between childhood experiences of physical and sexual abuse (Brems et al. 2002, Tripodi et al. 2013), physical abuse and parental drug/alcohol use (Nyamathi

et al. 2001), emotional abuse and maternal substance use (McLaughlin et al. 2012) and substance misuse have also been revealed. Furthermore, qualitative enquiry by Erdman et al. (2008), Clum et al. (2009), Hall, (1999) and Hall, (2000) describe and explore complex abuse histories and women's trajectories of life following childhood abuse. Issues around teenage pregnancy (Erdman et al. 2008), substance misuse from adolescence onwards as a means to cope (Clum et al. 2009), feelings of loss of childhood (Hall, 1999) and marginalization (Hall, 2000) are revealed. Garland et al. (2013) surmise a "feedback loop between substance misuse and psychological distress" (page 1) however, the complex mechanisms underpinning this have not, as yet, been fully investigated.

A smaller number of studies examine associations between IPT in adulthood and substance use. These suggest significant and consistent associations between IPT in adulthood and substance misuse amongst different populations of women (Guitierres, 2006, McCauley, 2009, Poole et al. 2008, Rees et al. 2011, Shannon et al. 2008, Simoni et al. 2004, Sullivan et al. 2012). Whilst some of the participants in a Scottish based survey by Dolev and Associates, (2008) were already using substances prior to the onset of intimate partner violence, most participants felt that there was a link between their use of substances and domestic abuse. Over half of the participants reported that their substance use had increased during the time they were experiencing abuse, some felt that it had stayed the same, but none reported that it had decreased. Women were cited as using substances in order to dull the physical and emotional pain they were experiencing as a result of IPV and in order to escape the reality of the situations they were living in. Lifetime experiences of IPT are also positively associated with substance misuse with a cumulative effect suggested by Ullman, (2013) and Hedtre et al. (2008).

Substance misuse in pregnancy

Neonatal and obstetric outcomes are poorer amongst pregnant women with problematic substance use and the effects of substance use during pregnancy are well documented (Bandstra et al.2010, Day et al. 2005, Maguire et al 2016, Narkowicz et al. 2013, Oyelese and Cande, 2006, Pinto et al. 2010, Scottish Executive, 2006, Simmat-Durrand et al. 2014, Singer et al. 2016, Wright et al. 2007, Zhao et al. 2017).

The use and misuse of substances are known to be harmful to fetal and maternal wellbeing and are associated with ectopic pregnancy, miscarriage, placental insufficiency, reduced fetal growth, low birth weight and preterm birth (Keegan et al. 2010, Kutlu, 2008). Fetal alcohol spectrum disorders (FASD) may result in lasting learning and development difficulties, fetal alcohol disorder (FAD), which results in distinctive facial features, restricted growth and learning and developmental difficulties (Alcohol Focus Scotland, 2017), earlier birth, lower birth weight and withdrawal symptoms in the new-born baby (Bauer et al. 2005).

Additionally, long term morbidity and mortality are found to be significantly increased amongst women who have misused substances during pregnancy (Kahila et al 2010, Minnes et al 2012) and substance misuse is associated with 11% of maternal deaths in the UK (Maternal, Newborn and Infant Clinical Outcome Review Programme (MBRACE-UK), 2015). Furthermore, PWMS face additional challenges including social deprivation, fear of involvement of multiple agencies and guilt around drug use as well as feeling distressed, stigmatized, vulnerable, marginalized and judged by staff as a result of their substance use (Banwell et al. 2006, Chandler et al. 2013, Cleveland et al. 2013, Hardesty and Black 1999, Howell et al. 1999, NHS, 2012,

National Institute Clinical Excellence, (NICE), 2010, Reid et al. 2008, Scottish Government, 2011, Stadnyk et al. 2007, Walsh, 2011).

Nonetheless, pregnancy has been found to be a time of positive change in studies by Daley et al. (1998), Jessup et al. (2005) and Radcliffe, (2011). Motherhood, too can be a time of self-reflection as Chandler, (2013), McLelland et al. (2008), Mosedale et al. (2009) and Reid et al. (2008) reveal that mothers in these studies are very aware of the detrimental impact substance misuse had on their children's lives and were found to develop strategies to try to keep their children safe. Furthermore, Hardesty and Black (1999) found that motherhood provided a lifeline for Latina women. Within the UK, Chandler et al. (2013) and McLelland et al. (2008) explored these mothers struggle with substance misuse and mothering. Within the context of parenting, they revealed a number of issues including ideas around not fitting in with society's notions of ideal parenthood, a desire to try to protect their children from their drug use and on-going stigma. Additionally, Radcliffe (2011) found that they longed to be normal mums.

The review

Search methods

An explicit and comphrehensive search of relevant electronic databases was conducted following consultation with the subject librarian. The following databases were searched: MEDLINE, AMED - The Allied and Complementary Medicine Database, CINAHL (Cumulative Index of Nursing and Allied Health Literature) Plus with Full Text, Psychology and Behavioural Sciences Collection and PsychINFO. The following search terms were used: substance-related disorders OR alcoholism OR substance misuse OR substance abuse OR drug abuse OR drug misuse OR alcohol

abuse OR alcohol drinking and combined with pregnancy OR pregnant women. These search terms were then combined with: sex offenses OR incest OR physical abuse OR child abuse OR adult survivors of child adverse events OR emotional abuse OR psychological trauma OR stress disorders, post-traumatic. The following inclusion criteria were employed in order to assess relevance:

- Explore possible relationship between IPT and substance misuse amongst pregnant women (self-report or patient/government records).
- Include pregnant women aged 18+. This was in order to focus on the experience of adult women.
- Published in English.
- Published 1990-2017. This was in order to capture a larger amount of data as a previous search with a more recent timeframe produced limited results, therefore a paucity of research was anticipated.
- Primary and secondary research.
- Qualitative, quantitative and mixed methods studies.

Relevant articles cited in reference lists and bibliographies of the literature were also explored. The search was undertaken in July 2017 as part of a PhD study.

Search outcome

A total of 134 papers were identified (Table 1). Duplicates and commentaries were removed. Studies which did not meet the inclusion criteria were excluded, leaving a total of 15 papers (Table 2). These studies were then categorised into three themes which emerged from the literature – lifetime experiences of IPV/IPT and substance

use; IPV/IPT during pregnancy and substance use; childhood abuse and substance misuse (Table 3).

Quality appraisal

The following categories were used to critically appraise the trustworthiness, relevance and results of the remaining papers, in a structured, systematic way; aim, methodology, design, sample, findings and relevance (Bryman, 2012, Critical Appraisal Skills Programme (CASP), (2013), Coughlan et al. 2007, Jack et al. 2010, Long et al. 2002). A detailed review of each study is presented in Table 4.

Results

Lifetime experiences of interpersonal trauma and substance use/misuse in pregnant women

Potential associations between pregnant women's experiences of IPT during their lifetime and their use of substances were explored in five quantitative studies by Kvigne et al. (1998), Martin et al. (1996), Martin et al. (2003), Salomon et al. (2002) and Tuten et al. (2003). All of these studies were conducted within the US. No UK based studies were found. These studies identified positive associations between lifetime experiences of trauma and problematic substance use amongst pregnant women, however, a number of limitations were evident.

Women of low income were recruited in the studies by Kvigne et al. (1998), Martin et al. (1996) and Martin et al. (2003). Martin et al. (1996) and Martin et al. (2003) explored poly-substance misuse in pregnancy, whereas Kvigne et al. (1998) concentrated on alcohol use only. Strong positive associations between violence and alcohol use were found in all three studies. Reporting of alcohol use during pregnancy

however, may be perceived as more socially acceptable than other substances, therefore the findings may not be an accurate reflection of participants' use of other substances.

Participants' use of substances in relation to exposure of IPT were explored in the study by Martin et al. (1996) and Martin et al. (2003) (n=85), whereas Kvigne et al. (1998) collected data regarding trauma exposure in order to examine demographic patterns of substance use amongst women (n=177) who did and did not consume alcohol during pregnancy. Martin et al. (1996) and Martin et al. (2003) found that participants who had experienced violence were much more likely to drink alcohol, to smoke and to use illicit drugs prior to and during pregnancy. They were also more likely to use more substances prior to and during pregnancy. Moreover, those who had experienced all types of violence demonstrated more substance use disorder symptoms (Martin et al. 2003). However, although all these studies recruited women of low income, none of the studies used samples that were ethnically diverse, thereby limiting transferability and generalisability of findings. This is particularly so for Kvigne et al. (1998), who recruited Northern Plains Indian women, therefore caution needs to be taken in applying the findings from this study more generally to women out-with this ethnic group and country.

Domiciled and homeless women's use of addictive substances in relation to their experiences of IPT, PTSD and partners' use of substance use were explored by Salomon et al. (2002), whereas domiciled and homeless women's initial psychosocial functioning and treatment outcomes were compared by Tuten et al. (2003). Salomon et al. (2002) found an interaction between CSA, PTSD and drug use, however, it is unclear how many of the participants were pregnant and how many were already mothers. This is of particular relevance as the time around pregnancy, birth and the

postnatal period are times of major social and psychological change for women during which time, adaptations are required that may affect women's physical and mental wellbeing (Royal College of Midwives (RCM), 2012) and therefore may impact upon their use of substances. Salomon et al. (2002) explored poly-substance use whereas Tuten et al. (2003) limited the substances used to cocaine, heroin and alcohol. Salomon et al. (2002) found that women with a history of IPV were more likely to report PTSD and the use of drugs and alcohol by their partner. The mechanisms and directionality between these findings however, were not explored. Homeless participants in the study by Tuten et al. (2003) were found to face additional challenges and have poorer outcomes than domiciled women. Homeless women reported more mental ill-health including major depression, higher rates of suicide attempts, suicide ideation and reported more experiences of abuse. Furthermore, they were shown to have poorer social networks and use and spend more on illicit drugs and alcohol (Tuten et al. 2003). However, clinical treatment bills were used to compare treatment outcome variables between the two groups of women in the study by Tuten et al. (2003). Finances may be implicated in whether or not medical treatment is available or undertaken for any length of time in the US. It is therefore not possible to determine from the evidence provided, if treatment bills provide a true reflection of women's motivation with regards to treatment for substance misuse.

Moreover, transferability and generalisability of the findings by Salomon et al. (2002) and Tuten et al. (2003) are limited out-with the areas or country studied. For example, Salomon et al. (2002) recruited homeless mothers and pregnant women randomly enrolled from one area of Massachusetts, where at the time of data collection, approximately 15% of residents were known to live below the poverty level. Almost 83% of the sample recruited by Tuten et al. (2003) were African-American, over 80%

of whom were found to be unemployed. Neither study, therefore, used samples that were wholly representative of the US, as they were not socially, culturally or ethnically diverse. In addition, it is worth considering the possible difference between being poor and homeless and poor and housed and whether these two groups can be used for comparison. For example, some of the ongoing psychological problems experienced by these very specific groups of women may have been compounded by their financial or residential status.

Interpersonal trauma in adulthood and substance use/misuse in pregnant women

Potential associations between women's experience of IPT during pregnancy and substance use were explored in three quantitative studies (Connelly et al. 2013, Curry, 1998 and Eaton et al. 2011). Two of these studies took place within the US (Curry, 1998 and Connelly et al. 2013), whilst one study took place in South Africa (Eaton et al. 2011). No UK based studies were found. All three studies identified positive associations between experiences of trauma during pregnancy and substance use.

Pregnancy status, alcohol intake and experience of IPT were assessed by Eaton et al. (2011). IPV was found to be associated with alcohol use amongst most participants. Furthermore, 61% of the pregnant women attending the Shebeen at the time of data collection were drinking alcohol. Additionally, binge drinking was reported twice as often amongst pregnant women that non-pregnant women. However, the majority of participants in this study were male (n=1210). Only 13.3% of the female participants (n=910) were pregnant. What is more, participants were recruited form unlicensed drinking establishments, known as Shebeens, which are unique to

townships in South Africa. The reported figures may not therefore be an accurate reflection of IPT and substance misuse out-with South Africa.

The study by Connelly et al. (2013) examined the co-occurrence of IPT, poly-substance use problems and depressive symptoms in the perinatal period, whereas the study by Curry, (1998) examined the relationship between IPT and alcohol and tobacco use. Psychosocial issues were reported in both these studies, as were the use of substances and IPT. Both studies found associations between abuse by male partners and the use of substances, however, both involved women known to be of low income therefore generalisability and transferability of the finding from these studies is limited. Furthermore, participants in the study by Connelly et al. (2013) who were born out-with the US, reported lower rates of IPT and substance use. This represented more than half of the sample (n=1868), some of whom were not pregnant. The reported figures may not therefore be an accurate reflection of IPT and substance misuse out-with the study settings or the US population. The authors however, suggest that cultural attitudes regarding issues such as IPT and substance use, particularly amongst Latina women, may explain the low reported rates of these amongst this group of participants.

Interpersonal trauma in childhood and substance use/misuse in pregnant women

Potential associations between abuse in childhood and substance misuse during pregnancy were explored in seven quantitative studies. Associations between childhood experiences of different forms of abuse and substance misuse were examined by Brems et al. (2002), El Marroun et al. (2008), Frankenberger et al. (2015) and Haller and Miles, (2003) whilst Fogel et al. (2001), Horrigan et al. (2000) and

Nelson et al. (2010) explored associations between childhood experiences of physical/sexual abuse and substance misuse. Five out of the seven of these studies took place within the US (Fogel et al. 2001, Frankenberger et al. 2015, Haller and Miles, 2003, Horrigan et al. 2000, Nelson et al. 2010), whereas the study by Brems et al. (2002) was undertaken in Alaska and El Marroun et al. (2008) in the Netherlands. No UK based studies were found.

The findings of these studies suggest associations between childhood trauma, ongoing psychological distress and the use of substances. Women in the studies by Brems et al. (2002), Fogel et al. (2001), Haller and Miles, (2003), Horrigan et al. (2000) and Nelson et al. (2010) were found to use a variety of substances including cannabis, alcohol, tobacco and cocaine. Cannabis use was the focus of the study by El Marroun et al. (2008), whilst Frankenberger et al. (2015) concentrated on alcohol and tobacco use.

Whilst the women in these studies appeared to display elevated psychological symptoms, only the women in the studies by El Marroun et al. (2008), Haller and Miles, (2003) and Nelson et al. (2010) had these clinically assessed, whereupon psychiatric comorbidity was found to be common. Furthermore, it is unclear if Horrigan et al. (2000) were exploring a causal relationship between abuse in either childhood or adulthood or the potential cumulative effect of these.

The majority of these studies took place in the nineties (Brems et al. 2002, El Marroun et al. 2008, Fogel et al. 2001, Horrigan et al. 2000, Nelson et al. 2010) during a period of significant social change. The research evidence has developed and practice evolved since these studies were undertaken. Furthermore, although perhaps representative of the areas the studies took place in, all of the studies involved women

known to be of low income. In addition, samples in the studies by Haller and Miles, (2003), Horrigan et al. (2000) and Nelson et al. (2010) do not reflect ethnic diversity. For example, the majority of the participants (n=77) in the study by Haller and Miles, (2003) were described as comprising mainly poor women of colour. Moreover, although the majority (66%) of the participants in this study were pregnant, their results were based on the finding from a sample of n=77. It is therefore necessary to exercise caution in the interpretation and use of these findings to inform practice.

Finally, participants in the study by El Marroun et al. (2008) were not representative of the region where the study took place and Fogel et al. (2001) findings were based on a sample of n=63. Fogel et al. (2001) did however, recruit from a unique population, that is, participants who were pregnant and incarcerated, so perhaps this size of sample is a reflection of focussing on a population that may be difficult to recruit. Generalisability and transferability of the findings from these studies is nonetheless, limited.

Discussion

A narrative literature review was undertaken which aimed to identify the extant literature regarding possible associations between IPT and substance misuse amongst pregnant women. Fifteen studies were identified which suggest associations between negative life events and substance misuse in pregnant women/new mothers. Whilst a link between IPT and substance misuse is suggested, this review has highlighted a number of important gaps in the literature which require further investigation.

Problematic substance use is a worldwide problem (WHO, 2016) yet twelve out of the fifteen studies identified took place within the United States (Connelly et al. 2013,

Curry, 1998, Fogel et al. 2001, FrankenBerger et al. 2015, Haller and Miles, 2003, Horrigan et al. 2000, Kvigne et al. 1998, Martin et al. 1996, Martin et al. 2003, Nelson et al. 2010, Salomon et al. 2002, Tuten et al. 2003). No studies were identified that have been undertaken with a UK based population of pregnant women. This is important as there may be differences in the experiences or perceptions of IPT and the use of substances amongst a UK based population where ethnicity and cultural attitudes may vary. Pregnant women who use/misuse substances are a group of vulnerable women who may have potentially complex health and social care requirements, yet little appears to be known about them in the UK. This is an important gap in the literature as UK midwives' education and practice is unique. Midwifery practice within the UK is embedded in the primary health care system where midwives are recognised as autonomous practitioners (RCM, 2012). Midwives' educational requirements meet International Confederation of Midwifery (ICM) standards (ICM, 2011, RCM, 2012), thereby the maternity care that women in the UK receive is arguably different from the countries studied to date.

Despite strong evidence regarding potential cumulative effects of lifetime IPT, studies to date have focussed mostly on the impact of childhood trauma, CSA in particular. Whilst understanding the impact of CSA on the health and wellbeing of women is important, IPT may continue throughout women's lives, therefore research regarding the cumulative effects of ongoing traumatization is also vital. Furthermore, none of the studies to date aim to fully explore possible associations between IPT and substance use amongst pregnant women, therefore it is difficult to determine to what extent IPT affects the initiation and use of substances in this particular group.

Moreover, research to date has employed quantitative methodology. This may be for a number of reasons; firstly, the collection of quantitative data may be less intrusive for participants than face to face interviews particularly when discussing sensitive topics such as IPT and substance use. However, this could have an impact on engagement and accuracy of information. Secondly, collection of quantitative data may prove less time consuming for both participant and researcher, particularly if data is collected from patient clinical records as in the studies by Martin et al. (1996) and Nelson et al. (2002) or gathered routinely during admission/assessment for treatment/services such as in the studies by Brems et al. (2002), Haller and Miles, (2003) and Tuten et al, (2003). However, although these methods of data collection provide valuable information regarding the prevalence of trauma and the use of substances, they fail to fully capture information regarding experiences or provide understanding or depth to the women's stories. As such, they may not fully encapsulate the range of traumatic experiences and events pregnant women have survived. Additionally, none of these studies used a method which would help participants re-call the chronological order, detail and significance of life events. This would help address a number of important issues such as potential concerns regarding possible recall bias of complex life events and self-report in retrospective studies.

Polysubstance use was explored by Brems et al. (2002), Connelly et al. (2013), Fogel et al. (2001), Frankenberger et al. (2015), Haller and Miles, (2003), Horrigan et al. (2000), Martin et al. (1996), Martin et al. (2003), Nelson et al. (2010) and Salomon et al. (2002) whereas Eaton et al. (2012) and Kvigne et al. (1998) concentrated on the use of alcohol. Curry, (1998) and Frankenberger et al. (2015) considered alcohol and tobacco use, El Marroun et al. (2008) examined cannabis use and Tuten et al. (2003) concentrated on cocaine, heroin and alcohol use. The substances enquired about in

the aforementioned studies may reflect the drug of choice/availability in the countries were the studies were undertaken or reflect the time the studies took place.

Furthermore, samples in studies to date are not generally representative, as they mostly involve women who live in areas of deprivation or face additional challenges such as homelessness. This makes it difficult to establish if some of the ongoing psychological problems experienced by these very specific groups of women are compounded by their current financial or residential status. Generalizability or transferability of findings from these studies is subsequently limited. Besides, studies to date mostly concentrate on acts of physical and/or sexual violence and do not enquire about other acts of coercion that may have long term implications for the physical and mental wellbeing of survivors (Stark, 2009) and consequently, do not reflect the growing awareness that IPT may not be related only to isolated acts of physical and/or sexual assault (Brewin et al. 2000, Cromer and Smyth, 2010, Nilsson et al. 2010). This may, however, reflect previous knowledge and awareness of what constitutes abuse and reflect the time these studies were undertaken. Finally, the majority of the studies identified may be considered outdated.

Conclusion

The relationship between IPT and substance use/misuse during pregnancy is complex and multifactorial, however, a paucity of UK based studies has been identified in this comprehensive, narrative literature review. Studies to date have used quantitative methodology and no qualitative studies were identified involving pregnant women who misuse substances (PWMS). PWMS in the UK appear therefore appear to be a group of vulnerable women, about whom, relatively little is known. This is with regards to their life histories, their use of substances and their experiences of pregnancy and

motherhood. Research is therefore required which sheds light on this group of vulnerable women within the UK. The significance of trauma may be unique during pregnancy, as this is a time when women may reflect and rethink important relationships in order to "make room" (page 1) for their relationship with the baby (Huth-Bocks et al. 2013). New knowledge would help create understanding of their experiences and perceptions of pregnancy and motherhood.

References

Afifi, T.O., Henriksen, C.A., Asmundson, G.J.G., Sareen, J. (2012). Childhood maltreatment and substance abuse disorders among men and women in a nationally representative sample. *Canadian Journal of Psychiatry,* 57, (11), 677-86.

Ahmad, A., Mazlan, N.H. (2013). Substance abuse and childhood trauma experiences: Comparison between incarcerated and non-incarcerated youth. *Proceida – Social and Behavioural Sciences, 113*, 161-170.

American Psychiatric Association. (2013a). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA.

Bandstra, E.S., Morrow, C.E., Mansoor, E., Accornero, V.H. (2010). Prenatal Drug Exposure: Infant and Toddler Outcomes. *Journal of Addictive Diseases, 29*(2), 245-258.

Brems, C., Namyniuk, L. (2002). The relationship of childhood abuse history and substance use in an Alaskan sample. *Substance Use and Misuse, 37*(4), 473-494.

Bryman, A. (2012). *Social research methods* 4th edition Oxford University Press.

Chandler, A., Whittaker, A., Williams, N., McGorm, K., Cunningham-Burley, S. & Mathews, G. (2013). Mother's little helper? Contrasting accounts of benzodiazepine and methadone use among drug-dependent parents in the UK. *Drugs: Education, Prevention, and Policy. 21*, 470-475. doi:10.3109/09687637.2014.930814. ISSN 0968-7637.

Clum, G. a, Andrinopoulos, K., Muessig, K., & Ellen, J. M. (2009). Child abuse in young, HIV-positive women: linkages to risk. *Qualitative Health Research*, *19*(12), 1755–68. doi:10.1177/1049732309353418.

Connelly C,D, Hazen, A.L., Baker-Ericzen, M.J., Landsverk, J., McCue Horwitz, S. (2013). Is Screening for Depression in the Perinatal Period Enough? The Co-Occurrence of Depression, Substance Abuse, and Intimate Partner Violence in Culturally Diverse Pregnant Women. *JOURNAL OF WOMEN'S HEALTH,* DOI: 10.1089/jwh.2012.4121.

Courtois, A (2004) Complex trauma, complex reactions: Assessment and treatment. *Psychotherapy: Theory, Research, Practice, Training* 41 (4) 2004 p412-425.

Critical Appraisal Skills Programme. (2013). *Making sense of evidence.*

Critical Appraisal Skills Programme. (2013). *10 questions to help you make sense of qualitative research.*

Critical Appraisal Skills Programme. (2013). *12 questions to help you make sense of a cohort study.*

Cromer, L.D. & Smyth, J.M. (2010). Making Meaning of Trauma: Trauma Exposure Doesn't Tell the Whole Story. *Journal of Contemporary Psychotherapy, 40*(65), doi:10.1007/s10879-009-9130-8.

Curry, M.A. (1998). The Inter-relationships between abuse, substance use and psychological stress during pregnancy. *Journal of Obs, Gynae and Neonatal Nursing, 27*(6).

Day, E., George, S. (2005). Management of drug misuse in pregnancy. *Advances in Psychiatric Treatment,* 11, 253-261.

Dolev and Associates. (2008). *No Boundaries: The Tayside Domestic Abuse and Substance Misuse Project Final Research Report.* Tayside: Perth and Kinross, Dundee City and Angus Local Authorities

Draucker, C., Martsolf, D., Roller, C., Knapik, G., Ratchneewan, R., Warner Stidham, A .(2011). Healing from Childhood Sexual Abuse: A Theoretical Model. *Journal of Child Sexual Abuse, 20*, 435-466.

Dube, S.R, Felitti, V.J., Dong, M., Chapman, D.P., Gyles, W.H., Anda, R.F. (2003). Childhood Abuse, Neglect, and Household Dysfunction and the Risk of Illicit Drug Use: The Adverse Childhood Experiences Study. *Pediatrics, 111*(3).

Eaton, L. A., Kalichman, S. C., Sikkema, K. J., Skinner, D., Watt, M. H., Pieterse, D., & Pitpitan, E. V. (2011). Pregnancy, alcohol intake, and intimate partner violence among men and women attending drinking establishments in a Cape Town, South Africa township. *Journal of Community Health*, *37*, 208–216. doi:10.1007/s10900-011-9438-7.

Erdmans, M.P., Black, T. (2008). What They Tell You to Forget: From Child Sexual Abuse to Adolescent Motherhood. *Qualitative Health Research, 18*(77), http//qhr.sagepub.com/content/18/1/77.

Felitti, V.J., Andra, R.F., Nordenberg, D., Williamson, D.F., Spitz, A.M., Edwards, V., Koss, M.P., Marks, J.S. (1998). *Relationship of childhood abuse and household dysfunction to cause of death in adults. The Adverse Childhood Experiences (ACE) Study. Am J Prev Med, 14*(4), 245-258.

Finkelhorn, D., Ormrod, R., Turner, H., Hamby, S.L. (2005). The Victimization of Children and Youth: A Comprehensive, National Survey. *Child Maltreatment*.

Fogel, C.I., Belyea, M. (2001). Psychological Risk Factors in Pregnant Inmates. A Challenge for Nursing. *American Journal of Maternal, Child Nursing, 26*(1).

Frankenberger, D. J., Clements-Nolle, K., & Yang, W. (2015). The association between adverse childhood experiences and alcohol use during pregnancy in a representative sample of adult women. *Women's Health Issues*, *25*(6), 688-695. doi:10.1016/j.whi.2015.06.013.

Freeman, R.C., Collier, K., Parillo, K.M. (2002). Early life sexual abuse as a risk factor for crack cocaine use in a sample of community recruited women at high risk for illicit drug use. *American Journal of Drug and Alcohol Abuse, 28*(1), 109-131.

Garland, E. L., Pettus-Davis, C., & Howard, M. O. (2013). Self-medication among traumatized youth: structural equation modeling of pathways between trauma history, substance misuse, and psychological distress. *Journal of Behavioral Medicine*, *36*(2), 175–85. doi:10.1007/s10865-012-9413-5.

Gilson, K.J., Lancaster, S. (2008). Childhood sexual abuse in pregnant and parenting adolescents. *Child Abuse & Neglect, 32*, 869-877.

Guthrie, W. (2004). *Remodelling life in the aftermath of child sexual abuse. A study exploring the support needs of sexually abuse children, young people and non-abusing parent.* Women's Support Project, Glasgow.

Gutierres, S.E., Puymbroeck, C.V.(2006). Childhood and adult violence in the lives of women who misuse substances. *Aggression and Violent Behavior, 11*, 497-513.

Hillis, S.D., Anda, R.F., Felitti, V.J., Nordenberg, D., Marchbanks, P, A. (2000). Adverse Childhood Experiences and Sexually Transmitted Disease in Men and Women: A Retrospective Study. *Pediatrics, 106*(1)

Hall, J.M. (1999). Lesbians in alcohol surviving child sexual abuse and parental substance misuse. *The International Journal of Psychiatric Nursing Research, 5*(1), 507-515.

Hall, J.M. (2000). Core Issues for Female Child Abuse Survivors in Recovery from Substance Misuse. *Qual Health Res,* September, 10, 612-631, doi: 10.1177/104973230001000504.

Hardesty, M., Black. (1999). Mothering Through Addiction: A Survival Strategy among Puerto Rican Addicts. *Qualitative Health Research.*

Hedtre, K.A., Ruggerio, K.J., Fitzgerald, M.M., Zinzow, H.M., Saunders, B.E., Resnick, H., Kilpatrick, D.G. (2008). A longitudinal investigation of interpersonal violence in relation to mental health and substance use. *Journal of Consulting and Clinical Psychology, 76*(4), 633-647. http://dx.doi.org/10.1037/0022-006X.76.4.633.

Huth-Bocks, A. C., Krause, K., Ahlfs-Dunn, S., Gallagher, E., & Scott, S. (2013). Relational trauma and posttraumatic stress symptoms among pregnant women. *Psychodynamic Psychiatry, 41,* 277–301. doi:10.1521/pdps.2013.41.2.277.

Jack, L., Hayes, S. C., Scharalda, J. G., Stetson, B., Jones-Jack, N. H., Valliere, M., LeBlanc, C. (2010). Appraising Quantitative Research in Health Education: Guidelines for Public Health Educators. *Health Promotion Practice, 11*(2) 161–165 http://doi.org/10.1177/1524839909353023.

Keegan, J., Parva, M., Finnegan, M., Gerson, A., Belden, M. (2010). Addiction in Pregnancy. *Journal of Addictive Diseases, 29*(2), 175-191.

Kutlu, R. (2008) The Effects of Active and Passive Smoking upon Pregnancy and Fetus. *Preventative Medicine Bulletin, 7*(5), 445-448.

Kvigne, V. L., Bad Heart Bull, L., Welty, T. K., Leonardson, G. R., & Lacina, L. (1998). Relationship of prenatal alcohol use with maternal and prenatal factors in American Indian women. *Biodemography And Social Biology*, *45*(3-4), 214-222. doi:10.1080/19485565.1998.9988974.

Lansford, J., Dodge, K., Pettit, G., Bates, J. (2010). Does Physical Abuse in Early Childhood Predict Substance Use in Adolescence and early Adulthood?. *Child Maltreatment,* May, 190-194.

Leeners, B., Stiller, R., Block, E., Görres, G., & Rath, W. (2010). Pregnancy complications in women with childhood sexual abuse experiences. *Journal Of Psychosomatic Research*, *69*(5), 503-510. doi:10.1016/j.jpsychores.2010.04.017.

Long, A.F., Godfrey, M., Randall, T., Brettle. A.J., Grant, M.J. (2002). *Developing Evidence Based Social Care Policy and Practice. Part 3: Feasibility of Undertaking Systematic Reviews in Social Care.* Leeds: Nuffield Institute for Health.

Lukasse, M., Shei, B., Vangen, S., Oian, P. (2009). Childhood Abuse and Common Complaints in Pregnancy. *Birth, 36*(3), 190-199.

Martin, S.L., English, K.T., Clark, K.A., Cilenti, D., Kupper, L.L. (1996). Violence and Substance Use among North Carolina Women. *American Journal of Public Health, 86*(7).

Martin, S. L., Beaumont, J. L., & Kupper, L. L. (2003). Substance Use Before and During Pregnancy: Links to Intimate Partner Violence. *The American Journal of Drug and Alcohol Abuse*, *29*(3), 599–617. doi:10.1081/ADA-120023461.

Maternal, Newborn and Infant Clinical Outcome Review Programme (MBRACE-UK). 2015). *Saving Lives, Improving Mothers' Care*. Surveillance of maternal deaths in the UK 2011-13 and lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2009-13. Oxford: National Perinatal Epidemiology Unit.

McCauley, J., Ruggerio, H.S., Resnick, H.S., Conoscent, L., Kilpatrick, D.G. (2009). Forcible, drug-facilitated rape in relation to substance abuse problems: Results from a national sample of college women. *Addictive Behaviours,* 34(5).

McLaughlin, D., Mckenna, H., Leslie, J., Moore, K., Robinson, J. (2006). Illicit drug users in Northern Ireland: perceptions and experiences of health and social care professionals. *Journal of Psychiatric and Mental Health Nursing, 13* 682–686, doi:10.1111/j.1365-2850.2006.01015.x

Medrano, M.A., Zule, W.A., Hatch, J., Desmond, D.P. (1999). Prevalence of Childhood Trauma in a Community Sample Of Substrance Abusing Women. *Am J Drug Alc Abuse,* 25, 449-467.

Minnes, S., Singer, L. T., Kirchner, H. L., Satayathum, S., Short, E. J., Min, M., Mack, J. P. (2008). The association of prenatal cocaine use and childhood trauma with psychological symptoms over 6 years. *Archives of Women's Mental Health,* 11(3), 181–92. doi:10.1007/s00737-008-0011-z.

Mooren, T., Stofsel, M. (2015). *Diagnosing and treating complex trauma*. London: Routledge.

Mullen, P. D., Pollak, K. I., & Kok, G. (1999). Success attributions for stopping smoking during pregnancy, self-efficacy, and postpartum maintenance. *Psychology Of Addictive Behaviors*, *13*(3), 198-206. doi:10.1037/0893-164X.13.3.198.

Narkowicz, S., Justyna, P., Polkowska, Ż., Biziuk, M., & Namie, J. (2013). Prenatal exposure to substance of abuse : A worldwide problem, *54*, 141–163. doi:10.1016/j.envint.2013.01.011.

Nyamathi, A., Longshore, D., Keenan, C., Lesser, J., Leare, B. (2001). Childhood predictors of daily substance use among homeless women of different ethnicities. *The American Behavioural Scientist*, 45(1), 35.

Office for National Statistics. (2014). *Chapter 4 – Intimate Partner Violence and Partner Abuse.* 13 February 2014.

Pinto, S. M., Dodd, S., Walkinshaw, S. a, Siney, C., Kakkar, P., & Mousa, H. a. (2010). Substance abuse during pregnancy: effect on pregnancy outcomes. *European Journal of Obstetrics, Gynecology, and Reproductive Biology*, *150*(2), 137–41. doi:10.1016/j.ejogrb.2010.02.026.

Poole, N., Greaves, L., Jategaonkar, N., McCullough, L., & Chabot, C. (2008). Substance use by women using domestic violence shelters. *Substance Use & Misuse*, *43*(8-9), 1129–50. doi:10.1080/10826080801914360.

Prentice, J.C., Lu., M.C., Lange, L., Halfon, N. (2002). The Association Between Reported Childhood Sexual Abuse and Breastfeeding Initiation. *Journal of Human Lactation. 18*(3), 219-226.

Radcliffe, P. (2011). Substance-misusing women: Stigma in the maternity setting. *British Journal of Midwifery*, *19*(8). Retrieved from http://www.intermid.co.uk/cgi-bin/go.pl/library/abstract.html?uid=85563.

Rees, S., Silove, D., Chey, T., Ivanic, L., Steel, Z., Creamer, M., Teesson, M., Bryant, R., McFarlane, A., Mills, K., Slad, T., Carragher, N., O'Donelly, M., Forbes, D. (2011). Lifetime Prevalance of Gender Based Violence in Women and the Relationship with Mental Disorders and Psychosocial Functioning. *The Journal of The American Medical Association*, *306*(5), doi:10.1001/jama.2011.1098.

Royal College of Midwives (RCM). (2012). *Maternal Emotional Wellbeing and Infant Development A Good Practice Guide for Midwives.* The Royal College of Midwives Trust.

Salomon, A., Bassuk, S.S., Huntington, N. (2002). The Relationship Between Intimate Partner Violence and the Use of Addictive Substances in Poor and Homeless Single Mothers. *VIOLENCE AGAINST WOMEN, 8*(7) 785-815 doi: 10.1177/107780102400388489.

Shannon, L. M., Havens, J. R., & Hays, L. (2010). Examining differences in substance use among rural and urban pregnant women. *The American Journal On Addictions*, *19*(6), 467-473. doi:10.1111/j.1521-0391.2010.00079.x.

Simoni, J. M., Sehgal, S., & Walters, K. L. (2004). Triangle of Risk: Urban American Indian Women's Sexual Trauma, Injection Drug Use, and HIV Sexual Risk Behaviors. *AIDS and Behavior*, *8*(1), 33–45. doi:10.1023/B:AIBE.0000017524.40093.6b.

Stark, E. (2007). *Coercive Control: How Men Entrap Women in Personal Life*. USA: Oxford University Press.

The Scottish Government. (2016). Reducing the damaging impact of drugs and alcohol.

The Scottish Government. (2016). *Good Practice Guidance for working with Children and Families affected by Substance Misuse Getting Our Priorities Right*. Edinburgh: Scottish Government.

Tripodi, S.J., Pettus-Davis, C. (2013). Histories of childhood victimization and subsequent mental health problems for a sample of incarcerated women in the US. *International Journal of Law and Psychiatry*, *36*(1), 30-40.

Tuten, M., Jones, H.E., Svikis, D.S. (2003). Comparing homeless and domiciled pregnant substance dependent women on psychosocial characteristics and treatment outcomes. *Drug and Alcohol Dependence, 69*(1), 95–99.

Ullman, S.E., Relyea, M., Peter-Hagene, L., Vasquez, A.L. (2013). Trauma Histories, substance use coping, PTSD, and problem substance use among sexual assault victims. *Addictive Behaviors, 38,* 2219-2223.

Van Der Kolk, B. (2014). *The Body Keeps The Score Mind, brain and Body in the Transformation of Trauma*. Penguin Books.