Mothers' exposure to early life adversity and mental health and childbirth related outcomes during the perinatal period

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List of acronyms

ACE – Adverse Childhood Experiences

ACT - Acceptance and Commitment Therapy

ADHD – Attention Deficit Hyperactivity Disorder

ALSPAC - Avon Longitudinal Study of Parents and Children

AMBIANCE – Disrupted Maternal Behaviour Instrument for Assessment and Classification

AND – Antenatal Depression

ASQ - Ages and Stages Questionnaire

BDI-II - Beck Depression inventory-II

BIS - Barratt's Impulsiveness Scale

BNBASS - Brazelton Neonatal Behavioural Assessment Scale Scores

BPD – Borderline Personality Disorder

CAPI - Child Abuse Potential Inventory

CAT - Cognitive Analytic Therapy

CBCL - Child Behaviour Checklist

CBT – Cognitive Behavioural Therapy

CECAQ - Childhood Experience of Care and Abuse Questionnaire

CEQ – Childbirth Experience Questionnaire

CI – Confidence Interval

CPSAQ - Childhood Physical and Sexual Abuse Questionnaire

CPTSD – Complex Post Traumatic Stress Disorder

CTQ - Childhood Trauma Questionnaire

DASS - Depression Anxiety and Stress Scales

DBT - Dialectical Behaviour Therapy

DERS - Difficulties in Emotion & Regulation Scale

DSM - Diagnostic and Statistical Manual

DSO – Disturbances in Self-Organisation

EAS - Emotional Availability Scale

ECBQ - Early Childhood Behaviour Questionnaire

EMDR - Eye Movement Desensitization and Reprocessing

EPDS - Edinburgh Postnatal Depression Scale

ERP - Exposure Response Prevention Therapy

ERQ - Emotion Regulation Questionnaire

ESS - Experience of Shame Scale

ET – Exposure Therapy

ETI-SR - Early Trauma Inventory Self-Report

FHHQ - Family Health History Questionnaire

GAD – Generalised Anxiety Disorder

HD – Household Dysfunction

IBQ - Infant Behaviour Questionnaire

ICD – International Classification of Diseases

ITI – International Trauma Interview

ITQ – International Trauma Questionnaire

LEC – Life Events Checklist

LEQ - Life Events Questionnaire

LSC - Life Stressor Checklist

MELA – Maternal Early Life Adversity

MDQ - Major Depression Questionnaire

MWMHLE - Maternal Wellbeing, Mental Health and Life Experience

NAPAC - National Association for People Abused in Childhood

NCMH – National Centre for Mental Health

NHS – National Health Service

NWS - National Women's Survey

OCD – Obsessive Compulsive Disorder

OECD - Organisation for Economic Co-operation and Development

OR – Odds Ratio

PBQ - Postpartum Bonding Questionnaire

pCRH - Placental Corticotrophin-Releasing Hormone

PD – Personality Disorder

PDI-SF - Parent Development Interview-SF

PERI-SLES - Psychiatric Epidemiology Research Interview Stressful Life Events Scale

PHQ-9 - Patient Health Questionnaire-9

PND – Postnatal Depression

PPDS - Postpartum Depression Screening Scale

PRAQ-R2 – Pregnancy-Related Anxiety Questionnaire-Revised 2

PRISMA - Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PSEQ – Prenatal Self Evaluation Questionnaire

PSI-SF - Parenting Stress Index-Short Form, Infant Behaviour Questionnaire-Revised

PSOC – Parenting Sense of Competence

PTSD – Post Traumatic Stress Disorder

QGDFYCC - Queensland Government Department of Families, Youth, and Community Care

SBBS - Sense of Body Boundaries Survey'

SCID - Structured Clinical Interview for DSM-IV

SD – Standard Deviation

SDE-E - Scale of Dissociative Experiences for Adults

SES – Socio-Economic Status

SFP - Still Face Paradigm

SLE – Stressful Life Events Questionnaire

SOS - Self-Objectification Scale

SQ - Suicide Questionnaire

SQCT - Structured Questionnaire of Childhood Trauma

SSIQ - Social Stress Indicator Questionnaire

SSP - Strange Situation Paradigm

TEC - Traumatic Experiences Checklist

TF-CBT - Trauma-Focused Cognitive Behavioural Therapy

THQ - Trauma History Questionnaire

TMMI - Trauma-Meaning Making Interview

VAS – Visual Analogue Scale

WHO – World Health Organisation

Thesis summary

The research reported in this thesis is concerned with the impact of exposure to early life adversity on childbirth and mental health outcomes during the perinatal period with a particular focus on Post Traumatic Stress Disorder (PTSD) and Complex Post Traumatic Stress Disorder (CPTSD). A systematic review of this literature in Chapter 2 highlighted that exposure to maltreatment-based early life adversity is associated with a range of negative perinatal outcomes, including lower birthweight, increased preterm birth, and poorer maternal mental health, but findings were inconsistent and further research warranted. Subsequent chapters aimed to address the evidence gaps identified in Chapter 2. Chapter 3 used data from an existing cohort of participants collected prior to the COVID-19 pandemic and found that exposure to early life adversity was associated with women entering parenthood, doing so younger, and giving birth to more children. Additionally, maltreatment based early life adversities predicted episodes of mental ill-health during the perinatal period among women already diagnosed with a mental health condition. Chapters 4, 5, and 6 report data drawn from an on-going cohort study (the Maternal Wellbeing, Mental Health, and Life Events study), which began following the onset of the COVID-19 pandemic. Chapter 4 established the current perinatal frequency of probable PTSD, CPTSD, and clinically significant Disturbances in Self-Organisation (DSO) symptoms in both a clinical and non-clinical population, concluding that trauma related stress disorders are under-detected, especially in the clinical subsample of women accessing mental health services. Further, maltreatment-based early life adversity predicted the PTSD, DSO, and CPTSD symptom clusters. Chapter 5 demonstrated that early life adversity predicted poorer childbirth outcomes, whilst PTSD, and CPTSD symptoms predicted more negative perceptions of the birth. Chapter 6 highlighted moderate to good symptom identification similarity between the International Trauma Questionnaire (ITQ), and the clinical interview of the International Trauma Interview (ITI). Some crossovers in symptoms between trauma related stress disorders and borderline personality disorder (BPD) were further identified. Collectively, the studies presented in these chapters show that early life adversity, particularly maltreatment-based adversities, predict

poorer perinatal outcomes, and as such should be screened for early in pregnancy so that appropriate treatments, interventions, and support can be provided.

Dissemination

The findings of Chapter 2 have been published in the paper "Maternal childhood maltreatment and perinatal outcomes: A systematic review, (Souch et al., 2022)".

Findings from Chapter 2 were presented at the 2020 International Marce Conference in the form of a poster presentation.

Similarly, findings from Chapters 3, 4, and 5 were presented at the 2022 International Marce Conference across both a poster blitz presentation and a symposium.

Chapter 3's analyses of the effect of ACEs on childbearing and perinatal mental health is currently under submission with Acta Psychiatra Scandinavia, and Chapter 4's exploration of the frequency of perinatal PTSD and CPTSD symptoms with the British Psychological Journal.

Terminology

Women and Mother: the words woman, women and mother have been used throughout this thesis as this is the way that the majority of those who are pregnant and having a baby will identify. For this document, this term includes those born female. It also includes people whose gender identity does not correspond with their birth sex or who may have a non-binary identity. These terms should be taken to include all people who are pregnant or have given birth. This terminology is in line with National Institute for Health and Care Excellence, Royal College of Obstetricians and Gynaecologists postnatal care guidance (NICE, 2021), Nursing and Midwifery Council standards of proficiency for midwives (2019) and based on recommendations about the importance of sexed language in pregnancy, birth, lactation, breastfeeding, and newborn care by Gribble et al., (2022).

Chapter 1 – Early Life Adversity And The Perinatal Period

The aim of this thesis is to explore the role of early life adversity in the predication of adverse outcomes during the perinatal period with a particular focus on childbirth and mental health outcomes, Post Traumatic Stress Disorder (PTSD), and Complex Post Traumatic Stress Disorder (CPTSD). In this chapter, the importance of the perinatal period will be discussed in relation to both mother and child. Additionally, theories of early life adversity are explored in relation to the disruption that such experiences are associated within adult life. A link between how early life adversity and associated mental health related symptomology can disrupt the perinatal period will be presented, before leading on to an outline of the overall aims of this the thesis.

1.1 The focus of the Thesis

The perinatal period is defined as from when pregnancy begins to one year after childbirth (McKenzie-McHarg et al., 2015). Improving perinatal outcomes is high on political and public health agendas across the United Kingdom (UK), with reports such as "From Bumps to Babies" (Jones et al., 2018) highlighting the current state of perinatal care. This includes aiming to improve physical and mental health outcomes for both mother and infant. The perinatal period is often treated in isolation to the rest of a mother's life, with perinatal specific teams taking care of a mother's mental and physical wellbeing for this timeframe alone (Lever-Taylor et al., 2021). Considering aspects of a mother's life prior to pregnancy that may impact the perinatal period can deepen understanding on how and why negative perinatal outcomes for both mother and infant occur, and importantly, what can be done to address these.

Early life adversity is one factor that is strongly and consistently associated with disruptions to many normative developmental processes (Ellis et al., 2022; McLaughlin et al., 2021). Early life adversity is linked to poorer later life physical (Clemens et al., 2018; Felitti et al., 2019; Kempke et al., 2013; Maschi et al., 2013) and mental health outcomes (Carbone et al., 2019; Chase et al., 2019;

Damian et al., 2021; Dobson et al., 2020; Khan et al., 2015; Lee et al., 2020; McLaughlin et al., 2012; Nemeroff, 2016; Roper et al., 2015; Skehan et al., 2012; Xie et al., 2022). A range of societal factors including education (Houtepen et al., 2020; ONS, 2020), socio-economic status (Klest, 2012; Steele et al., 2016), employment (ONS, 2020) and social support (Romano et al., 2015) are further negatively impacted by early life adversity.

The perinatal period is a time that carries particular risk (Adams et al., 2012; Frazier et al., 2018; Stevens et al., 2017) for both mother and infant. This thesis considers how early life adversity can disrupt the perinatal period. A focus on specific types of early life adversity and the prediction of perinatal outcomes will be explored including whether women enter parenthood or not, the development of mental health disorders during pregnancy and/or the postpartum, and childbirth related outcomes. To summarise, this thesis aims to explore the impact of early life adversity on childbirth and mental health related outcomes during the perinatal period.

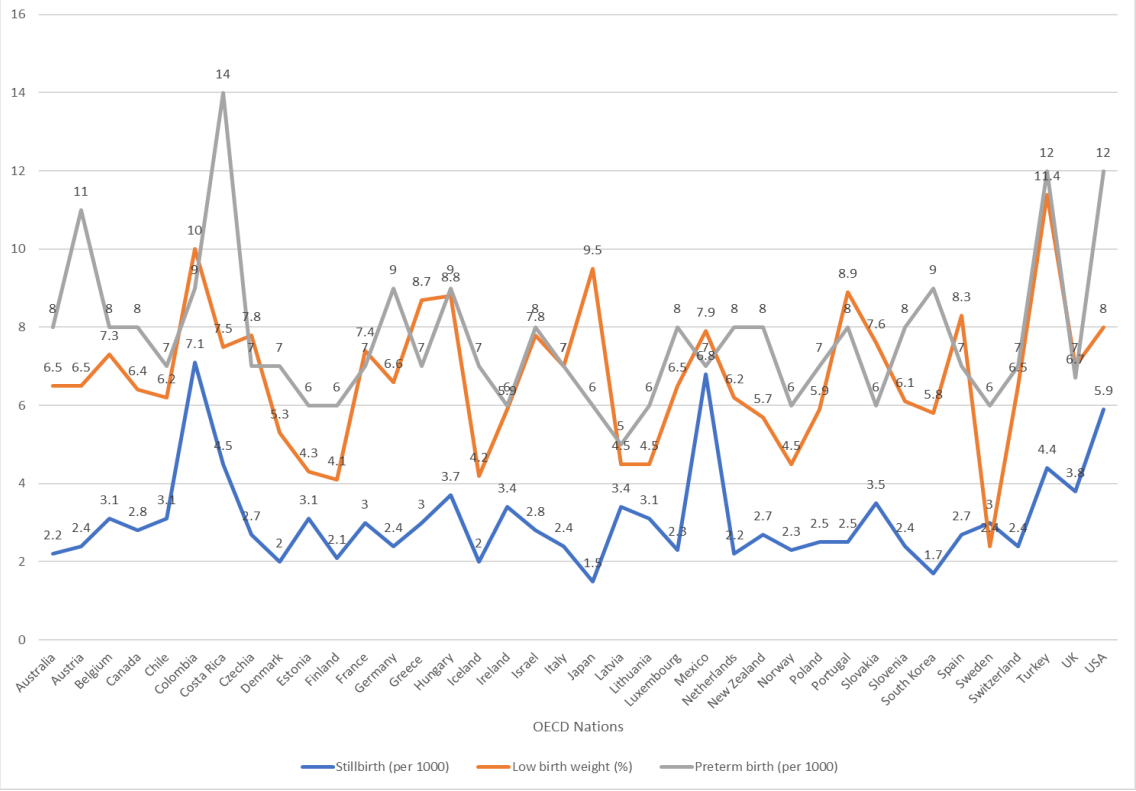
1.2 The importance of the perinatal period

The perinatal period is a time of heightened stress for women (Mulder et al., 2002). In addition to everyday life stressors, pregnant women are exposed to additional challenges brought about by changes in body shape, hormonal changes, and pregnancy specific anxiety and procedures, such as worries about foetal development, childbirth related fears, or physical examinations (Adams et al., 2012; Frazier et al., 2018; Stevens et al., 2017). The perinatal period can be separated into two distinct sections. Pregnancy (the prenatal period) occurs from conception to the point of childbirth, and the postpartum (the postnatal period) occurs from childbirth to 1 year after childbirth (McKenzie-McHarg et al., 2015). Any factors that disrupt the perinatal period can have implications for both mother and child. This thesis aims to explore perinatal outcomes and how they may be disrupted by maternal exposure to early life adversity. Relevant perinatal outcomes will be discussed in the following section.

1.2.1 Perinatal outcomes

Perinatal outcomes can include a range of factors that influence both the mothers' and infants' experience of the perinatal period. These include both physical and mental wellbeing for mother and infant. Understanding the associations between socio-demographic characteristics and adverse perinatal outcomes highlights the significance of the perinatal period in a woman's life. In the United Kingdom (UK) in 2020 there were 681,560 live births, (ONS, 2020), with over 33,000 women giving birth in Wales each year (Jones et al., 2018). With so many mothers experiencing the perinatal period every year, the need to identify factors that are associated with negative outcomes is essential. One of the most negative outcomes possible is a stillbirth. In the UK in 2020, the stillbirth rate was 3.8 stillbirths per 1000 births (ONS, 2020). This compares poorly with other Organisation for Economic Co-operation and Development (OECD) nations, as can be seen in Figure 1.1 (CDC, 2017; Digital NHS, 2020; European Perinatal Health Report, 2018; WHO, 2020).

Figure 1.1. The rates of stillbirths, low birthweight, and preterm births for OECD nations.



A birthweight of 2.5kg or under is deemed as being low (Nuffield Health Trust, 2021). In the UK in 2019-20, 7% of births were of low birthweight (Digital NHS, 2020). This means the UK again performs relatively poorly in comparison to other nations (Figure 1.1), with over 50% of OECD countries having a smaller percentage of children born with low birthweights.

A baby born at 37 weeks' gestation or later is known as a 'term' baby. Babies born before 37 weeks' gestation are known as 'preterm' babies (Digital NHS, 2020). 6.67% of UK births were reported as being preterm, and a comparison to other OECD nations can be seen in Figure 1.1. The highest percentage of births before 37 weeks' gestation in the UK occurred in the Black Caribbean ethnic group. In this group, 10.4% of births were classed as pre-term (ONS, 2017). Stillbirth rates reduce greatly as gestational age increases. In 2016, the stillbirth rate for babies born at 24 weeks gestation was 356.4 stillbirths per 1,000 total births, this compares with a rate of 1.2 at 40 weeks' gestation. This not only highlights that some negative perinatal outcomes are linked, but that mothers may be at differing risks as a result of their socio-demographic characteristics, for example, ethnicity.

The role of ethnicity in perinatal outcomes was explored further with the National Maternity and Perinatal Audit (Jardine et al., 2021). Over 1 million UK women who gave birth between 2015 and 2017 were included in the analysis. Risk of stillbirth ranged from 0.3% in White women to 0.7% in Black women; risk of preterm birth was 6.0% in White women, 6.5% in South Asian women, and 6.6% in Black women; and the risk of foetal growth restriction ranged from 1.4% in White women to 3.5% in South Asian women (Jardine et al., 2021). Within this study, 11.7% of stillbirths, 1.2% of preterm births, and 16.9% of foetal growth restriction could be attributed to ethnic inequality. As such, ethnicity is important to explore when considering perinatal outcomes and is therefore considered across all empirical analyses reported in this thesis.

Every day, around the world, an estimated 810 women die during pregnancy, birth and the first week postpartum (WHO, 2019). The national picture for the UK is equally sobering, particularly in comparison to other OECD countries. Given the risks to mother and infant that accompany and

follow the perinatal period, understanding what factors can lead to poorer outcomes is vital. Although it is well established that obstetric care is critical to the survival of mother and infant, it is also the case that events that occur well before conception have been found to play a role in maternal and infant health and survival during the perinatal period. Factors which occur many years earlier in a mother's life can also affect outcomes during this period. Exposure to adversity, particularly in childhood, has been found to have negative later life outcomes that will be explored further in the following section. This section begins by defining and describing what is known about the scale and frequency of early adversity occurring in the UK general population. The relationship between exposure to early life adversity and adult outcomes, in relation to both physical and mental health will be explored, as will the underlying theories that help explain the observed associations. The chapter closes by focusing specifically on what we know about the link between early adversity and maternal and infant outcomes in the perinatal period and considers where, and in what ways, further inquiry is warranted.

1.3 Theoretical models of adversity

Tragically, many individuals experience negative events in childhood. Such events are often coined under a variety of terms. Childhood maltreatment, trauma, adversity and adverse experiences are often used interchangeably to describe how children experience a range of negative and stressful events at an early age. This thesis will use the term early life adversity to include experiences that individuals are exposed to before the age of 18 that are traumatic, stressful or adverse in nature. Adversity is the one term that can accurately encompass all the other terms as detailed in the following section.

The Adverse Childhood Experiences (ACEs) scale was developed to assess early life adversity (Feletti et al., 1998). ACEs include neglect (emotional and physical), abuse (physical, sexual, and emotional), and household dysfunction (HD) (having an abused mother, a parent in prison, a parent with mental illness, divorced parents, and a parent with substance abuse problems) (Dong et al.,

2004). The cumulative-risk approach, developed from the use of ACEs as a measure of early life adversity (Evans et al., 2013; Felitti et al., 1998) assumes that all forms of early life adversity carry the same risk, and their accumulation has an additive effect on later life outcomes (Ellis et al., 2022; Smith & Pollak, 2021). However, this view that no one adversity carriers more risk than any other is suggested to be too simplistic (Welsh Government, 2021). Factor analysis has confirmed two distinct groups of ACEs, maltreatment (abuse and neglect ACEs) and household dysfunction (HD ACEs), that conceptually exist within the ACEs scale (Mersky et al., 2017). Theoretically driven models of adversity have suggested that the risk carried by maltreatment ACEs is greater than that carried by HD ACEs, Lacey and Minnis, (2020).

McLaughlin et al., (2014) proposed a Dimensional Model of Adversity and Psychopathology, whereby there are two distinct pathways via which maltreatment ACEs are particularly problematic. McLaughlin et al., (2014) proposed that neglect and abuse adversities affect psychopathological outcomes to a similar extent but via different mechanisms. Abuse encompasses the learning of experiences involving harm or threat of harm to survival, whereas neglect involves limited or reduced social and cognitive inputs from the environment during development (Ellis et al., 2022; McLaughlin et al., 2014). Adversity at any time can alter neural plasticity, with such experience-dependent plasticity particularly prominent if adversity occurs in childhood or adolescence (Ellis et al., 2022; Fu & Zuo, 2011; Kolb & Gibb, 2014). Brain structure and function have been suggested to change as a result of exposure to maltreatment, including a reduced amygdala and hippocampal volume, and elevated amygdala response to threat cues (McLaughlin et al., 2019). These changes imply that children exposed to early life adversity, particularly maltreatment, exhibit cognitive biases that facilitate the rapid identification of potential future threats (Ellis et al., 2022; Heleniak et al., 2016; Pollak et al., 2009; Weissman et al., 2019). Fear-learning processes rapidly detect potential threats and mobilize resources to respond (Delgado et al., 2006; McLaughlin & Sheridan, 2016). However, despite heightened detection of potential threats, children exposed to maltreatment demonstrate poor discrimination of threat and safety cues during fear conditioning (McLaughlin,

2016). Children without adversity exposure exhibit stronger fear responses to a stimulus paired with threat compared to one paired with safety (McLaughlin, 2016). However, children exposed to maltreatment exhibit fear responses of similar magnitude to threat and safety cues. This reflects either generalization of fear to the safety cue or a generalized problem with associative learning. Disruptions to how future threats are processed are clearly present in those exposed to maltreatment-based adversity in childhood.

Maltreatment can further occur via neglect, whereby an interruption of learning from the caregiver, and the absence or unavailability of a caregiver results in gross reductions in social and cognitive stimulation and opportunities for learning (Ellis et al., 2022; Rosen et al., 2020). Such adversity can lead to the selective elimination of synaptic connections that are utilized infrequently (Petanjek et al., 2011). Atypical reward learning has been observed in children exposed to adversity, particularly those who experienced such neglect. In reward-learning tasks, non-deprived children are faster and more accurate in responding to cues associated with high reward; children raised in deprived settings fail to show this pattern (McLaughlin & Sheridan, 2016). Atypical reward learning and atypical neural responses to rewards are associated with child maltreatment (Dillon et al., 2009; Guyer et al., 2006). Maltreatment ACEs are proposed to be particularly problematic for individuals who experience them, with differing pathways to the negative outcomes occurring depending on the experience, but the resulting negative outcome the same, nonetheless. As such, separation of ACEs into maltreatment and HD ACEs fits with theoretical models of adversity, and then exploring individual ACEs can highlight the most problematic individual experiences.

As well as changes in neural plasticity and learning, further physical changes may occur as a result of early life adversity. Children exposed to maltreatment adversity exhibit accelerated biological aging in pubertal development as well as cellular aging (Colich et al., 2020; McLaughlin et al., 2020; Sumner et al., 2019). Research from the ALSPAC study has shown that adversity in childhood leads to variability in the deviation of epigenetic age from chronological age (Marini et al., 2020). Specifically, exposure to sexual or physical abuse in early childhood and exposure to financial

hardship or neighbourhood disadvantage (forms of maltreatment-based adversity) in middle childhood were all associated with epigenetic age acceleration by about one month (Lawn et al., 2018; Simons et al., 2016).

As summarised by Ellis et al., (2022), experience-driven plasticity mechanisms underlie learning and changes in brain circuits in response to certain adverse experiences. Because plasticity is greatest during childhood, adversity that occurs at this time in development is most likely to produce lasting changes in the brain and in behaviour. Changes have been shown to occur in children as young as 4 years old (Machlin et al., 2019). Consequences of early life adversity are evident and prominent, and forms of adversity are distinct with differing risk. A separation of ACEs into initially maltreatment and Household Dysfunction ACEs will be explored in this thesis, as well as the risk that each individual ACE carries for childbearing, mental health and childbirth related outcomes during the perinatal period.

1.4 Background rates of types of early life adversity and ACEs

Determining the rates of early life adversity allows for the extent of the problem to be understood. Abuse is one of the most severe forms of early life adversity and is maltreatment-based. In England and Wales, it is estimated that 25% of adult women have experienced at least one form of childhood abuse, be it emotional, physical, or sexual abuse, or witnessing domestic violence or abuse, (Crime Survey for England and Wales, 2020). Once other forms of maltreatment-based early life adversity such as neglect are factored in, this figure is estimated to increase to 31% (Lewis et al., 2019), with 25% of cases being defined as severe.

Given the widespread use of the ACE scale in the literature, the frequency of each individual ACE exposure can be explored as a good indicator of the rates of early life adversity, including maltreatment-based and household dysfunction. Frequency was taken from a UK birth cohort study, ALSPAC (Houtepen et al., 2020). For maltreatment-based adversities, 23.9% of women had experienced emotional abuse, 20.9% physical abuse, and 6.0% sexual abuse. In wider research,

sexual abuse was reported as occurring by both adult and child perpetrators (Childhood Trauma Recovery, 2022) with 90% of sexually abused children being abused by someone they knew (Radford et al., 2011). Furthermore, 21.2% of women had been exposed to childhood emotional neglect (Houtepen et al., 2020) and 1% reported experiencing physical neglect during childhood, which includes not being taken care of or not having enough food, shelter, or clothing (Childhood Trauma Recovery, 2022). Under the umbrella of household dysfunction ACEs, parental separation was reported by 33.8% of women in the UK sample (Houtepen et al., 2020), parental substance abuse by 15.1%, parental mental illness by 48.6%, having an abused mother by 25.3% and parental imprisonment by 10.5%.

Rates in Wales specifically can be explored for a more local assessment of the frequency of early life adversity exposure. Around half of all the adults in Wales have experienced at least one ACE (Welsh Government, 2021). ACEs are more prevalent in vulnerable populations. For example, while around 14% of adults in the population will have experienced four or more ACEs, this rises to nearly 50% in a prison population and in those with lived experiences of homelessness. ACE exposure and poorer mental health outcomes are strongly associated across Wales (Welsh Government, 2021).

1.5 Detection of early life adversity and treatments to reduce the impact of early life adversity

Many cases of child abuse remain hidden; around one in seven adults who called the National Association for People Abused in Childhood's (NAPAC's) helpline had not told anyone about their abuse before. Most people who use mental health services are never asked about child abuse or neglect meaning that most cases of child maltreatment are not identified by mental health services (Read et al., 2018). Only 28% of abuse or neglect cases identified by researchers are found in the clients' files: emotional abuse, 44%; physical abuse, 33%; sexual abuse, 30%; emotional neglect, 17%; and physical neglect, 10%. Between 0% and 22% of mental health service users report being asked about child abuse. People diagnosed with psychotic disorders are asked less than people

who don't have such a diagnosis, men are asked less than women, and male staff ask less often than female staff (Read et al., 2018). This highlights a clear tendency for early life maltreatment-based adversity to be under-recorded. The true impact of such early life adversity may therefore be being missed.

Adults who were exposed to early life adversity are twice as likely as their peers to have a range of mental health disorders (Lewis et al., 2019). Only a minority of young people who had developed Post-Traumatic Stress Disorder (PTSD) as a result of their adversity received help from health professionals with one in three talking to their GP about their mental health in the last year, and one in five seeing a mental health professional. Therefore, only a small proportion of young people with PTSD receive treatments. A substantial proportion of young people with PTSD do not recover without treatment and symptoms can last many years (Lewis et al., 2019). These individuals were also at high risk of harm to themselves; half had self-harmed and one in five had attempted suicide since the age of 12 (ONS, 2020).

Treatments have been identified that can reduce the impact of early life adversity (Beeber et al., 2013; Bilszta et al., 2012; Letourneau et al., 2017; Milgrom et al., 2015; Mulcahy et al., 2010; Reay et al., 2012). These treatments include: Interpersonal Psychotherapy, a life-event based treatment that focuses on improving interpersonal functioning, adapted from a depression treatment to successfully treating adversity exposure (Bleiberg & Markowitz, 2019); Trauma Focussed Cognitive Behavioural Therapy, which incorporates exposure elements into the cognitive behavioural therapy framework of confronting trauma based memories and thoughts (Gaston, 2015; Paintain & Cassidy, 2018); Maternal-Child Interaction Guidance, which involves the coaching of mother-infant interactions to negate the negative outcomes of adversity exposure (Letourneau et al., 2017); and Psychotherapeutic Group Support, a peer support treatment focussed on shared progress of working through the outcomes of exposure to adverse experiences (Puckering et al., 2010). Treatments for reducing the impact of exposure to early life adversity can therefore be

effective, however, these will only be administered if the early life adversity, and resulting symptomology, is accurately identified and reported.

1.6 Socio-demographic characteristics of people with early life adversity exposure

Physical and situational socio-demographic characteristics can influence who is exposed to and affected by early life adversity. This section explores what socio-demographic characteristics are associated with exposure to early life adversity, as well as poorer coping to such exposure. All data in this section was presented by the ONS (2020). Around one in four women (25%; 5.1 million women in the UK) aged 18 to 74 years experienced maltreatment-based adversity during childhood. Exposure frequency was higher for females than males for each type of adversity, except for physical abuse where there was no sex difference. Whilst a gross underestimate of the exposure frequency of childhood abuse or neglect, 40 in every 10,000 women in England, and 73 in every 10,000 women in Wales were in the Looked After Children (LAC) system during their childhood/adolescence (ONS, 2020).

Those identifying as having a mixed or multiple ethnic identity were significantly more likely to have experienced abuse before the age of 16 years (32%) than White (21%), Black (17%), Other (17%) and Asian (11%) ethnic groups. Ethnicity being associated with differing exposure to ACEs is in addition to the differing likelihood of negative perinatal outcomes by ethnicity as discussed in section 1.2.1. Furthermore, in one study, adults whose sexual orientation was bisexual (48%) or gay or lesbian (30%) were more likely to have experienced abuse before the age of 16 than heterosexual adults (20%). This was true for emotional abuse, physical abuse and sexual abuse. Individual socio-demographic characteristics including gender, ethnicity, and sexuality appear to be key factors that can alter the likelihood of exposure to childhood adversity. These factors are important to explore when considering the frequency of exposure and impact of early life adversity on later life outcomes and are considered across all empirical components of this thesis.

1.7 The cost of early life adversity

Childhood maltreatment has been associated with an increased likelihood of many negative later life outcomes. These outcomes come with costs to the individual, those close to them and wider society. It is important to outline these costs to highlight the need to improve the outcomes of perinatal women who have been exposed to early life adversity. The broader correlates of exposure to early life adversity in adult life are now discussed in relation to physical health, social factors, health costs, response to future stressors and mental health related outcomes.

1.7.1 Effects of early life adversity on physical health outcomes in later life

Early life adversity is discussed in this section in relation to several physical health outcomes and behaviours that carry risk to the individual. When applied to mothers, even if occurring before pregnancy, such physical health problems can carry risk for both mother and child. Excessive alcohol consumption during adolescence is one physical health behaviour that is consistently predicted by exposure to early life adversity, namely parental alcohol abuse (Kendler et al., 2018). Furthermore, adults who experienced maltreatment-based early life adversity were 30% more likely to binge drink and 21% more likely to have had any alcoholic drink in the past month (Loudermilk et al., 2018). In Wales, increased early adversity leads to a fourfold increase in the likelihood of being a high-risk drinker (Welsh Government, 2021). Women whose mother was a victim of domestic violence had greater odds of at-risk drinking compared to females who did not report this ACE (Cunradi et al., 2020). This highlights a bridge between potential later life mental health consequences of alcohol misuse with the physical health implications of excessive alcohol consumption.

Smoking is a further risky later life behaviour with physical health implications impacted by exposure to early life adversity. Exposure to 4 or more ACEs has been found to increase the likelihood of smoking by 4-fold (Felitti et al., 2019) with particular risk carried by maltreatment-based adversity in early life (Kristman-Valente et al., 2013; Lewis et al., 2019; Welsh Government, 2021). Early life adversity predicts continued smoking in adulthood, even in the presence of illnesses

that are exacerbated by smoking (Crouch et al., 2018), showing persistent and health-detrimental effects.

In line with these findings, exposure to early life adversity predicts illegal drug use in adulthood. Maltreatment-based early life adversity has been particularly associated with marijuana use (Cunradi et al., 2020; Dubowitz et al., 2016; Hayatbakhsh et al., 2009; Hayre et al., 2019; la Peña-Arteaga et al., 2021; Mason et al., 2017; Scheidell et al., 2018), and addiction to illicit drugs, including opioids, cocaine, poly-drug use, and prescription drugs use (Austin et al., 2018; Carliner et al., 2016; Dube et al., 2003; Welsh Government, 2021). Exposure to maltreatment-based early life adversity also predicts later life obesity (Clemens et al., 2018; Felitti et al., 2019; Michopoulos et al., 2015; Schulze et al., 2019; Wiss & Brewerton, 2020), as well as food addiction and binge eating severity (Belli et al., 2019; Imperatori et al., 2016; Mason et al., 2014).

Exposure to early life adversity is associated with a myriad of negative physiological and physical health outcomes including increased sleep disturbances (Brindle et al., 2018), and alterations in nocturnal heart rate and heart rate variability. Adults exposed to maltreatment-based adversities during childhood are at increased risk of developing diabetes, cancer, hypertension, chronic obstructive pulmonary disease, myocardial infarction, and stroke (Clemens et al., 2018; Felitti et al., 2019). Potentially, mediation by previously discussed factors such as smoking, drinking and obesity may all play a part in these health complications, highlighting the interconnectedness of the outcomes of early life adversity. Impacts can be persistent with early life adversity being associated with chronic pain and chronic fatigue syndrome throughout adulthood (Kempke et al., 2013; Maschi et al., 2013).

Regarding later life physical health risks relating to sexual behaviours, maltreatment-based adversity was shown to be significantly associated with an earlier age of losing virginity, being 6 times more likely to have sex under the age of 16 years old (Welsh Government, 2021), and to have multiple sexual partners, transactional sex, and unprotected sex (Strathearn et al., 2020; Wang et al., 2019). Further, as exposure to the number of maltreatment-based adversities increased, so too does

the number of sexual partners and the risk of contracting a sexually transmitted disease (Felitti et al., 2019). Sexual abuse prior to the 18 years has been identified as a key risk factor and predicts problematic sexual behaviour in adult women (Zwickl & Merriman, 2011). These factors are pertinent within the discussion of perinatal risk given that increased risky sexual activity increases the chance of entering parenthood and having more children, potentially at a younger age. Early life adversity was shown to increase the likelihood of having had an unintended teenage pregnancy (Welsh Government, 2021).

The evidence discussed in this section has highlighted a plethora of physical health implications that are associated with exposure to early life adversity, particularly maltreatment-based adversities. However, the adversity captured often varies by study in terms of measures used or specific adversity explored. This means that differential risk of adverse physical health outcomes between maltreatment-based, and other forms of adversity are not always investigated. It is evident from this section that exposure to early life adversity is associated with an increased likelihood of negative physical health outcomes. The perinatal period carries greatly increased physical health risks to both mother and infant (Chan & Chen, 2019; Leffert et al., 2015; Razak et al., 2018; Stein et al., 2014; Tate & Bushnell, 2011), especially at childbirth (Lawn et al., 2010; Muglu et al., 2019; Slomski, 2019; Smith et al., 2020; Tolu et al., 2020). Understanding the impact different forms of early life adversity have on physical health in the perinatal period, particularly relating to childbirth itself, is vital given the likelihood that this time period could be particularly affected by such early life adversity. The systematic review in the following chapter aims to report the current literature relating to the effects of early life adversity on physical health outcomes across the perinatal period for both mother and infant.

1.7.2 The effect of early life adversity on social factors

In addition to the health implications, many social factors are associated with exposure to early life adversity. For example, exposure to early life adversity predicts decreased educational attainment (Hardner et al., 2018). The more adversity exposed to, the greater the likelihood of low educational attainment (Houtepen et al., 2020). One in four young adults who experienced early life adversity are not in education, employment, or training at age 18, (ONS, 2020). These findings are hypothesised to be due to the disruption of key developmental processes, such as attachment, emotion regulation, and sense of agency (Romano et al., 2015). Educational attainment is therefore an important factor to consider in analyses examining the impact of exposure to early life adversity on adult outcomes. Poor educational attainment predicts increased unemployment (Hogberg et al., 2019; Horner et al., 2018), elevated rates of poverty (Hofmarcher, 2021), and poorer physical health (Clark & Royer, 2013; Davies et al., 2018; Freudenberg & Ruglis, 2007; Hale et al., 2015; Lager & Torssander, 2012).

Around half of adults (52%) who experienced physical abuse before the age of 16 years also experienced domestic abuse later in life; compared with 13% of those who did not experience abuse before the age of 16 years (ONS, 2020). The Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014), highlights how exposure to maltreatment-based adversity such as physical abuse disrupts the identification and processing of future threat scenarios. This may explain how and why those exposed to early life maltreatment-based adversity are more likely to experience later life threat-based adversities.

Beyond education, a persistent independent impact of exposure to early life adversity is unemployment, long-term sickness and disability (Hardcastle et al., 2018). Exposure to early life adversity predicts elevated rates of living in poverty in adulthood among individuals residing in communities with high poverty rates (Klest, 2012), and lower SES groups (Steele et al., 2016). Other social factors influenced by exposure to early life adversity include lower levels of perceived social support (Beilharz et al., 2020), and social isolation and loneliness (ONS, 2020). There is a high level of

interconnectedness between education, employment, and income and other adverse outcomes associated with exposure to early life adversity, including physical (Clark & Royer, 2013; Davies et al., 2018), and mental health outcomes (Araya et al., 2003; Bannink et al., 2016; Cheng et al., 2021). Again, a plethora of negative later life outcomes are strongly associated with exposure to early life adversity.

1.7.3 Health cost of early life adversity

There is a huge economic cost to exposure to early life adversity in the UK. The average lifetime cost of nonfatal child maltreatment by a primary caregiver specifically is estimated at £89,390, with the largest contributors to this being costs from social care, short-term health, and long-term labour outcomes (Conti et al., 2021). Child sexual abuse alone costs the UK £3.2bn a year (Radford et al., 2011). Exposure to early life adversity has been shown to be a major risk factor for intergenerational abuse (Souch et al., 2022). A history of early life adversity, particularly emotional or physical abuse predicts a higher child abuse potential (Bert et al., 2009), as well as greater levels of anger, and more violent physical discipline toward infants (Altemeier et al., 1986). Given that early life adversity for the mother predicts maltreatment of their child, this becomes a repeating issue that impacts across generations with associated escalating costs.

1.7.4 Mental wellbeing and early life adversity

The likelihood of later life depression is increased among those exposed to early life adversity (Humphreys et al., 2020). Abnormal brain network architecture has been suggested as a pathway from adverse childhood experiences to major depressive episodes (Yu et al., 2019). Much research into the effects of early life adversity on mental wellbeing in adulthood outside of the perinatal period shows an increased likelihood of depression and to a lesser extent PTSD (Carbone et al., 2019; Chase et al., 2019; Damian et al., 2021; Dobson et al., 2020; Khan et al., 2015; Lee et al., 2020; McLaughlin et al., 2012; Nemeroff, 2016; Roper et al., 2015; Skehan et al., 2012; Zhang et al.,

2022). Elevated rates of self-harm and suicide attempts have also been observed among those exposed to early life adversity (ONS, 2020).

Given the vulnerability that comes with the perinatal period, mothers can be at a higher risk of an episode of mental ill-health during pregnancy or the postpartum period (Howard et al., 2014; Howard & Khalifeh, 2020; Jones et al., 2014; Stein et al., 2014). In Wales alone, almost 9,000 new mothers will experience a perinatal mental health problem each year, with almost 3,000 annual referrals to the specialist community perinatal mental health services (Jones et al., 2018). A history of early life adversity is strongly linked with developing prenatal depression, which is associated in some studies with an increased risk of delivery complications, including preterm delivery, low birthweight, and reduced foetal growth (Lev-Wiesel et al., 2009; Morland et al., 2007; Zhang et al., 2018), as well as elevated rates of developmental problems among infants (Choi et al., 2019; Kim-Cohen et al., 2005). In a UK based longitudinal study that followed children and their families from the first trimester of pregnancy to 25 years of age, maternal exposure to childhood maltreatment predicted depression in pregnancy, with both risk factors working in tandem contributing to elevated rates of anti-social behaviour in adolescence and depression in young adulthood (Pawlby et al., 2011; Plant et al., 2013; Plant et al., 2017; Plant et al., 2018). In addition to early adversity, several other risk factors for perinatal mental health problems have been identified including a family history of mental illness, poverty, domestic violence, and teen parenthood (Ayers & Delicate, 2016; Deal & Holt, 1998; Howard et al., 2014; Stress, 2018). However, these are risk factors rather than determinants of illness, and perinatal mental health problems can affect all women from all parts of society (Hogg, 2013). If perinatal mental health problems go untreated, they can have long-term implications for the well-being of women, their babies and families (Jones et al., 2014). Nevertheless, much of the literature on exposure to early life adversity and the subsequent risk of perinatal mental health problems has focused on depression, with much less known about the impact on anxiety or trauma related stress disorders during the perinatal period (Souch et al., 2022).

The systematic review that follows in Chapter 2 aims to summarise the current literature on this topic.

1.8 Response to future stressors

Early life adversity has been shown to have clear negative health and social outcomes. Glaser and colleagues (2006) have shown that exposure to early life adversity predicts increased emotional reactivity to daily life stress. In this study, the effect was significantly stronger for subjects who experienced adversity before the age of 10 years old (Glaser et al., 2006).

Suboptimal responses to future stressors following exposure to early life adversity is consistent with the Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014). Neural plasticity changes that occur as a result of maltreatment-based adversity can alter how individuals respond to future stressful events. Cognitive inflexibility associated with exposure to early life adversity has been shown to predict PTSD symptomology (Haim-Nachum & Levy-Gigi, 2021). Neural activity levels have also been shown to differ between those who have and have not been exposed to early life adversity, with altered prefrontal cortex and amygdala activity levels observed among those exposed to maltreatment-based adversity - particularly sexual abuse (Purcell et al., 2021). An altered stress-response system and a reduction in effective coping to life stressors represents one pathway from exposure to early life adversity to suboptimal adult outcomes.

1.8.1 Childbirth outcomes and early life adversity

In addition to everyday life stressors, pregnant women are exposed to additional challenges brought about by changes in body shape, hormonal changes, and pregnancy specific anxiety and procedures, such as worries about foetal development, childbirth related fears, or physical examinations that could trigger maltreatment-based adversity memories (Adams et al., 2012; Frazier et al., 2018; Stevens et al., 2017). In line with the diathesis-stress model, the perinatal period is a time during which negative effects of early life adversity can manifest, as women exposed to early

life adversity experience increased vulnerability to the challenges of pregnancy and raising a young infant (Finy & Christian, 2018; Shapero et al., 2014). The presence of a history of maternal exposure to early life adversity not only holds potential negative implications for the mother during the perinatal period, but also for her offspring. From conception to the second birthday, an infant is heavily shaped by their environment and their interaction with their parents (Durkan et al., 2015). Exposure to maternal psychopathology and poorer parenting practices during the perinatal period have been shown to adversely affect offspring cognitive, behavioural, and emotional development (Dean et al., 2018; Rees et al., 2019; Stein et al., 2014; Waters et al., 2014), increasing the risk of offspring psychiatric disorder in adolescence and early adulthood (Naughton et al., 2018; Pawlby et al., 2009; Plant et al., 2018). It is likely that the potential intergenerational implications of early life adversity begin during the perinatal period.

Exposure to childhood adversity has been suggested to increase cortisol levels (a key stress hormone) in pregnant women (Swales et al., 2018). Such heightened cortisol levels increase the likelihood of poorer coping to stress (Bublitz et al., 2018; Swales et al., 2018). The increase in cortisol levels may be due to the neural plasticity and epigenetic changes that occur in response to maltreatment-based adversity. Individual differences in HPA-axis functioning become exaggerated during the physiological challenge of pregnancy, revealing or exacerbating prior vulnerabilities, including the consequences of early life adversity (D'Anna-Hernandez et al., 2011; Swales et al., 2018). Maternal neural circuits of stress regulation and maternal motivation are altered as a result of early life adversity with brain circuits that support maternal motivation, emotion regulation, and empathy particularly disrupted (Kim, 2021). Negative outcomes across this time may occur because of this poorer coping to future stressors. It is therefore vital to explore how trauma is having an impact upon the perinatal period and outcomes relating to pregnancy, childbirth, and the postpartum. A history of early life adversity can influence the physical outcomes of pregnancy and childbirth. Prolonged adversity (particularly maltreatment) has been directly linked to neuroendocrine alterations, such as cortisol and oxytocin dysregulation (Bublitz & Stroud, 2012;

Carpenter et al., 2007; De Bellis & Zisk, 2014) which can lead to birth complications such as preterm delivery (Buss et al., 2009), and low birthweight (Baibazarova et al., 2013; Diego et al., 2006).

It is evident that there are negative perinatal outcomes for both physical and mental wellbeing of mothers across the perinatal period. The role that early life adversity plays directly and indirectly on these and further perinatal outcomes should be explored to understand the role of early life adversity for mother and infant.

1.9 Intergenerational effects of early life adversity: The importance of the perinatal period

The perinatal period carries significance in relation to early life adversity, as it is the starting point of life for the next generation. Intergenerational effects of early life adversity can occur through disruptions to the processes that support women to prepare for pregnancy and early parenthood. Functional preparation for motherhood includes behavioural, cognitive, physiological, and epigenetic adaptations and is a process known as maternal programming (St-Cyr et al., 2017). The emotional processing, recognition and regulation ability of women during pregnancy is altered by neurobiobehvioural adaptations of maternal programming, such as changes in oxytocin levels (Byrne et al., 2019; Kim & Strathearn, 2016). An example of this is that during pregnancy, women become better at processing infant facial features (De Carli et al., 2019; Pearson et al., 2009) and develop enhanced processing of infant facial expressions that communicate distress, (Thompson-Booth et al., 2014). Further physiological changes occur to mothers in pregnancy. Key adaptations occur in the Autonomic Nervous System prenatally that lead to increased heart rate and blood pressure and decreased baroreceptor inhibition (Bałajewicz-Nowak et al., 2016). These changes ensure that the foetus is receiving the nutrition and oxygen it requires for healthy growth.

Maternal programming is proposed to continue into the postnatal period with further neurobiobehvioural adaptations occurring to ensure the mother is prepared to meet the infants' developmental needs. One such example is that postnatal mother-infant interactions are associated with maternal oxytocin levels, whereby an increased maternal oxytocin response to interaction with

their infant is associated with a decreased likelihood of poor mother-infant interaction quality (Kohlhoff et al., 2017). Disruption to these maternal programming processes and their associated biological mechanisms is hypothesised to result in the mother being less well prepared for parenthood, both emotionally and physically. This has potential to lead to negative perinatal outcomes for both the mother and the infant. The maternal programming hypothesis compliments the Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014) and enhances our understanding of the impact of exposure to early life adversity on outcomes and processes during the perinatal period specifically.

1.10 Summary

Early life adversity is strongly linked to an array of negative later life outcomes, be it physical, mental health or social outcomes. Early life adversity can be separated into distinct sub-types that include maltreatment and household dysfunction. Maltreatment-based adversity have been shown to carry the greatest risk (Lacey and Minnis, 2020; Mclauglin et al., 2014), but via differing pathways. Whilst adversity at all ages has been shown to be disruptive, adversity occurring during childhood and adolescence has been identified as particularly problematic. Furthering our understanding of the role that early life adversity plays at key timepoints in an individual's life could potentially illuminate opportune moments to intervene.

The perinatal period has been highlighted in this chapter as a time of increased challenge and risk. During pregnancy and the postpartum, physiological changes occur in relation to neural plasticity, hormone levels, cognitive processes, and the stress response system, which all help prepare women for parenthood. When these physical and cognitive processes are disrupted, problems relating to the physical and mental health of both mother and infant has been documented. Given the increased vulnerability and additional challenges associated with the perinatal period, it is possible that the longer-term impacts of exposure to early life adversity are

more salient and pronounced during this time period. Of significance, the perinatal period includes the earliest beginnings of life and where potential intergenerational transmission of risk begins.

The Welsh Government review of ACEs (2021) concludes that exposure to ACEs has likely increased as a result of the COVID-19 pandemic. Given the potential negative later life outcome associated with early adversity, especially during the perinatal period, there is associated escalating costs for individuals, families and health and social care services, as well as wider society. Therefore, the aim of this thesis is to examine the current effects of exposure to early life adversity on the perinatal period, so that any negative outcomes can be detected, and appropriate interventions implemented. The overarching aim of this thesis is to explore the role of early life adversity in the prediction of childbirth and perinatal mental health related outcomes, with a particular focus on Post Traumatic Stress Disorder (PTSD) and Complex Post Traumatic Stress Disorder (CPTSD). The specific aims of each empirical chapter reported in this thesis will be presented following a systematic review of existing studies examining the impact of exposure to maltreatment-based early adversity and childbearing, childbirth and perinatal mental health related outcomes.

Chapter 2 - Maternal Early Life Adversity and Perinatal Outcomes: A Systematic Review

This chapter reports the findings of the systematic review published in the Journal of Affective Disorders as "Maternal childhood maltreatment and perinatal outcomes: A systematic review", Souch, Jones, Shelton & Waters (2022).

2.1 Introduction

Models of adversity, such as the Dimensional Model of Adversity and Psychopathology (Mclaughlin et al., 2014), and theoretical models of Adverse Childhood Events (Lacey and Minnis, 2020; Mersky et al., 2017), highlight that the risk carried by adversity is dependent on the type of adversity experienced. Adversity experienced during childhood has been shown to carry particularly strong risk (Colich et al., 2020; Ellis et al., 2022; Machlin et al., 2019; McLaughlin et al., 2016; McLaughlin et al., 2020; Sumner et al., 2019). Specifically, when the adversity is maltreatment based, the risk carried is greatest (Dong et al., 2004; Lacey and Minnis, 2020; McLaughlin et al., 2014). Individual maltreatment adversities have been proposed to affect later life outcomes to a similar extent but via different mechanisms (McLaughlin et al., 2014). However, the literature often lacks synthesis with regards to which aspects of early life adversity are captured, with maltreatment the main aspect frequently assessed (Berman et al., 2022; Kuhlman et al., 2020). Understanding early life adversity, and in particular maltreatment that occurs in childhood can allow a detailed and clear assessment of how and why later life outcomes are impacted.

Childhood maltreatment is defined as the abuse and neglect that occurs to children under 18 years of age. It includes all types of physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation. The maltreatment must result in actual or

potential harm to the child's health, survival, development, or dignity in the context of a relationship of responsibility, trust, or power (World Health Organisation, 2016). Whilst childhood adversities relating to household dysfunctions are widespread, the lasting effects of childhood maltreatment are suggested to be particularly problematic (Dong et al., 2004; Lacey and Minnis, 2020; McLaughlin et al., 2014), more regularly and thoroughly captured (Berman et al., 2022; Kuhlman et al., 2020) and constitute a major public health issue (Conti et al., 2017). Early life adversity, and maltreatment specifically, may result in negative, lifelong consequences for an individual, as discussed in Chapter 1, including a weaker stress response system (Zhai et al., 2019), elevated risk of obesity (Danese, & Tan, 2014), an elevated risk of suicide (Raleva, 2018), and an increased likelihood of income inequality (Eckenrode et al., 2014). The lifetime societal cost per child exposed to maltreatment adversity in the UK is just under £90,000 (Conti et al., 2017). With an estimated 1 in 5 children experiencing some form of maltreatment adversity (Radford et al., 2011), the risk of societal and economic costs is enormous. It is therefore important to identify time points during the life course when the effects of childhood early life adversity are most prominent and intervention efforts potentially most fruitful.

One such time point is the perinatal period. As previously discussed, the perinatal period is a time of heightened stress for women (Mulder et al., 2002) due to challenges brought about by changes in body shape, hormonal changes, and pregnancy specific anxiety and procedures, such as worries about foetal development, childbirth related fears, or physical examinations that could trigger trauma memories (Adams et al., 2012; Frazier et al., 2018; Stevens et al., 2017). In line with the diathesis-stress model, the perinatal period is a time during which negative effects of childhood early life adversity can manifest, as women exposed to childhood early life adversity are associated with increased vulnerability to the challenges of pregnancy and raising a young infant (Finy & Christian, 2018; Shapero et al., 2014). The presence of a history of maternal early life adversity (MELA) not only holds potential negative implications for the mother during the perinatal period, but

also for her offspring. From conception to an infant's second birthday, an infant is shaped by their environment, their interaction with their parents, and their own personal growth (Durkan et al., 2015). Exposure to maternal psychopathology and poorer parenting practices during the perinatal period have been shown to adversely affect offspring cognitive, behavioural, and emotional development (Dean et al., 2018; Rees et al., 2019; Stein et al., 2014; Waters et al., 2014), increasing the risk of offspring psychiatric disorder in adolescence and early adulthood (Naughton et al., 2018; Pawlby et al., 2009; Plant et al., 2018). It is likely that there are potential intergenerational implications of MELA that can begin during the perinatal period.

A review of the literature was therefore conducted with the aim to assess the impact of MELA exposure on maternal and infant perinatal outcomes. The societal and individual costs associated with MELA exposure underscore the importance of elucidating the effects of MELA on subsequent pregnancy, childbirth, maternal, and infant outcomes. However, the findings of studies reporting associations between MELA, and perinatal outcomes are inconsistent, and the literature lacks synthesis. I aim to assess the perinatal outcomes of women with a history of MELA exposure across four outcome domains: pregnancy and obstetric; maternal mental health; infant; and the quality of the care-giving environment. Biological and psychosocial mechanisms that are examined as potential mediators of the association between MELA exposure and adverse perinatal outcomes across the included studies will be summarised.

2.2 Method

2.2.1 Search strategy

A comprehensive literature search using the Preferred Reporting Items for Systematic reviews and Meta-Analyses protocols (PRISMA; Shamseer et al., 2015) was conducted including articles published up to December 31st, 2020. The guidelines outlined by the National Health Service Centre for Reviews and Dissemination (Tacconelli, 2010) and the Cochrane Collaboration (Julian et

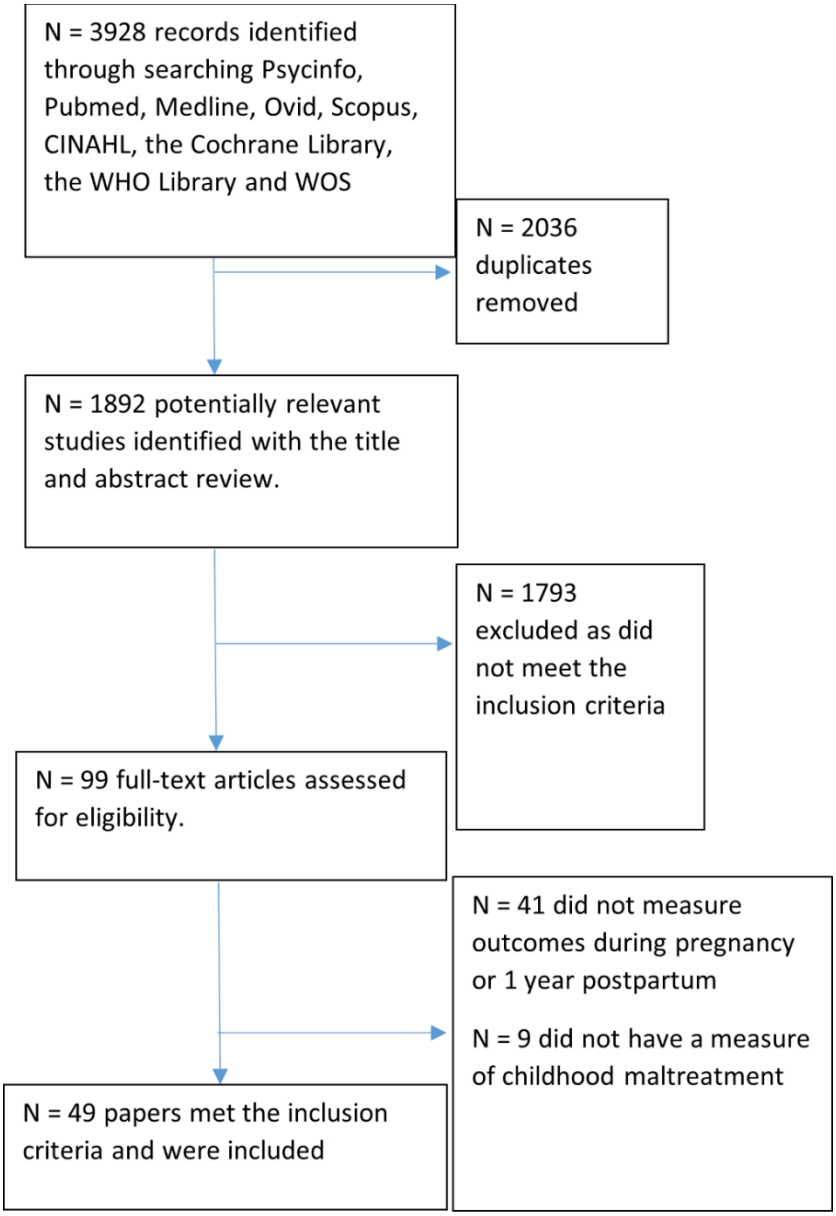
al., 2011) were used to inform the search strategy. Eight electronic databases (Psycinfo, Pubmed, Medline, Ovid, Scopus, CINAHL, the Cochrane Library, and WOS) were searched for published articles. The table of contents of relevant journals were manually screened and the reference lists of all included articles were examined for relevant studies not identified by the literature search. The first authors of all the studies that met the inclusion criteria were emailed to identify unpublished and in press studies. Maternal and early life adversity terms included ("mother* OR maternal OR parental") AND ("child* OR infan* OR history") AND ("maltreat* OR abuse OR neglect OR trauma"). These were combined with pregnancy terms ("pregnan* OR obstetric OR childbirth OR birth OR delivery OR perinatal OR prenatal OR antenatal"), mental health terms ("mental AND health, OR depression OR anxiety OR disorder"), infant terms ("infant OR child* OR bab* OR offspring OR neonat*"), and caregiving terms ("interact* OR relation*").

2.2.2 Inclusion and exclusion criteria

To be included in the review, studies had to assess the association between exposure to MELA and adverse perinatal outcomes. Adverse perinatal outcomes were defined in the current study as occurring during pregnancy or within 1 year postpartum, across one of the four following domains: pregnancy and obstetrics; maternal mental health; infant; and the quality of the care-giving environment. Review papers, dissertations, or commentary papers were excluded.

The initial search identified 3928 articles. Duplicates (N=2038) were removed. The remaining articles were assessed against the inclusion criteria. Two researchers independently conducted full-text reviews for N=99 articles. Agreement for inclusion based on inclusion and exclusion criteria was reached on 92% of papers, with differences in judgement discussed to achieve consensus. All the above inclusion criteria were met by N=49, (Figure 2.1).

Figure 2.1. PRISMA protocols of data extraction



To assess the quality of included studies, a modified version of the Newcastle-Ottawa Quality Assessment Scale (Wells et al., 2016) was used. From the N=49 papers included, the same two researchers completed the quality assessment independently for each article and agreed on 84% of judgements. Differences in ratings were discussed to achieve consensus.

2.2.3 Data extraction

Data was extracted and tabulated from each study following the PRISMA protocols (PRISMA; Shamseer et al., 2015; Figure 2.1). This extraction included: country of origin, study design and setting, demographics and sample size, assessment measures of maternal early life adversity, outcome measures and effect size. In addition, aims and hypothesis, recruitment methods, inclusion and exclusion criteria, and number of groups was also extracted. Table 2.1 shows the methodological characteristics of included studies. The extracted data was reviewed using a descriptive approach to provide an overview of the findings. Two researchers performed this process independently and compared extractions. Agreement was initially met on 96% of judgements. Differences in ratings were discussed to achieve consensus. Conventional practice for effect size reporting was followed and small, medium, and large effect sizes were deemed as: Cohen's *d*=0.2, 0.5, and 0.8; Cohen's *f* =0.02, 0.15, and 0.35; and odds ratios=1.5, 2.5, and 4.3, (Cohen, 2013; Steiger, 2004; Nieminen et al., 2013).

2.3 Results

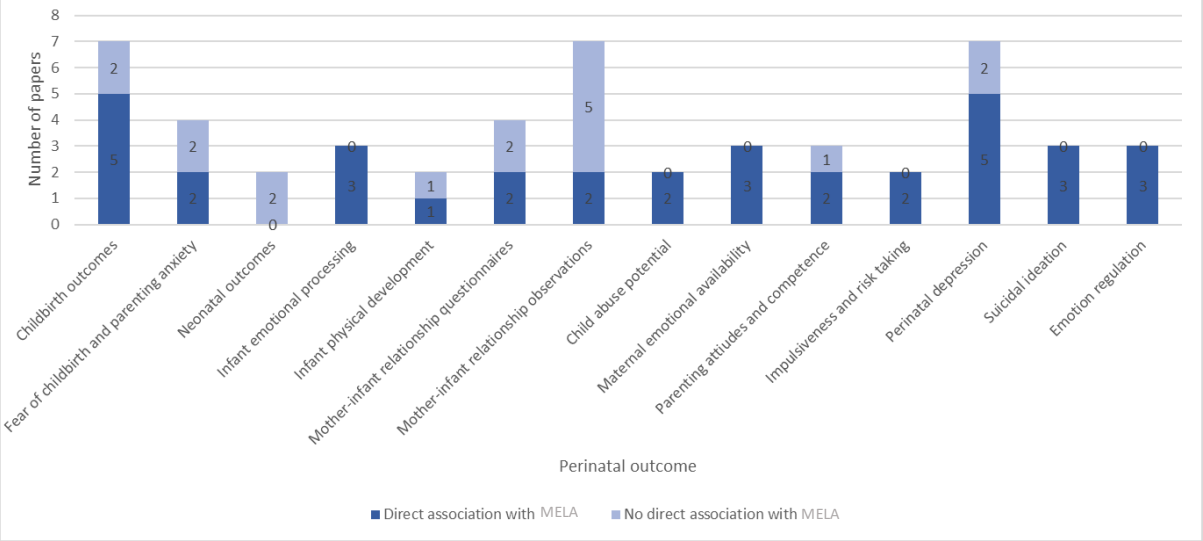
Outcomes were grouped as being either pregnancy and obstetric (e.g., miscarriages, birthweight, gestation, parental anxiety and fear of childbirth); infant outcomes (e.g., infant sex, APGAR scores, infant emotional processing, infant cognitive and physical development); quality of the caregiving environment outcomes (e.g., mother-infant relationship quality, child abuse potential, maternal emotional availability, parenting attitudes and competence, impulsiveness and risk taking); and maternal mental health outcomes (e.g., depression, suicidal ideation, emotion regulation). Table 2.2 shows the results, limitations, and effect size for all included studies.

2.3.1 Study characteristics

The inclusion/exclusion criteria were met by N=49 studies reporting on N=47 different samples. Studies reported on pregnancy and obstetric outcomes (N=11), infant outcomes (N=7),

quality of the caregiving environment outcomes (N=19), and maternal mental health outcomes (N=16). Figure 2.2 displays the number of studies assessing the association of MELA with each outcome. Twenty-four of the 49 studies reported on a biological or psychosocial outcome hypothesised to mediate the association between MELA exposure and adverse maternal and/or infant perinatal outcomes.

Figure 2.2. The number of papers that identified an association between maternal early life adversity and each specific perinatal outcome



The total number of women included in this review was 19,977 sampled from a range of countries: USA (N=26), Germany (N=7), Canada (N=4), Australia (N=2), Peru (N=2), Belgium (N=1), China (N=1), Israel (N=1), Mexico (N=1), Netherlands (N=1), South Africa (N=1), Spain (N=1), and Turkey (N=1). Most studies, N=39 (80%), reported on their inclusion or exclusion criteria. Inclusion criteria was not clearly defined by N=6 (12%) of studies and N=4 (8%) studies did not state either inclusion or exclusion criteria. MELA was reported by 6,700 (33.54%) women, however, the heterogeneity in reporting of MELA exposure presents a challenge for generalising these findings, reduces the external validity, and complicates replication.

Maternal age ranged from 12 to 48 years, although this should be interpreted with caution as N=21 (43%) studies did not report an upper range limit, and N=3 (6%) studies did not specify the

age of their sample. Of the 49 studies, N=20 (41%) conducted the initial assessment prenatally. Of these 20 studies, N=13 conducted prenatal assessments only whereas N=7 included both a prenatal and postnatal assessment. Postnatal only assessments were conducted in N=27 (55%) studies. The exact timing of assessments during the perinatal period was not reported by N=2 (4%) studies. A longitudinal design was used in N=25 (51%) studies, whereas N=24 (49%) used a cross-sectional design.

Participants for whom data could be accessed identified with the ethnicity of White (27.86%, N=5569), African American/Black (10.68%, N=2140), Asian/Pacific Islander (9.57%, N=1911), Mestizo (8.27%, N=1656), Hispanic/Latina (4.47%, N=895), Mixed Race (1.12%, N=203), Middle Eastern (0.09%, N=19), Native American (0.06%, N=11), or other/unknown (5.89%, N=1181). The ethnicity of N=6392 (31.99%) participants in N=10 (20%) studies was not reported. This highlights uncertainty in the ethnicity of the participants across the included studies as well as ethnic diversity across the included studies where ethnicity was reported. However, N=29 (59%) studies had inclusion/exclusion criteria that required participants to speak the native language of the country that the study was conducted in. This may have limited the opportunity for women from ethnically diverse backgrounds to participate.

Sample size varied greatly, ranging from 41 to 3081 participants. Few studies, N=7 (14%), calculated the required power to detect a significant effect. Well powered studies were self-reported by N=4 (8%) studies, whereas N=2 (4%) studies were self-reported as under-powered. Most studies, N=42 (86%), did not report power calculations and sample size estimates.

2.3.2 Variability in the measurement of maternal early life adversity

The measurements of MELA varied with 12 different measures used (Table 2.1). The most widely used measure was the Childhood Trauma Questionnaire (CTQ) (N=31), which captures both the nature of traumatic experiences in childhood, and the extent to which the participant found the

event traumatic. The CTQ does not however capture the duration and specific timing of the adversity. Other methods, such as the Trauma History Questionnaire (THQ), whilst capturing these aspects, fails to identify the severity of the specific adverse experience. The variability in measures of MELA may explain some of the inconsistent findings reported in the literature.

Table 2.1. Methodological characteristics of included studies

Study (first author and year)	Location	Design	Sample	Participants	Mean Maternal Age	MELA exposure rates	MELA Measures	Perinatal outcomes measures	Quality ratings (/9)
Pregnancy and Obstetric Outcomes									
Abajobir, 2018	Australia	Prospective	Clinical	3081 pregnant women (PW)	20.6	153 (5%)	Reports from the QGDFYCC	**Number of Miscarriages:** Determined by interview; **Emotion regulation:** CBCL	7
Altemeier, 1986	USA	Prospective	Community	927 mother-infant dyads (MID)	20.5	95 (10%)	Interview	**Birthweight, Gestation, and Preterm birth:** medical records; **Early infant outcomes:** APGAR and BNBASS; **Child abuse potential:** Interview and social service records	9
Benedict, 1999	USA	Prospective	Clinical	357 PW	20-24 mode	133 (37%)	LEQ	**Birthweight and Gestation:** Medical records**; Early infant outcomes:** APGAR	7
Bowman, 2009	USA	Cross-Sectional	Community + Clinical	78 MID	15-19	24 (31%)	CTQ	**Breastfeeding:** Interview	5
Bublitz, 2020	USA	Cross-Sectional	Clinical	127 PW	30.5	35 (28%)	ACEs	**Blood pressure:** ScottCare blood pressure monitoring device; **Pregnancy complications:** Medical records	7
Christiaens, 2015	Canada	Cross-Sectional	Community	622 MID	29.16	210 (34%)	ACEs	**Preterm birth:** Medical records/Well-being and pregnancy questionnaire	5
Leeners, 2014	Germany	Cross-sectional	Community + Clinical	255 PW	27	85 (33%)	Interview, including	**Preterm delivery:** Medical data on delivery outcomes	5

							yes/no for physical and emotional abuse		
Ozsahin, 2020	Turkey	Cross-Sectional	Community	536 PW	27.95	50 (9%)	ACEs	**Acceptance of motherhood:** Subscale of the PSEQ; **Parental anxiety:** PRAQ-R2	7
Stevens, 2017	USA	Cross-Sectional	Clinical	41 PW	27.85	27 (66%)	CTQ and THQ	**Maternal communication competency:** Self-designed questionnaire constructed using 7 items from Bandura's self-efficacy scale guidelines	6
Stevens-Simon, 1994	USA	Prospective	Community	127 PW	12-30	42 (33%)	Interview	**Birthweight and Gestation:** Medical records	9
Talmon, 2018	Israel	Cross-Sectional	Community	470 PW	30.67	201 (43%)	CTQ	**Self-objectification:** SOS**; Disrupted body boundaries:** SBBS**; Shame:** ESS	5
					Infant Outcomes				
Agrati, 2015	Canada	Prospective	Community	159 MID	20.5	95 (10%)	CTQ	**Infant emotion regulation:** Lab based observations + IBQ + ECBQ	7
Altemeier, 1986					Reported previously				
Benedict, 1999					Reported previously				
Choi, 2017	South Africa	Prospective	Community	150 MID	25	86 (57%)	CTQ	**Mother-infant bonding:** PBQ; **Maternal Depression:** EPDS	6

Lang, 2010	USA	Prospective	Community	44 MID	29.27	Not specified	CTQ	**Mother-infant bonding:** PSI-SF; **Maternal depression:** BDI-II	6
McDonnell, 2016	USA	Prospective	Community	398 MID	24.76	192 (48%)	FHHQ	**Infant socioemotional development:** ASQ	6
Moog, 2018	USA	Prospective	Clinical	80 MID	28.06	28 (35%)	CTQ	**Infant brain development:** MRI	8
Quality of the Care-Giving Environment Outcomes									
Altemeier, 1986	Reported previously								
Bert, 2009	USA	Cross-Sectional	Community	681 MID	19.8	375 (55%)	CTQ	**Child abuse potential:** CAPI	5
Choi, 2017	Reported previously								
Fava, 2016	USA	Cross-Sectional	Community + Clinical	268 MID	29.5	170 (63%)	CTQ	**Parenting attitudes:** TMMI	6
Fuchs, 2015	Germany	Prospective	Community	119 MID	32.44	58 (49%)	CTQ	**Emotional availability:** EAS	8
Guyon-Harris, 2020	USA	Prospective	Community	120 PW	26.21	77 (64%)	CTQ	**Parenting behaviour:** AMBIANCE	6
Juul, 2016	USA	Cross-Sectional	Clinical	255 MID	34	40 (16%)	SCID	**Affect:** Maternal affect during interaction	9
Lang, 2010	Reported previously								
Leeners, 2014	Reported previously								
MacMillan, 2020	Australia	Prospective	Clinical	211 PW	31.5	42 (20%)	CTQ	**Emotional Availability:** EAS; **Childbirth Experience:** CEQ; **Stressful Life Events:** SLE	8
Martinez-Torteya, 2014	USA	Prospective	Community + Clinical	153 MID	29.06	101 (66%)	CTQ	**Mother-infant interpersonal relationship:** SFP (MACY Infant–Parent Coding	8

								System); **Maternal depression:** PPDS	
Moehler, 2007	Germany	Cross-Sectional	Community	119 MID	Not specified	58 (49%)	CTQ	**Emotional Availability:** EA Scales and Interaction observations	5
Moehler, 2009	Germany	Cross-Sectional	Community	119 MID	Not specified	58 (49%)	CTQ	**Maternal impulsiveness:** BIS	5
Morelen, 2016	USA	Prospective	Community	192 MID	28.88	137 (71%)	CTQ	**Maternal affect:** Observed Maternal and Infant Affective Displays (MACY I-PCS)	7
Muzik, 2013	USA	Prospective	Community	150 MID	29	97 (65%)	CTQ	**Mother-infant bonding:** PBQ and interactions (MACY I-PCS); **Maternal psychopathology:** PPDS and NWS	8
Muzik, 2017	USA	Cross-Sectional	Community + Clinical	164 MID	29.18	102 (62%)	CTQ	**Maternal depression:** PPDS; **Maternal PTSD:** NWS-PTSD; **Self-reported parenting:** PBQ; **Observed parenting:** Observed free play and teaching tasks (MACY I-PCS);	8
Seng, 2013	USA	Prospective	Community	556 MID	27.0	110 (20%)	LSC	**Maternal mental health:** PPDS, NWS; **Mother-infant Bonding:** PBQ	6
Sexton, 2015	USA	Cross-Sectional	Community + Clinical	214 MID	28.8	145 (68%)	CTQ	**Parenting competence:** PSOC	7
Stacks, 2014	USA	Prospective	Community + Clinical	83 MID	30.04	58 (70%)	CTQ and NWS	**Mother-infant interaction:** MACY IPCS; **Maternal reflective functioning:** PDI-SF; **Infant attachment security:** SSP	7

Maternal Mental Health Outcomes									
Barrios, 2015	Peru	Cross-Sectional	Community	1521 PW	28.0	1056 (69%)	CPSAQ	**Maternal depression:** PHQ-9	5
Benedict, 1999	Reported previously								
De Venter, 2016	Belgium	Prospective	Community	183 MID	30.0	45 (25%)	TEC	**Maternal depression:** EPDS, MDQ, DASS	7
England-Mason, 2017	Canada	Prospective	Community	140 MID	32.3	58 (41%)	CTQ	**Maternal emotion regulation:** ERQ, DERS, and Emotional Stroop; **Maternal cortisol reactivity:** Salivary cortisol	8
England-Mason, 2018	Canada	Prospective	Community	140 MID	32.3	58 (41%)	CTQ	**Maternal emotion regulation:** ERQ, DERS, and Emotional Stroop	6
Lara 2015	Mexico	Cross-Sectional	Community	357 PW	27.05	117 (33%)	CECAQ	**Maternal depression:** BDI-II + SCID	4
Leeners, 2014	Reported previously								
Levey, 2018	Peru	Cross-Sectional	Community	2062 PW	27.8	992 (48%)	SQCT	**Maternal suicidal ideation:** SQ	4
Marysko, 2010	Germany	Prospective	Community	119 MID	Not specified	58 (49%)	CTQ	**Maternal dissociative experiences:** SDE-E	5
Nagl, 2017	Germany	Cross-Sectional	Community	741 MID	30.58	361 (49%)	CTQ	**Maternal depression:** BDI-II; **Maternal obesity:** Self-reported BMI	6
Nidey, 2020	USA	Cross-Sectional	Community	419 MID	20	173 (41%)	ACEs	**Maternal depression:** EPDS	7
Seng, 2013	Reported previously								
Zhang, 2020	China	Cross-Sectional	Clinical	1825 PW	31.14	154 (8%)	CTQ	**Suicide ideation and depression:** PHQ-9	6

Mediators of Associations Between MELA Exposure and Adverse Perinatal Outcomes									
Abajobir, 2018	Reported previously								
Agrati, 2015	Reported previously								
Benedict, 1999	Reported previously								
Brand, 2010	USA	Cross-Sectional	Clinical	126 MID	34	38 (30%)	CTQ	**Maternal + Infant cortisol levels:** Saliva; **Postpartum stressor:** PERI-SLES; **Maternal PTSD:** SCID; **Maternal depression:** BDI-II	8
Bublitz, 2020	Reported previously								
Choi, 2017	Reported previously								
De Venter, 2016	Reported previously								
England-Mason, 2017	Reported previously								
Finy, 2018	USA	Cross-Sectional	Community	214 PW	29.38	Not specified	CTQ	**Inflammation:** Serum levels of C-reactive protein	6
Juul, 2016	Reported previously								
Koenig, 2018	Germany	Cross-Sectional	Community	150 MID	32.6	76 (51%)	CTQ	**Mother and infant neurotransmitter samples:** Hair	7
Lang, 2010	Reported previously								
McDonnell, 2016	Reported previously								
Moog, 2016	USA	Prospective	Community	295 PW	28.92	126 (43%)	CTQ	**Placental CRH:** Maternal blood	8

Moog, 2017	USA	Prospective	Community	102 PW	27.9	29 (28%)	CTQ	**Maternal thyroid function:** Fasting maternal venous blood samples	8
Morelen, 2016	Reported previously								
Muzik, 2013	Reported previously								
Muzik, 2017	Reported previously								
Nagl, 2017	Reported previously								
Oosterman, 2018	Netherlands	Prospective	Clinical	193 PW	23.97	158 (82%)	ACEs	**Maternal depression:** BDI-II; **Maternal RSA reactivity:** ECGs; **Maternal parenting anxiety:** State Trait Anxiety Inventory	6
Plaza, 2012	Spain	Cross-Sectional	Community	303 MID	32.6	29 (10%)	ETI-SR	**Maternal depression:** EPDS; **Maternal thyroid function:** Blood sample	6
Schreier, 2015	USA	Prospective	Community	180 PW	26.9	27 (15%)	CTQ	**Maternal cortisol levels:** Hair samples	7
Seng, 2013	Reported previously								
Talmon, 2018	Reported previously								

Note. **ACEs** - Adverse Childhood Experiences Checklist (Felitti et al., 1998); **AMBIANCE** – Atypical Maternal Behaviour Instrument for Assessment and Classification (Lyons-Ruth et al., 1999); **ASQ** - Ages and stages questionnaire (Squires et al., 1995); **BDI-II -** Beck Depression inventory-II (Beck et al., 1996); **BIS -** Barrat's Impulsiveness Scale (Barratt, 1959); **BNBASS** - Brazelton Neonatal Behavioural Assessment Scale scores (Brazelton, 1978); **CAPI -** Child Abuse Potential Inventory (Milner, 1986); **CBCL -** Child Behavior Checklist (Achenbach & Edelbrock, 1991); **CECAQ** - Childhood Experience of Care and Abuse Questionnaire (Bifulco et al., 2005); **CEQ** – Childbirth Experience Questionnaire (Dencker et al., 2010); **CPSAQ** - Childhood Physical and Sexual Abuse

Questionnaire (Felitti et al., 1998); **DASS** - Depression Anxiety and Stress Scales (Akin & Cetin, 2007); **DERS** - Difficulties in Emotion Regulation Scale (Gratz & Roemer, 2004); **EAS -** Emotional availability scale (Biringen, Robinson, & Emde, 1993); **ECBQ** - Early Childhood Behaviour Questionnaire (Putnam et al., 2006); **EPDS -** Edinburgh Postnatal Depression Scale (Cox et al., 1987); **ERQ -** Emotion Regulation Questionnaire (Gross & John, 2003); **ESS -** Experience of Shame Scale (Andrews et al., 2002); **ETI-SR** - Early Trauma Inventory Self-Report (Bremner et al., 207); **FHHQ** - Family health history questionnaire (Felitti et al., 1998); **IBQ** - Infant Behaviour Questionnaire (Gartstein & Rothbart, 2003); **LEQ -** Life Events Questionnaire (Kubany et al., 2000); **LSC -** Life stressor checklist (Wolfe et al., 1996); **MDQ** - Major Depression Questionnaire (Van der Does et al., 2003); **NWS** - National Women's Survey (Resnick et al., 1993); **PBQ -** Postpartum Bonding Questionnaire (Brokington et al., 2006); **PDI-SF -** Parent Development Interview-SF (Slade et al., 2003); **PERI-SLES -** Psychiatric Epidemiology Research Interview Stressful Life Events Scale (Dohrenwend et al., 1982); **PHQ-9 -** Patient Health Questionnaire-9 (Spitzer et al., 1999); **PPDS -** Postpartum Depression Screening Scale (Beck et al., 2000); **PRAQ-R2 –** Pregnancy-Related Anxiety Questionnaire-Revised 2 (Huizink et al., 2016); **PSEQ –** Prenatal Self Evaluation Questionnaire (Lederman & Weis, 2009); **PSI-SF -** Parenting Stress Index-Short Form (Haskett et al., 2006); **PSOC** – Parenting sense of competence (Ohan et al., 2000); **QGDFYCC** - Queensland Government Department of Families, Youth, and Community Care (Abajobir et al., 2018); **SBBS -** Sense of Body Boundaries Survey' (Krzewska & Dolinska-Zygmunt, 2013); **SCID** - Structured Clinical Interview for DSM-IV (First & Gibbon, 2004); **SDE-E -** Scale of Dissociative Experiences for adults (Brunner et al., 1999); **SFP -** Still face paradigm (Tronick et al., 1978); **SLE** – Stressful Life Events Questionnaire (Brown et al., 2011); **SOS -** Self-Objectification Scale (Talmon et al., 2016); **SQ** - Suicide Questionnaire (Kessler & Ustun, 2004); **SQCT** - Structured questionnaire of childhood trauma (Levey et al., 2018); **SSP -** Strange situation paradigm (Ainsworth et al., 2015); **TEC -** Traumatic Experiences Checklist (Nijenhuis et al., 1999); **THQ** - Trauma History Questionnaire (Hooper et al., 2011); **TMMI -** Trauma-Meaning Making Interview (Simon et al., 2010).

Table 2.2. Study analyses, results, and limitations

Study (first author and year)	Covariates	Primary Results	Mediators of associations	Effect of MELA sub-type	Effect size as Cohen's d*	Main Limitations
Pregnancy and Obstetric Outcomes						
Abajobir, 2018	Number of pregnancies; Gestation; Sex of infant; Internalizing of problems; Marital status; Alcohol; Tobacco	Risk of miscarriage was associated with MELA	Pre-pregnancy symptoms of emotional dysregulation mediated observed associations	Emotional abuse showed the strongest association with the risk of miscarriage	MELA and miscarriage = 0.205 Emotional abuse and miscarriage = 0.556	Genetics not considered; The study was unable to separate MELA history from current risky behaviour; High dropout rates in those with MELA leading to underestimations; Duration and extent of MELA was not analysed
Altemeier, 1986	Stress; Honesty; Self-esteem	Indirect association of MELA on birthweight; No association of MELA on neonatal outcomes; MELA increased levels of anger and physical discipline towards infants	Self-esteem mediated the associations of MELA on birthweight. Other results remained after statistical control for covariates.	Differential associations by MELA subtype not investigated	N/A	The use of a non-structured interview for assessing MELA may lead to differing aspects of MELA captured between participants.
Benedict, 1999	Prenatal depression; Life stresses	No association of MELA on birthweight or 5-min AGPAR score. MELA associated with an increased	N/A	Sexual abuse most likely to increase prenatal depression	Sexual abuse and prenatal depression = 0.490	Measures used may skew rates of depression to more frequent due to the pregnant and low SES population used.

		risk of prenatal depression				
Bowman, 2009	Anxiety for intimate parenting behaviours, (e.g., hugging)	No association of MELA and parenting anxiety	Attendance of parenting classes may have reduced the association if dissociation and anxiety that arose from MELA	No associations of sub-type	MELA and parenting anxiety = 0.230	Some participants knew each other which may lead to socially desirable responses to measures despite anonymity and confidentiality.
Bublitz, 2020	Prenatal stress	MELA associated with an increase in maternal blood pressure, risk of preterm delivery, pre-eclampsia, and foetal organ damage	N/A	Differential associations by MELA subtype not investigated	MELA and maternal blood pressure = 0.760	Sub-type of MELA was not separated out
Christiaens, 2015	Substance use; Education; Socio-economic status; Marital status; Income; Ethnicity; Miscarriages in previous pregnancies	MELA associated with an increased risk of preterm delivery	N/A	Physical and emotional abuse combined, but not separately, associated with these findings	MELA and preterm delivery = 0.406	Potential recall bias; Upsetting questions for mothers early in the postpartum period.
Leeners, 2014	Pregnancy related diseases; Depression; Alcohol; Partner smoking	MELA associated with an increased risk of preterm delivery; MELA associated with an increase in risky pregnancy behaviours such as smoking; MELA	N/A	Sexual abuse showed the greatest associations for all outcomes.	MELA and preterm delivery = 0.457 Sexual abuse and smoking in pregnancy = 0.101	Self-developed measure used lacking validation

		associated with increased suicidal ideation in pregnancy			MELA and suicidal ideation = 0.101	
Ozsahin, 2020	Age; Marital status; Education; Living place; employment; Social security; Economic status; Family type; # of pregnancies	MELA associated with increased anxiety towards parenting as well as less acceptance of the role of motherhood	N/A	Differential associations by MELA subtype not investigated	N/A	Sub-type of MELA was not explored; Most women were measured in the 3rd trimester potentially affecting the ability to generalise findings
Stevens, 2017	PTSD; Depression; Pregnancy-related anxiety; Ethnicity; Age; Education; Employment status; Household income	MELA associated with a lack of sufficient confidence to ask for medical advice, and lower self-efficacy in communicating obstetric care preference	N/A	Differential associations by MELA subtype not investigated	N/A	Sample was from women receiving interventions on coping and communication so may be a subset of women who differ from the general pregnant population; Lack of control group
Stevens-Simon, 1994	Age at conception; BMI at conception; Weight gain; Health habits; Social history; Medical and obstetric complications	MELA associated with gestation but was not associated with lower birthweights	N/A	Differential associations by MELA subtype not investigated	MELA and gestation = 0.261	The mechanisms linking antecedent abuse with adverse pregnancy outcomes not controlled for
Talmon, 2018	Age; Education; Income; No. of children; Fertility treatment; Pregnancy status; Gestation	Indirect association of MELA and fear of childbirth shown through self-	N/A	Differential associations by MELA subtype not investigated	MELA and fear of childbirth = 0.440	Only a narrow view of fear of childbirth was captured

		objectification and body shame				
			Infant Outcomes			
Agrati, 2015	Number of children; sex of infant; Income; Maternal age; Birthweight; Gestational age; Duration of breastfeeding	MELA associated with higher levels of maternal anxiety during pregnancy, which in turn was associated with increased infant negative affectivity in their first year	N/A	Differential associations by MELA subtype not investigated	MELA and infant negative affectivity = 0.339	Possibility of common method variance bias as a consequence of women responding on gestational anxiety and early adversity questionnaires at the same interview; Some concerns surrounding missing data
Altemeier, 1986			Reported previously			
Benedict, 1999			Reported previously			
Choi, 2017	Infant emotional and behaviour development; Infant growth	No direct association of MELA on infant growth; MELA associated with postpartum depressive symptoms directly and indirectly via distress	Mediating association of distress between MELA and postpartum depression; postpartum depression mediated associations of MELA on infant growth	Abuse and neglect subtypes associated with adverse perinatal outcome	N/A	Modest sample size; Missing data; Mother-infant bonding was measured with self-report, potentially leading to socially desirable answers; Food insecurity may have been an unmeasured covariable
Lang, 2010	Ethnicity; Household income; Marital status; Number of children;	MELA associated with infant's recovery from	N/A	Clear differing associations of MELA sub-type.	N/A	The contribution of maternal history of childhood neglect was not

	Education; Physical health	distress; MELA associated with disrupted mother-infant interactions; MELA associated with lower parental distress but also less confidence in parenting roles		Both physical and emotional MELA associated with increased maternal perinatal depression but with differing infant outcomes. Emotional MELA associated with disrupted mother-infant interactions greater than physical MELA		examined, only abuse; Small sample size
McDonnell, 2016	Maternal age; Ethnicity; Prenatal depression symptoms	MELA associated with higher levels of negative infant affectivity at 6 months postpartum	Direct associations were shown as well as indirectly via perinatal depression as a mediator.	Abuse and neglect show associations, whereas household dysfunction does not	N/A	PTSD symptoms or diagnosis were not considered
Moog, 2018	Depression; Stress; Anxiety; Medication; Violence; Obstetric risk; BMI; SES; Education; Income	MELA associated with smaller offspring brain size and grey matter volume	N/A	Differential associations by MELA subtype not investigated	N/A	A healthy sample was used that was not enriched with MELA exposure
			Quality of the Care-Giving Environment Outcomes			
Altemeier, 1986			Reported previously			
Bert, 2009	Parenting knowledge; Parenting style and expectations	MELA associated with increased	N/A	Emotional and physical abuse have	Emotional abuse and child	Covariates such as race, gender, and culture were not considered

		child abuse potential		the strongest association	abuse potential = 0.303 Physical abuse and child abuse potential = 0.366	
Choi, 2017			Reported previously			
Fava, 2016	Age; Ethnicity; Marital status; Education; Household income	MELA associated with attitudes towards parenting, with sub-type of MELA associated with whether parenting attitudes are positive or negative.	N/A	Parent-perpetrated MELA associated with increased positive parenting attitudes, whilst all other MELA associated with increased negative parenting attitudes	N/A	Self-report of parenting attitudes may lead to social desirability bias
Fuchs, 2015	Infant gender; Marital status; Education; Infant siblings	MELA associated with less emotional availability at 12 months (but not 5 months) postpartum	N/A	Emotional abuse had the strongest individual association, but cumulative MELA had the greatest association	N/A	Self-report measures of emotional availability, rather than clinical interviews, were used
Guyon-Harris, 2020	Race; Ethnicity	MELA associated with more emotional communication errors between mothers and infants	N/A	High sexual, physical, and emotional MELA increased associations.	N/A	Relatively small sample size; Unresolved status with respect to maternal experiences of trauma was not measured

Juul, 2016	Maternal /infant age; Education; Ethnicity; Depression; Infant sex; Caffeine	MELA associated with increased neutral emotional expression of mothers during interactions with offspring	N/A for neutral expression. Smoking statues and infant age mediated associations of MELA on positive expression	Differential associations by MELA subtype not investigated	N/A	Sub-types of MELA not considered; Study should be replicated in a more demographically diverse sample
Lang, 2010	Reported previously					
Leeners, 2014	Reported previously					
MacMillan, 2020	Maternal depression; Age; Parity; Education	MELA associated with poorer maternal emotional availability (EA)	N/A	Differential associations by MELA subtype not investigated	MELA and maternal EA = 0.773	The impact of social support, a protective factor that might reduce the impact of maternal trauma on the mother–infant relationship, not accounted for; Child's perspective of EA not measured
Martinez-Torteya, 2014	Age; Ethnicity; Marital status; Education; SES; Household income; Maternal PTSD symptoms	MELA indirectly associated with increased negative parenting	Depressive symptoms mediate associations of MELA on negative parenting	Differential associations by MELA subtype not investigated	N/A	Cross-sectional nature doesn't allow causal conclusions to be drawn; Genetic contributions not considered
Moehler, 2007	Infant sex/birthweight; Education; Marital status; No. of children	MELA associated with more intrusive maternal interactions	N/A	Differential associations by MELA subtype not investigated	N/A	Clinical interviews not performed; Maternal self-esteem not captured
Moehler, 2009	Infant gender; Maternal education; Marital status;	MELA associated with increased	N/A	Physical and sexual MELA particularly	N/A	Clinical interviews not performed

	Number of children; Infant birthweight	impulsiveness and risk-taking during pregnancy		associated with these outcomes		
Morelen, 2016	Age; Education; Marital status; Income; Ethnicity	MELA associated with infants reflecting less negative, and more positive, emotional expression during interactions	N/A for direct effects. Indirect pathways associated with current symptomology.	Differential associations by MELA subtype not investigated	N/A	No psychological assessments conducted
Muzik, 2013	Age; Ethnicity; Household income; Education; Marital status	MELA associated with increased depression and PTSD symptoms; No direct association of MELA on mother-infant relationship quality	Current symptomology associated with relationship quality	Abuse and neglect most associated	N/A	Moderate SES and low demographic risk of participants may mean results are not able to be generalised.
Muzik, 2017	Comorbid mental illness	No direct association of MELA on mother-infant relationship quality	Current symptomology associated with relationship quality	Differential associations by MELA subtype not investigated	N/A	Small, non-demographically diverse sample; No psychiatric measures used
Seng, 2013	Ethnicity; Teen pregnancy; Income; Education; Zip code crime	MELA associated with increased pre-pregnancy depressive symptoms, reducing the quality of mother-infant relationship;	Pre-existing depression mediated the association of MELA on mother-infant relationship quality and on	Differential associations by MELA subtype not investigated	N/A	Trauma-exposed and PTSD-affected women were oversampled potentially leading to an underestimation of pre-existing depression

		No direct association of MELA on postnatal depression	postnatal depression			
Sexton, 2015	Cohabitation status; Ethnicity; Employment; Income; Education; Maternal and infant health concerns; Perinatal medication use	No association of MELA on parenting competence	N/A	Differential associations by MELA subtype not investigated	N/A	Abuse and neglect were the only forms of MELA included; Resilience measures were self-report
Stacks, 2014	Age; Education; Income; Ethnicity; Marital status; Infant sex	High reflective functioning associated with improved parenting sensitivity	N/A	Differential associations by MELA subtype not investigated	N/A	Over-selection of MELA and postpartum psychopathology may limit generalisation to more normative samples
Maternal Mental Health Outcomes						
Barrios, 2015	Age; Ethnicity; Parity; Education; Employment; Food access; Planned pregnancy; Health; Gestation	MELA associated with elevated rates of depression during pregnancy	N/A	MELA subtypes of physical and sexual abuse associated with elevated rates of depression in pregnancy	MELA and prenatal depression = 0.401 Physical abuse and prenatal depression = 0.396 Sexual abuse and prenatal depression = 0.101	A hospital-based sample may limit the application of findings to the general population

Benedict, 1999	Reported previously					
De Venter, 2016	Past depression; Type D personality	No direct association of MELA on post-partum depression	Past depression mediates associations	Differential associations by MELA subtype not investigated	N/A	Covariates such as maternal age, SES, current stressful life events, re-traumatization in adulthood, and partner support were not considered.
England-Mason, 2017	Marital status; Education; Income; Breastfeeding; Medication use; Postpartum mood	MELA associated with increased difficulties with emotion regulation in the postpartum period	Emotional regulation mediated associations of MELA on lower baseline maternal cortisol levels	Differential associations by MELA subtype not investigated	N/A	Recent life stressors not considered; Covariates that affect cortisol reactivity, such as BMI, not fully considered
England-Mason, 2018	Ethnicity; Marital status; Education; Household income	MELA associated with decreased attention bias to emotional stimuli postnatally	N/A	Differential associations by MELA subtype not investigated	N/A	Covariates such as sleep quality not considered; Emotional regulation self-reported potentially leading to social desirability bias
Lara 2015	Age; Education; Income; Partner status; Depression; Anxiety; Social support	MELA associated with increased risk of prenatal depression by 2.6-fold	N/A	Sexual abuse showed the greatest association, followed by verbal abuse.	N/A	A clinical sample used may overestimate the link between MELA and mental health outcomes
Leeners, 2014	Reported previously					
Levey, 2018	Age; Education; Ethnicity; Marital status; Employment; Access to	MELA associated with suicidal	N/A	Differential associations by	MELA and suicidal ideation = 0.520	Retrospective self-report of suicidal behaviours; Data does not exclusively

	basics; Parity; Planned pregnancy; Early pregnancy BMI; Gestation; History of partner violence	behaviour in pregnancy		MELA subtype not investigated	MELA and suicide planning = 0.604 MELA and suicide attempt = 0.490	represent suicidal behaviour in pregnancy only; The sample was hospital based potentially reducing generalisability of results
Marysko, 2010	Infant gender; Marital status; Education; No. of children	MELA associated with increased dissociative experiences postnatally. Due to re-traumatization from childbirth or through being present throughout life.	N/A	Differential associations by MELA subtype not investigated	N/A	Clinical diagnosis not screened for; Maternal self-esteem also not measured
Nagl, 2017	Anxiety; Age; Nationality; Education; Parity; Martial status; Pre-pregnancy obesity	MELA associated with postpartum depression directly and indirectly	Pre-pregnancy obesity mediated the association between MELA and postpartum depression	Sexual abuse was the only form of MELA to be associated	Sexual abuse and postpartum depression = 1.100	Length and timing of MELA, obesity and depression were not captured
Nidey, 2020	Interpersonal support; Race; Martial Status; Ethnicity; Age at delivery; Education	MELA associated with increased postnatal depression between 2 and 4-fold	N/A	Differential associations by MELA subtype not investigated	MELA and postnatal depression = 0.812	MELA sub-type not compared
Seng, 2013	Reported previously					

Zhang, 2020	Age; Education; Ethnicity; Employment; Martial status; BMI; Gestational age; Nulliparity; Unplanned pregnancy; History of abortion; Mental health history	MELA associated with suicidal ideation in pregnancy	N/A	Physical abuse MELA showed the greatest association with suicidal ideation	MELA and suicidal ideation = 0.626 Physical abuse and suicidal ideation = 0.574	A single item measure of suicidal ideation was used
Mediators of Associations Between MELA Exposure and Adverse Perinatal Outcomes						
Abajobir, 2018	Reported previously					
Agrati, 2015	Reported previously					
Benedict, 1999	Reported previously					
Brand, 2010	Health history; Marital status; Education; Infant sex; Medication; Delivery complications/method; Infant/mother food intake; Maternal menstrual cycle	MELA associated with reduced maternal baseline cortisol levels; Infants also associated with lower baseline cortisol levels.	Postnatal depression mediates these associations	Differential associations by MELA subtype not investigated	MELA and maternal cortisol = 1.000 MELA and infant cortisol = 0.796	Sub-type of MELA was not separated out
Bublitz, 2020	Reported previously					
Choi, 2017	Reported previously					
De Venter, 2016	Reported previously					
England-Mason, 2017	Reported previously					
Finy, 2018	Race; Gestation; Age; Pregnancy complications	MELA associated with increased pre-pregnancy BMI	BMI acts as a mediator between	Differential associations by	N/A	There was not a non-pregnant compassion group used; Effects of

		and, indirectly, elevation of C-reactive proteins.	associations of MELA and C-reactive protein levels	MELA subtype not investigated		trimesters may not have been considered
Juul, 2016			Reported previously			
Koenig, 2018	Psychiatric diagnosis; Recent stress; Infant gender/birthweight; Hair treatments	MELA associated with increased 1-AG and reduces SEA. New-borns of these mother's associated with increased 1-AG and OEA.	N/A	Differential associations by MELA subtype not investigated	MELA and 1-AG = 0.973 MELA and SEA = 1.423	Only four endocannabinoids measured instead of the whole endocannabinoidome; Sub-type of MELA not considered
Lang, 2010			Reported previously			
McDonnell, 2016			Reported previously			
Moog, 2016	Childhood SES; Current SES; Ethnicity; Smoking; Drug use; Alcohol; Depressive symptoms	MELA associated with increased pCHR concentrations across pregnancy	N/A	Multiple MELA associated with increased effects, but sub-type not considered	MELA and pCHR concentration = 0.123	Potential intergenerational transmission of the effects of maternal CT exposure that may occur in postnatal life via the detrimental effects of maternal CT-related psychological states on maternal-child relationships and suboptimal parenting was not captured
Moog, 2017	Ethnicity; SES; BMI; Childhood SES; Prenatal depression	MELA associated with increased hypothyroidism across pregnancy	N/A	Abuse and neglect MELA show these associations	N/A	Small sample size; Only two unstimulated thyroid parameters used

Morelen, 2016	Reported previously					
Muzik, 2013	Reported previously					
Muzik, 2017	Reported previously					
Nagl, 2017	Reported previously					
Oosterman, 2018	Age; Marital Status; Education; Ethnicity; Infant sex; Self-efficacy	MELA associated with reduced RSA reactivity	N/A	Differential associations by MELA subtype not investigated	N/A	Response to participants own children was not measured so paradigms may not occur in real caregiving interactions
Plaza, 2012	Age; Marital status; Education; Income; No. of children; History of abortion; Delivery method; Affective disorders history	MELA associated with increased hypothyroidism by up to 7-fold postnatally	N/A	Physical abuse had the greatest association with hypothyroidism	Physical abuse and hypothyroidism = 0.757	Current PTSD symptomology not assessed
Schreier, 2015	Age; Education; No. children; Ethnicity; Prenatal BMI; PTSD; Hair colour/treatments	MELA associated with increased hair cortisol levels	Effect of race as the association was only found in black women and not in other racial groups	Psychical and sexual MELA associated with these outcomes. Emotional MELA was not	N/A	The cut off for MELA was 11 years old, so potential MELA in the teenage years was not captured; Hair growth differs between racial groups
Seng, 2013	Reported previously					
Talmon, 2018	Reported previously					

* Conventional practice for effect size reporting was followed and small, medium, and large effect sizes were deemed as: Cohen's *d*=0.2, 0.5, and 0.8; Cohen's *f*=0.02, 0.15, and 0.35; and odds ratios=1.5, 2.5, and 4.3, (Cohen, 2013; Steiger, 2004; Nieminen et al., 2013). Effect sizes were converted into Cohen's d for standardised reporting.

2.3.3 Pregnancy and Obstetric outcomes

The relationship between MELA and pregnancy and obstetric outcomes was reported on by N=11 studies. These included childbirth outcomes, and fear of childbirth & parenting anxiety.

2.3.3.1 Childbirth outcomes

Evidence for the impact of MELA on childbirth outcomes was inconsistent and limited (N=7). Only one study explored the risk of miscarriage following MELA (Abajobir et al., 2018). In this study, MELA exposure was associated with an elevated risk of miscarriage, particularly when the MELA was emotional abuse. A limited number of studies (N=3) examined the impact of MELA on infant birthweight and gestation, with inconsistent findings reported. One study found that following the statistical control of correlated risk factors, MELA exposure was directly associated with giving birth to infants of lower birthweight but was not associated with the number of weeks gestation at which the infant was born (Stevens-Simon et al., 1994). In contrast, after accounting for the impact of correlated risk factors (e.g., substance and alcohol use) two studies (Altemeier et al., 1986; Benedict et al., 1999) found no association between MELA exposure and infant birthweight or the number of weeks gestation at birth. It is noteworthy that the prenatal exposure to illicit substances and alcohol could mediate the association between MELA and adverse birth outcomes, however, these studies did not conduct these analyses.

MELA exposure was shown to increase the likelihood of preterm delivery in the 3 of 3 studies that measured this outcome, defined in these studies as delivery at less than 37 weeks' gestation. This association remained once maternal age, educational status, smoking status, miscarriage history (Christiaens et al., 2015), and maternal stress and depression (Bublitz et al., 2020) were accounted for, showing a direct association, as well as potential mediating pathways via these controlled for factors. There was evidence that the MELA sub-type of childhood sexual abuse was particularly related to pre-term delivery in one study (Leeners et al., 2014), whereas Bublitz and colleagues (2020) found the combination of childhood emotional and physical abuse to convey the

greatest risk for preterm delivery. In summary, the association between MELA exposure and adverse childbirth outcomes are shown by a limited number of studies, with stronger associations documented for the role MELA maltreatment--based subtype plays.

2.3.3.2 Fear of childbirth and parenting anxiety

Associations between MELA exposure and fear of childbirth and parenting anxiety were limited (N=4). Two studies showed a direct association of MELA exposure and parenting anxiety. Stevens and colleagues (2017) found MELA to be associated with lower self-efficacy in communicating obstetric care preferences. Furthermore, Özşahin (2020) found MELA exposure was associated with elevated parenting anxiety and reduced acceptance of the maternal role. One study (Bowman et al., 2009) found no difference in levels of parenting anxiety between mothers with and without a history of MELA exposure. However, in this study, most participants had attended parenting classes which may have provided the required support to successfully prepare for pregnancy and parenthood. In one study, no direct association of MELA on fear of childbirth was identified, (Talmon et al., 2018). Elevated maternal anxiety in relation to childbirth and the parenting role could disrupt typical adaptations to pregnancy and parenthood and associated maternal programming processes.

2.3.4 Infant outcomes

The relationship between MELA and infant outcomes was reported in N=7 studies. These outcomes included neonatal behaviours, infant emotional processing, and infant physical development.

2.3.4.1 Neonatal outcomes

There was no evidence for an association between MELA exposure and neonatal outcomes in the 2 of 2 studies that measured this outcome. There was no association between MELA and

infant's Brazelton Neonatal Behavioural Assessment Scale scores in a sample of low-income, white mothers (Altemeier et al., 1986). Similarly, in a mixed-income, mixed-race sample, MELA did not predict infants' 5-minute APGAR score (Benedict et al., 1999).

2.3.4.2 Infant emotional processing

Evidence of a relationship between a history of MELA and infant affect was shown in the 3 of 3 studies that reported on this outcome. Collectively, findings suggest maternal psychopathology and emotional processing deficits associated with MELA exposure play a key role in infants' affectivity and temperament in their first year. Increased infant negative affectivity in their first year postpartum was shown to be associated with MELA (Agrati et al., 2015). Another study found that MELA predicted higher levels of negative infant affectivity at 6 months postpartum (McDonnell et al., 2016). Lang and colleagues (2010) found MELA subtype was a discriminating factor, whereby physical MELA was associated with increased infant difficulty when recovering from distress. Indeed, Lang and colleagues (2010) have shown that emotional abuse in childhood predicted elevated mother-infant interactional dysfunction (Lang et al., 2010). Thus, there is emerging evidence that the MELA sub-type of emotional abuse is an important risk factor for infant emotional difficulties.

2.3.4.3 Infant physical development

Evidence pertaining to the associations between MELA, and infant physical development was extremely limited (N=2). Choi et al., (2017), found that MELA was not related to infant growth across the first year postpartum. Moog and colleagues (2018) found that new-borns of mothers who had experienced MELA developed significantly smaller overall brain size and less grey matter volume than infants born to mothers with no history of MELA.

2.3.5 Quality of the care-giving environment outcomes

Nineteen studies reported on the relationship between MELA exposure and the quality of the care-giving environment outcomes. These outcomes included mother-infant relationship quality, child abuse potential, maternal emotional availability, parenting attitudes and competence, and impulsiveness and risk taking.

2.3.5.1 Mother-infant relationship quality - Questionnaire studies

Associations between MELA exposure and maternal rated mother-infant relationship quality was observed across N=4 studies. Two studies found no direct association between MELA and maternal rated mother-infant relationship quality (Choi et al., 2017; Seng et al., 2013). Guyon-Harris and colleagues (2020) found mothers with a history of MELA to report more difficulties in understanding their infant's emotional cues as well as increased role and boundary confusion with their infants. A further study found that a history of emotional MELA led to significantly higher levels of mother-infant interactional dysfunction (Lang et al., 2010). In this study, exposure to emotional abuse during childhood predicted increased maternal affect dysregulation which in turn had a negative impact on the quality of the mother-infant relationship. Collectively, these studies highlight the importance of identifying the MELA sub-type.

2.3.5.2 Mother-infant relationship quality - Observational studies

The association between MELA exposure and directly observed mother-infant interaction has been reported in N=7 studies. Observational studies refer specifically to studies in which researchers observe mothers and infants interacting and score the interaction on predetermined criteria. Five studies found no direct association between MELA and the quality of the mother-infant relationship (Juul et al., 2016; Martinez-Torteya et al., 2014; Muzik et al., 2013; Muzik et al., 2017; Stacks et al., 2014). In contrast, Moehler and colleagues (2007) found MELA exposure predicted more intrusive maternal behaviours which in turn predicted disorganised infant attachment.

Highlighting inconsistent findings in the literature, Morelen and colleagues (2016) found a positive association, whereby MELA exposure predicted increased maternal positive affect during mother-infant interactions.

2.3.5.3 Child abuse potential

Evidence of a relationship between a history of MELA and child abuse potential was limited yet consistent across the N=2 studies that measured this outcome. A history of MELA exposure, particularly emotional or physical abuse predicted a higher child abuse potential (Bert et al., 2009), as well as greater levels of anger, and more violent physical discipline toward infants (Altemeier et al., 1986). Further research is needed to determine if these associations are replicated in other samples.

2.3.5.4 Maternal emotional availability

A history of MELA was shown to reduce observed emotional availability in 3 of 3 studies that reported on this outcome (Fuchs et al., 2015; MacMillan et al., 2020; Moehler et al., 2007). Associations remained significant once maternal age, education, psychosocial support and number of children (Fuchs et al., 2015), as well as recent stressful life events and birth complications (MacMillan et al., 2020) were controlled for. These studies demonstrate direct associations, yet these studies only included these potential mediators as statistical covariates, and their mediating effect on maternal emotional availability should be considered. As well as reduced emotional availability, increased maternal intrusiveness was also shown to be associated with MELA exposure (Moehler et al., 2007). A consistent, lasting, direct association between MELA exposure and mother's ability to function effectively in a relationship with their infant is shown.

2.3.5.5 Parenting attitudes and competence

Evidence for an association between MELA exposure and parenting attitudes and competence was inconsistent across the three studies that reported on this outcome. No association between MELA and maternal parenting competence was reported in one study (Sexton et al., 2015). However, in a second study, MELA predicted reduced parental confidence (Lang et al., 2010). Fava et al., (2016) found the impact of MELA on parenting attitudes to be dependent on the sub-type of MELA experienced, a factor not considered in the previous two studies. For example, if the MELA had been parent-perpetrated, mothers tended to show more positive attitudes towards parenting, such as increased patience and openness with their infant. However, with other forms of MELA the greater the exposure to MELA, the more negative the parenting attitudes (Fava et al., 2016). These findings further highlight the importance of MELA sub-type on adverse perinatal outcomes.

2.3.5.6 Impulsiveness and risk taking

Evidence of a relationship between MELA exposure and impulsiveness and risk taking during the perinatal period was found in 2 of 2 studies that measured this outcome. Women exposed to sexual abuse were more likely to partake in a higher number of risky health related behaviours, such as smoking during pregnancy (Leeners et al., 2014). Similarly, mothers with a history of exposure to the MELA subtypes of physical or sexual abuse report increased difficulties in emotion regulation, impulsiveness and risk-taking during pregnancy (Moehler et al., 2009).

2.3.6 Maternal mental health outcomes

Thirteen studies reported on the relationship between MELA and maternal mental health outcomes. These outcomes included depression (both pre- and postnatal), suicidal ideation, emotion regulation, and dissociative experiences.

2.3.6.1 Perinatal depression

Of the N=13 studies that assessed the impact of MELA on maternal mental health outcomes during the perinatal period, N=7 measured depression. Of these N=7 studies, N=3 initially measured prenatal depression, N=2 assessed postnatal depression, and in two studies, both prenatal and postnatal depression were assessed. Overall exposure to MELA increased the risk of prenatal depression by up to 2.6 times (Lara et al., 2015). Exposure to sexual abuse heightened the risk of prenatal depression (Benedict et al., 1999). There is evidence that the impact of MELA is cumulative, as Barrios and colleagues (2015) found that MELA only predicted elevated rates of depression during pregnancy when the individual was exposed to both physical and sexual maltreatment. Similarly, MELA exposure was shown to have a cumulative effect on the risk of developing postnatal depression in the 2 of 4 studies that measured this outcome. As MELA exposure increased, the likelihood of postnatal depression generally increased between 2 and 4-fold (Nidey et al., 2020). In keeping, exposure to childhood sexual abuse was associated with postpartum depression (Nagl et al., 2017). Finally in two studies, no direct associations between MELA exposure and the risk of perinatal depression was found (De Venter et al., 2016; Seng et al., 2013). Overall, findings suggest that MELA predicts an elevated risk of depression during the perinatal period, with the MELA subtypes of sexual and physical abuse being particularly pertinent risk factors. It is noteworthy however that few studies measured the impact of the MELA subtype of emotional abuse, which likely co-occurs in the context of physical and sexual abuse.

2.3.6.2 Suicidal ideation

Three of three studies found an association between MELA exposure and elevated suicidal ideation during the perinatal period (Leeners et al., 2014; Levey et al., 2018; Zhang et al., 2020). However, analysis at the level of MELA sub-type was inconsistent. Leeners and colleagues (2014) found sexual abuse to be the greatest risk factor for suicidal ideation whereas Zhang and colleagues (2020) found physical abuse to be the strongest predictor.

2.3.6.3 Emotion regulation

MELA was consistently associated with disruptions to postpartum maternal emotion regulation in all three studies that explored this outcome (England-Mason et al., 2017, England-Mason et al., 2018, Marysko et al., 2010). Difficulties were related to using effective emotion regulation strategies, emotional awareness, and the clarity of understanding one's own emotions (England-Mason et al., 2017). Maternal emotion regulation difficulties are associated with an attentional bias in the context of emotional stimuli, such as reduced maternal responding to infant's displays of emotion (England-Mason et al., 2018). In a different study, MELA was associated with increased dissociative experiences (a lack of the normal integration of thoughts, feelings, and experiences into the stream of consciousness and memory) throughout the first year postpartum (Marysko et al., 2010).

2.3.7 Mediators of associations between maternal early life adversity exposure and adverse perinatal outcomes

The documented associations between MELA exposure and adverse perinatal outcomes suggest disruption to the processes of maternal programming. Biological and psychosocial mechanisms hypothesised to underpin the association between MELA exposure and adverse perinatal outcomes were not explicitly sought for in this review's search strategy. However, the relationship between MELA and potential mediating factors was identified by a sub-set of studies that met the inclusion criteria.

MELA and infant and maternal biological outcomes were reported on by N=11 studies that met the inclusion criteria. These studies typically tested biological markers (e.g., cortisol levels, placental outcomes, neurotransmitter outcomes, hormonal outcomes, and respiratory sinus arrhythmia reactivity) as mediators of the association between MELA exposure and adverse perinatal outcomes. Of these 11 studies, N=4 investigated the relationship between MELA exposure and altered maternal HPA axis functioning. Maternal cortisol levels were shown to be lower in mothers with a history of MELA exposure, both at baseline (Brand et al., 2010; Enlgand-Mason et al., 2017) and in response to a stressor paradigm (Juul et al., 2016). Infants of these mothers were also found to have lower baseline cortisol levels (Brand et al., 2010). Maternal emotion regulation difficulties were shown to partially mediate the association between MELA exposure and maternal HP axis functioning (England-Mason et al., 2017). Postnatal depressive symptoms further moderated the association between MELA exposure and maternal HP axis functioning (Brand et al., 2010). There is limited evidence testing associations between MELA sub-type, biological mechanisms, and adverse perinatal outcomes. One study found physical and sexual maltreatment but not emotional abuse to be associated with cortisol levels sampled from the hair of MELA exposed mothers (Schreier et al., 2015).

The hair of mothers with a history of MELA exposure has also been tested for altered neurotransmitter functioning (Koenig et al., 2018). In this study, significantly higher levels of the neurotransmitter 1-AG and significantly lower levels of Neurotransmitter SEA was documented in MELA exposed compared to non-MELA exposed mothers (Koenig et al., 2018). Both 1-AG and SEA are endogenous lipid-based retrograde neurotransmitters that have been linked to a lower availability of anti-inflammatory potential, chronic pain, and decreased pain tolerance. New-borns of MELA exposed mothers exhibited higher levels of 1-AG and N-oleoylethanolamide (OEA), an ethanolamide lipid agonist that regulates feeding and body weight (Koenig et al., 2018).

Placental corticotrophin-releasing hormone (pCRH) production is a further biological mechanism tested to explain the association between MELA exposure and adverse perinatal outcomes. Over gestation, significantly greater levels of pCRH were found in women exposed to MELA (Moog et al., 2016). Exposure to two types of maltreatment corresponded to an almost 25% increase in pCRH concentrations toward the end of gestation (Moog et al., 2016). Further biological mechanisms considered included parasympathetic nervous system response, as measured by respiratory sinus arrhythmia (Oosterman et al., 2018), thyroid dysfunction (Moog et al., 2017; Plaza et al., 2012), changes in maternal blood pressure (Bublitz et al., 2020) and alterations to C-reactive protein levels (Finy et al., 2018). The findings of these individual studies that highlight novel avenues for future research are summarised in Table 2.2.

Alongside biological mediators, psychosocial correlates of MELA exposure (e.g., maternal psychopathology and emotion dysregulation) that could potentially confound and/or mediate the observed associations were identified by all of the included studies. However, only 11 of 49 studies conducted statistical analyses that tested such psychosocial factors as mediating mechanisms. Pre-pregnancy emotional dysregulation was shown to mediate the association between MELA and the risk of miscarriage (Abajobir et al., 2018), with pre-pregnancy depression (De Venter et al., 2016; Seng et al., 2013) and pre-pregnancy obesity (Nagl et al., 2017) mediating the association between of MELA exposure and elevated rates of perinatal depression.

Across several perinatal outcomes, maternal pre- and/or postnatal depression was identified as a mediating mechanism. For example, maternal depression was shown to mediate the association between MELA exposure and infant negative affectivity at 6 months (McDonnell et al., 2016), elevated mother-infant interactional dysfunction (Lang et al., 2010), reduced infant growth (Choi et al., 2017), maternal rated mother-infant relationship difficulties (Choi et al., 2017; Seng et al., 2013), increased mother-infant relationship impairments (Muzik et al., 2013), increased maternal positive affect during mother-infant interactions (Morelen et al., 2016), and reduced parental confidence (Lang et al., 2010). Similarly, maternal perinatal anxiety mediated the association between MELA

exposure and infant negative affectivity (Agrati et al., 2015,) whereas current maternal PTSD symptoms strengthened associations between MELA exposure and increased mother-infant relationship impairments (Muzik et al., 2013; Muzik et al., 2017), and increased maternal positive affect during mother-infant interactions (Morelen et al., 2016). Overall, maternal psychopathology and emotion regulation difficulties have been the most widely tested mechanisms of effect in studies that have examined MELA exposure and adverse perinatal outcomes.

2.4 Discussion

In this review, the relationship between MELA exposure and adverse perinatal outcomes including pregnancy and obstetric, infant, quality of the care-giving environment, and maternal mental health, was explored. Hypothesised biological and psychosocial mechanisms identified in the included studies were synthesised. MELA was consistently associated with alterations in infant's emotional processing, parental child abuse potential, maternal emotional availability, impulsiveness and risk taking, suicidal ideation, and maternal emotion regulation difficulties. Analysis revealed that associations between MELA and adverse perinatal outcomes are influenced by MELA subtype, and biologically and psychologically mediated effects. Except for preterm delivery, associations between MELA exposure and childbirth outcomes, fear of childbirth, parenting anxiety, maternal rated mother-infant relationship quality, and parental sense of competence and parenting attitudes were inconsistent. In contrast, observational studies that have micro-analysed the quality of the mother-infant relationship have demonstrated that MELA exposure is associated with elevated interactional difficulties between mother and infant. MELA was consistently associated with difficulties in both maternal and infant emotion regulation and maternal emotional availability. Few studies investigated perinatal outcomes by MELA sub-type, but across those that did, exposure to emotional and sexual abuse during childhood were the most consistent predictors of adverse perinatal outcomes. This highlights a role of maltreatment-based early life adversity on poor perinatal outcomes.

Analysis of the included studies has shown that MELA exposure is associated with several highly correlated risk factors for adverse perinatal outcomes including pre-pregnancy psychopathology, SES, and substance use. Depending on the adverse perinatal outcome under investigation, the correlated risk factors have been found to attenuate (e.g., SES and substance use) or mediate (e.g., pre-pregnancy psychopathology) the association between MELA exposure and adverse perinatal outcome(s). For example, maternal psychopathology prior to the perinatal period has been shown to mediate the association between MELA exposure and difficulties in the mother-infant relationship as reported by mothers and observed by independent raters.

This review identifies several pre- and post-natal processes that are associated with MELA exposure, either directly, or via mediating mechanisms. Such disruption can affect the maternal programming process (St-Cyr et al., 2017). If exposure to MELA is directly impeding this process or doing so via psychosocial and/or biological mechanisms, then mothers may be less well prepared for parenthood. Given the interconnectedness of the perinatal outcomes captured in the current study (e.g., maternal and infant emotion regulation; adverse birth outcomes that negatively impact on mother and child), and the maternal programming process, including factors such as emotional processing (De Carli et al., 2019; Pearson et al., 2009; Thompson-Booth et al., 2014) and oxytocin levels (Byrne et al., 2019; Kim & Strathearn, 2016; Kohlhoff et al., 2017), it could be that associations between MELA and adverse perinatal outcomes at least in part reflect genetic and/or epigenetic mechanisms. This reflects the previously discussed literature on neural plasticity and epigenetic changes that can occur as a result of early life adversity. Future research should consider using genetically informative designs and investigating epigenetic mechanisms to further understand the association between MELA exposure and adverse perinatal outcomes.

2.4.1 Maternal early life adversity subtypes

In studies that explored MELA by sub-type, it was often found that exposure to different MELA sub-types influenced the risk of adverse perinatal outcomes in differing ways. It is noteworthy that in many studies, analyses at the level of MELA subtype were not reported, and therefore associations between MELA exposure and adverse perinatal outcomes are not fully understood. A problematic adversity sub-type frequently identified is maltreatment, reflected as particularly problematic by the Dimensional Model of Adversity and Psychopathology. Further identification of individual adversities such as physical, emotional, and sexual abuse, means that underlying associations may be detected that are not apparent when MELA is analysed as a binary or cumulative variable. Overall, the findings of this review indicate that childhood sexual abuse is particularly associated with adverse perinatal outcomes. Importantly, many studies do not fully explore emotional abuse. Childhood physical abuse is highly associated with emotional abuse (Brown et al., 2019), and being physically hurt by a trusted adult invariably has an impact upon emotional functioning (Miller-Perrin et al., 2009). Sexual, physical, and emotional abuse are all adversities which elicit changes in neural plasticity, cognitive biases, and disrupted fear response (Delgado et al., 2006; Ellis et al., 2022; Heleniak et al., 2016; McLaughlin et al., 2019; McLaughlin & Sheridan, 2016; Pollak et al., 2009 Weissman et al., 2019). Future research should continue to examine individual adversities, with particular focus on maltreatment adversities, to further understand the associated perinatal risk whilst accounting for the often-high co-occurrence of MELA subtypes.

2.4.2 Mediating pathways and directions for future research

In some studies, direct associations between MELA exposure and adverse perinatal outcomes were not detected. Rather, indirect pathways between MELA exposure, and adverse perinatal outcomes were reported. Across the adverse perinatal outcomes encompassed in this review, maternal perinatal depressive symptoms, emotion dysregulation difficulties and pre-

pregnancy psychopathology were found to mediate the association between MELA exposure and perinatal outcomes. Many psychosocial factors were identified as covariates by the included studies and were then statistically adjusted for within the analysis. These covariates included alcohol use (explored by N=5 papers), substance use (N=4), maternal age (N=4), education (N=31), smoking (N=3), and ethnicity (N=22). Exploring the potential mediating properties of such covariates may highlight further pathways of effects between MELA exposure and perinatal outcomes. Smoking and alcohol are consistently associated with exposure to early life adversity as discussed in Chapter 1. The prenatal exposure to maternal smoking and alcohol use has long been associated with biologically and psychologically mediated adverse infant outcomes (Bandoli et al., 2019; Schoeps et al., 2018; Shisler et al., 2017; Veisani et al., 2019). Future research should consider capturing the complex interplay between multiple co-occurring risk factors that are impacting on mother and infant.

Biological mechanisms hypothesised to underpin these associations were tested in just under 1 in 4 studies identified by the systematic literature search. Our ability to synthesise these disparate findings is compromised by the limited number of studies focusing on each potential mediating process and heterogeneity in study designs and methodology. Nevertheless, alterations to the functioning of the HPA axis, as indexed by altered cortisol functioning, has been consistently identified by a growing number of studies as a mediating mechanism in the context of MELA exposure and adverse perinatal outcomes. Additional biological mechanisms with theoretically plausible putative pathways have been identified including thyroid dysfunction (Moog et al., 2017; Plaza et al., 2012), changes to C-reactive protein and neurotransmitter levels (Finy et al., 2018; Koenig et al., 2018), and elevated pCRH production during gestation (Moog et al., 2016). These individual studies highlight novel avenues for future research in the context of MELA exposure and adverse perinatal outcomes. Findings are in keeping with review papers that highlight the mediating mechanisms between exposure to early life adversity and adverse biological and psychological

outcomes in adolescence and adulthood such as MELA and HPA axis functioning (Hunter et al., 2011) and cortisol levels and prenatal distress (Mustonen et al., 2018).

Psychosocial mediating pathways were explored within included studies. Current symptoms of maternal perinatal depression (Choi et al., 2017; Lang et al., 2010; McDonnell et al., 2016; Morelen et al., 2016; Muzik et al., 2013; Seng et al., 2013), anxiety (Agrati et al., 2015) and PTSD (Morelen et al., 2016; Muzik et al., 2013; Muzik et al., 2017) were identified as mediators of associations between MELA exposure and a range of adverse perinatal outcomes. Pre-pregnancy functioning has also been implicated, including pre-pregnancy emotional dysregulation (Abajobir et al., 2018), depression (De Venter et al., 2016; Seng et al., 2013) and obesity (Nagl et al., 2017). Thus, these findings highlight the possibility that at least in part, associations between MELA exposure and perinatal adversity may reflect genetic mechanisms in addition to other biological and environmentally mediated effects (e.g., the foetal programming hypothesis). For example, genetic risk factors have been implicated in multiple perinatal outcomes, including miscarriages (Laisk et al., 2020; Suzumori & Sugiura-Ogasawara, 2010), infant brain development (Qiu et al., 2017), and perinatal depression (Rantalainen et al., 2020; Tirumalaraju et al., 2020). Future research that uses genetically informative designs is needed to understand the complex interplay more fully between biological and psychological risk factors in the context of MELA exposure and subsequent perinatal adversity.

2.4.3 Strengths and limitations

A comprehensive literature search in line with PRISMA protocols identified many individual studies for review. The inclusion of studies that measured a broad number of outcomes for both the mother and infant, throughout both pregnancy and the postpartum period are strengths of this review. A meta-analysis was not conducted due to the small numbers of studies included in most outcome domains. However, the decision to include only research published in the English language potentially excludes many relevant studies in non-English speaking populations. The 'file drawer'

problem is also a potential limitation, as the search strategy did not focus on unpublished research, and as such, conclusions based on the association between MELA exposure and perinatal adversity may be over or indeed underestimated in the current study.

2.4.4 Implications for clinical practice and policy

The findings of this review suggest that a maternal history of early life adversity is associated with adverse perinatal outcomes for both the mother and the infant. This raises the debate of the potential benefits and risks of screening all mothers-to-be for MELA exposure to enable early intervention and prevention of adverse perinatal outcomes. It is noteworthy that screening raises important ethical and service level implications for health and social care workers conducting assessments of MELA exposure, such as if a mother were to report early life adversity that was perpetrated by someone still present in her life, or whether following detection, there were no universally available services to meet the identified need. Further guidance on screening and assessments of trauma can be explored from the Center for Substance Abuse Treatment (2014), and procedures used from screening for domestic violence during pregnancy (Saunders, 2000) should be considered. If screening and detection pathways were to be developed, the findings from this review indicate that particular focus should be given to adversity sub-type in relation to each perinatal outcome domain, although consistently, childhood sexual abuse and maltreatment-based adversity is associated with an elevated risk of adverse perinatal outcomes.

There are potential intergenerational implications of MELA exposure (Bert et al., 2009; Plant et al., 2018; Su et al., 2020; van de Ven et al., 2020). If the necessary early support and intervention is not put in place, the intergenerational cycle of MELA and perinatal risk will likely persist. It is therefore the case that the perinatal period represents an optimal time for detection and early intervention to prevent the intergenerational implications of early life adversity.

2.4.5 Implications for research

There is limited evidence for many outcome domains, making it difficult to draw strong conclusions and across perinatal outcome domains, different measures and procedures were used to assess the same outcome. There was large variability in the measures used to assess MELA, which may explain some of the inconsistent findings reported in the literature. Many studies relied on maternal self-report measures, which may introduce bias through parent's linguistic skills, cognitive ability, affect, or the tendency to respond in a socially desirable manner (Corcoran & Fischer, 2013). Almost all MELA and perinatal outcome measures were self-report, and all MELA measures were retrospectively reported which may reduce the quality of data through a lack of recall of events and attributional biases (Gerdner & Allgulander, 2009; Mizuki & Fujiwara, 2020). Observations of parent-infant interactions, clinical interviews, or access to medical records are recommended for greater accuracy and increased objectivity in the measurement of perinatal outcomes (Lotzin et al., 2015). However, observational methods and clinical interviews involve a higher investment in training, technical equipment, and vastly increased resources for data collection and analysis when compared to questionnaire-based studies (Bagner et al., 2012), which may explain the limited use of these research methods, particularly in studies with larger samples.

To ensure that research continues to further our knowledge of the impact of MELA, standardized measures of early life adversity should be used. The use of observational methods to assess the quality of the mother-infant relationship is strongly recommended, as despite the increased costs involved, the data obtained is far more detailed and reveals a different picture to maternal reports that are subject to attributional biases. Multi-method studies also address the issue of shared method variance where mothers report on both the exposure to MELA and the perinatal outcome(s). Larger sample sizes with appropriate power, using longitudinal designs with repeated measures would be useful for furthering understanding.

The review of maternal mental health outcomes highlighted the role that early life adversity has on primarily depression. Mediating psychosocial factors also have a large focus on the role of

depression at differing points in a mother's life on perinatal outcomes. Few other mental health conditions are considered in relation to the impact that early life adversity has on the likelihood of an episode of such other disorders during the perinatal period, or of the mediating impact that disorder symptomology has between early life adversity and perinatal outcomes. Research should therefore consider mental health beyond just depression.

2.4.6 Conclusion

MELA was consistently associated with difficulties in both maternal and infant emotional regulation and availability. Disturbances in relationships were shown between mother and infant when a history of MELA was present. MELA sub-types appear to impact perinatal outcomes in different ways. Exposure to childhood sexual abuse predicted the greatest disruption to perinatal outcomes, highlighting a key role of maltreatment adversity on the perinatal period. Biological mechanisms, such as HPA axis functioning and elevated pCRH production during gestation, as well as psychosocial mechanisms, such as maternal psychopathology, have been found to mediate some of the documented associations between MELA exposure and adverse perinatal outcomes, however replication is required. This review furthers our understanding of the impact of MELA on both the mother and infant during the perinatal period and highlights the need for appropriate identification of MELA history. However, variability in the measurement of MELA, and the limitations of each individual study, tempers the strength of conclusions. Replication of studies using longitudinal and genetically informative designs with in-depth observational and interview assessments would help consolidate the knowledge of risk and protective mechanisms.

2.5 Aims of the thesis

2.5.1 Aim 1: To examine the role that early life adversity plays on entry to parenthood and episodes of mental ill-health during the perinatal period

The literature currently present on the associations between early life adversity and perinatal outcomes shows maltreatment adversities as key predictors of poorer outcomes for mother and infant. However, a lack of synthesis relating to measures of adversity and perinatal outcomes limits the strength of conclusions that have been drawn. Gaps in the literature are present relating to the impact of early life adversity on some fundamental aspects of childbearing, namely entering parenthood, the age of entry to parenthood, and the number of children women have. Given that early life adversity, particularly maltreatment, is associated with both poorer perinatal outcomes but also riskier sexual behaviour and accelerated epigenetic maturation in adolescence it remains unclear as to the effect that such early life adversity would have on whether, when, and how often women would enter the perinatal period. Chapter 3 will explore whether entry to parenthood, age at entry to parenthood, and the number of children given birth to is impacted by early life adversity. Maltreatment adversities will be explored, alongside further household dysfunction-based adversities.

Furthermore, the literature on the associations between exposure to early life adversity and perinatal mental health is often limited to depression. Trauma related stress disorders, such as PTSD, as well as anxiety, psychotic, and mood disorders have been linked to exposure to early life adversity in non-perinatal samples (Carbone et al., 2019; Manyema et al., 2018; Sheffler et al., 2020). Chapter 3 will further the literature by examining the impact of exposure to early life adversity on episodes of mental ill-health among women diagnosed with these disorders before the perinatal period.

2.5.2 Aim 2: To examine the association between exposure to early life adversity and PTSD and CPTSD during the perinatal period, as well as the detection and treatment of these conditions by mental health services

In Chapter 4 it will be outlined how the Maternal Wellbeing, Mental Health and Life Experience (MWMHLE) study was developed to address the aims of the thesis. The association between exposure to maltreatment and household dysfunction adversities and PTSD and CPTSD symptoms among perinatal women who have entered parenthood since the onset of the COVID-19 pandemic will be examined. In Chapter 4, the frequency and detection of PTSD and CPTSD symptoms among women who entered the MWMHLE study will be examined and comparisons between women who either had, or had not, received mental health care and treatment during the current perinatal period will be conducted. The psychological, psycho-social and pharmacological interventions that this sample of women were offered will also be examined. Treatments discussed in Chapter 1 show that the risk associated with early life adversity and resulting symptomology can be effectively managed during the perinatal period. However, this can only occur if PTSD and CPTSD is accurately identified in mothers. Mothers' primary diagnosis by a mental health professional will therefore be compared to 'probable cases' of PTSD and CPTSD as identified by a standardised measure of these disorders.

2.5.3 Aim 3: To examine the impact of exposure to early life adversity, as well as PTSD, and CPTSD symptoms during the current perinatal period on physical and psychological related childbirth outcomes

In line with the focus of the thesis, the third empirical study (Chapter 5) will examine the impact that early life adversity has on childbirth related outcomes. Physical aspects of childbirth were highlighted in Chapter 2 as being potentially disrupted by exposure to early life adversity, but research was sparse. In Chapter 5, the MWMHLE study sample will be used to examine the impact of exposure to early life adversity, as well as PTSD and CPTSD symptoms on the physical and

psychological aspects of childbirth. Outcomes examined in Chapter 5 include those identified in the Systematic Review as requiring further investigation. These include preterm birth, physical indicators of the childbirth experience (e.g., the need for intrapartum interventions), the psychological experience of childbirth in terms of women's sense of agency, perceived safety, and experience of professional support, and participation in the birth.

2.5.4 Aim 4: To examine the frequency of PTSD and CPTSD symptoms during the perinatal period among trauma exposed women, and to examine the utility of the International Trauma Questionnaire in capturing these symptoms

The frequency of current probable PTSD and CPTSD will be explored within a perinatal sample of trauma exposed women. To accurately identify and explore trauma related stress disorder symptoms in the online MWMHLE study, the International Trauma Questionnaire (ITQ) is used. The International Trauma Interview (ITI) is a researcher administered in-depth assessment of the same symptom categories that the ITQ explores. Chapter 4 aims to identify frequency rates of PTSD and CPTSD using the ITQ. The aim of Chapter 6 is to use the ITI to support the symptomology collected via the ITQ. This chapter initially aimed to validate the ITI as a measure in the perinatal period specifically. However, due to recruitment difficulties that arose from COVID-19, a full validation study was not possible. The chapter, however, still enables a detailed exploration into the adversity history and current trauma related stress disorder symptoms of the sample.

In conjunction, these chapters will provide an insight into how prevalent early life adversity is in a current, UK, perinatal cohort. The frequency that such adversity generates resulting symptomology of PTSD, DSO, and CPTSD will also be examined. By understanding how often such symptomology is missed will provide an insight into the likelihood of mothers' receiving appropriate treatment and care for their adversity related disorders in the perinatal period. The role that early life adversity and PTSD, DSO, and CPTSD symptoms then plays on perinatal outcomes will be explored. These include factors surrounding entering parenthood, the age at which parenthood is

entered, and the number of children had. Perinatal episodes of mental health will be considered. Finally, childbirth will be assessed in terms of physical complications that arise and medical interventions required, as well as the psychological perception of the birth by mothers. This research will build on the current literature to explore the role of early life adversity, with focus on specific sub-types of adversity, and resulting symptomology, on perinatal physical, mental, and psychological outcomes.

Chapter 3 – The Role of Adverse Childhood Experiences on Perinatal Outcomes

3.1 Introduction

Early life adversity has been found to be associated with a range of poor perinatal outcomes as shown in the systematic review presented in Chapter 2. It could therefore be hypothesised that women exposed to early life adversity differ in childbearing outcomes. This can include whether or not women enter into parenthood, age at first birth, and the number of children women give birth to. However, research into the area is extremely limited. As highlighted in the systematic literature review in the prior chapter, maternal exposure to maltreatment-based adversities is consistently associated with elevated rates of perinatal depression. In comparison, there is a dearth of research examining the impact of exposure to early life adversity on episodes of mental ill-health during the perinatal period for other mood, anxiety, psychotic, and trauma related stress disorders.

Adverse Childhood Experiences (ACEs) are defined as being experienced by an individual before the age of 18, and include maltreatment (physical abuse, sexual abuse, emotional abuse, emotional neglect, and physical neglect), and household dysfunction (HD) (having an abused mother; parent's divorced; parental substance abuse; parental mental illness; parental imprisonment) (Dong et al., 2004). As discussed in Chapter 1, exposure to all forms of ACEs have been associated with an increased risk of developing mental health problems in later life (Jones et al., 2018; Schilling et al., 2007). This includes an increased risk for depression (Poole et al., 2017), suicide (Fuller-Thomson et al., 2016), illicit drug use (Tilson, 2018), and alcohol abuse (Crouch et al., 2018). In line with theoretical models of the impact of different forms of adversity outlined in Chapter 1, and the findings of the systematic literature review reported in Chapter 2, it is evident that different adverse childhood experiences can impact later life outcomes in different ways, with maltreatment-based adversity carrying particular risk.

Exposure to maltreatment-based adversity has been shown to lead to lower levels of education, employment, earnings, and general assets as adults (Currie et al., 2010), as well as an increased likelihood of experiencing poverty (Lacey & Minnis, 2020, Walsh et al., 2019). All of these factors have been associated with an increased likelihood of teenage pregnancy (Chung et al., 2018; Cook & Cameron, 2020; Harding, 2003; Penman-Aguilar et al., 2013). Additionally, exposure to maltreatment adversities have been shown to be associated with accelerated biological aging in studies that include measures of pubertal development and cellular aging, (Colich et al., 2020; Lawn et al., 2018; Marini et al., 2020; McLaughlin et al., 2020; Simons et al., 2016; Sumner et al., 2019). Thus, it is possible that mothers exposed to maltreatment adversity matured earlier and enter parenthood at a younger age (Laursen et al., 2020, Martinez et al., 2017). This could have clinical implications as teenage pregnancy is associated with an increased risk of negative pregnancy outcomes such as infant mortality (Ratnasiri et al., 2020; Tabberer et al., 2000, Tavares, 2017; Whitworth & Cockerill, 2010), and preterm birth (Khashan et al., 2010; Olausson et al., 1999). Furthermore, teenage pregnancy is associated with delivery complications including preeclampsia, and postpartum haemorrhage (Cavazos-Rehg et al., 2015, Leppälahti et al., 2013), decreased birthweight (Johnson et al., 2017; Li et al., 2018; Marvin-Dowle et al., 2018; Whitworth & Cockerill, 2010), drug and alcohol use during pregnancy (Wong et al., 2020), and mother-infant relationship problems (Nicolson et al., 2013, Pomerleau et al., 2003, Rowe et al., 2013). In light of the evidence outlined previously, exposure to early life maltreatment adversity likely reduces the age at which women enter parenthood, despite the potential negative perinatal outcomes that come from both the maltreatment-based adversity and entry to parenthood at a younger age. However, research is often limited to looking only at teenage pregnancies. One aim of the present study is to assess the relative role of adversities on age of entry into parenthood beyond the teenage years. Given most childbearing outcome research relating to ACEs has focused on teenage pregnancies, this study includes women across the childbearing age range and examines the association between ACE

exposure and: [1] whether women entered parenthood or not; [2] the age at first entry to parenthood; and [3] the number of children women gave birth to.

In non-perinatal populations, clusters of ACEs have been associated with specific psychiatric disorders and severity of symptoms. Maltreatment-based adversities have been associated with greater symptomatic severity than HD ACEs in individuals diagnosed with bipolar and psychotic disorders (Carbone et al., 2019). Further, maltreatment-based adversities have been shown to disrupt the typical development of adaptive emotion regulation processes giving rise to maladaptive coping strategies (Sheffler et al., 2020). Not only do maltreatment-based ACEs increase the likelihood of experiencing poorer mental health and increased psychological distress in adulthood (Manyema et al., 2018), but maltreatment-based adversities are also associated with poorer responses to exposure to later life stressors (Karatekin, 2018; McElroy & Hevey, 2014).

A growing body of research indicates that maternal mental ill-health can negatively impact infant development (Dean et al., 2018; Durkan et al., 2015; Gelaye et al., 2016 Martini et al., 2017; Maselko et al., 2020; Stein et al., 2014; Waters et al., 2014) meaning that it is important to consider factors that may increase the likelihood of episodes of mental ill-health during the perinatal period. Given that exposure to ACEs predicts poorer coping to stressful life events and increases mental health problems in non-perinatal populations (Karatekin, 2018; Manyema et al., 2018; McElroy & Hevey, 2014; Sheffler et al., 2020), consideration needs to be given to the impact of ACEs on mental wellbeing during the perinatal period. Exposure to maltreatment-based ACEs has been shown to increase the probability of antenatal depression (Ångerud et al., 2018; Plant et al., 2013) and postnatal depression (Plant et al., 2017; Silverman & Loudon, 2010), and maternal exposure to childhood emotional abuse predicts poorer mother-infant bonding (Farré-Sender et al., 2018; Muzik et al., 2013). As shown in the review of the literature in Chapter 2, much of the research on maternal mental health is limited to depression. It is estimated that around 9000 (270 per 1000 maternities) women experience perinatal mental health problems in Wales each year (Jones et al., 2018), with perinatal anxiety experienced by 5000 (150 per 1000 maternities), perinatal depression by 3600 (110

per 1000 maternities), perinatal PTSD by 250 (8 per 1000 maternities) and postpartum psychosis by 50 (1-2 per 1000 maternities) women each year. These findings highlight the importance of understanding the impact of specific ACEs on perinatal mental health outcomes as well the need to broaden the focus beyond perinatal depression to encompass other mood, anxiety, psychotic, and trauma related stress disorder conditions.

3.1.1 Aims of the study

This study investigated the impact of exposure to maternal early life adversity on:

[1] The likelihood of entering parenthood.

[2] The age at entry to parenthood.

[3] The number of children given birth to.

[4] The likelihood of experiencing an episode of mental ill-health during the perinatal period among women diagnosed with a mood, anxiety, psychotic or trauma-related stress disorder.

Exposure to early life adversity is explored in relation to all childbearing and mental health related outcomes in order to assess differential associations. Early life adversity is defined in terms of forms of maltreatment and household dysfunction specifically. The impact of individual ACEs will also be considered.

3.2 Methods

3.2.1 Sample

Participants were recruited via the National Centre for Mental Health (NCMH), a Health and Care Research Wales, Welsh Government research collaboration between Cardiff, Swansea, and Bangor Universities. The centre is run in partnership with National Health Service (NHS) Health Boards and Trusts across Wales and England and investigates neurodevelopmental and psychiatric disorders. Participants were volunteers, recruited via both systematic approaches within primary and secondary health care services, and non-systematic recruitment approaches, such as online and

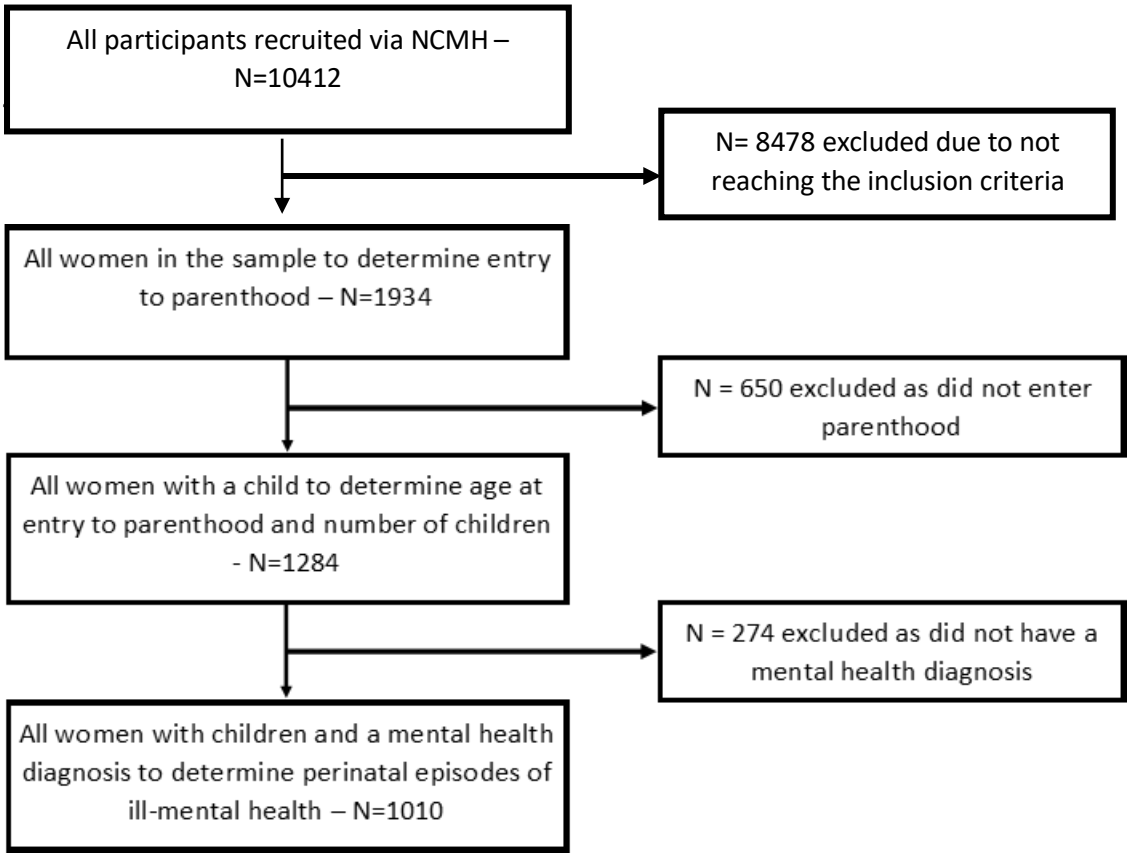
localised advertising campaigns. Many of the participants, although not all, have experienced a mental health condition. Participants were recruitment via these methods for this study between 2010 and 2020, with N=1934 women reaching the inclusion criteria.

3.2.2 Procedure

Participants were asked to complete a pack of standardised, validated questionnaire measures as part of the NCMH assessment. This assessment took place via a face-to-face interview with a researcher. The NCMH assessment includes background and demographic information, as well as questions about participants' own and their family's physical and mental health history.

To assess the effect of ACEs on childbearing outcomes, including the likelihood of entering parenthood, age at first birth, and the number of children given birth to, inclusion criteria for research aim 1 were participants being female, being over the age of 18, and had completed the NCMH assessment, specifically the Adverse Childhood Experience (ACEs) Study Scale (Felitti et al., 1998), one of the standardised questionnaires participants completed as part of the initial assessment. For research aim 1 which explores the effect of ACEs on entering parenthood, N=1934 participants reached the inclusion criteria. Research aims 2 onwards required participants to have met the inclusion criteria of research aim 1, as well as having had at least one live birth. Therefore, for research aims 2 and 3, which explored the effect of ACEs on age at entry to parenthood and the number of children given birth to, N=1284 participants reached the required inclusion criteria. Research aim 4 examined the impact of ACE exposure on the risk of experiencing an episode of mental ill-health during the perinatal period amongst participants who had a psychiatric diagnosis at some point in their life. Participants were therefore required to have, in addition to the inclusion criteria of research aims 2 and 3, a mental health diagnosis. N=1010 women reached this inclusion criteria. Participation numbers can be seen in Figure 3.1.

Figure 3.1. The procedure and numbers of participants in Chapter 3



3.2.3 Measures

Socio-demographic characteristic measures:

The NCMH standardized face-to-face interview captured these variables. This included information on; ethnicity (white or non-white, due to low numbers of non-white participants); education (7 categories ranging from 'No Qualifications' to 'Degree level or above'); employment (coded as currently employed (including self-employed) or not); and household income (in £10,000 categories ranging from <£20,000, to >£100,000).

Childbearing Outcomes:

Entry to parenthood. This outcome was defined as whether women had self-reported during interview that they had given birth to at least one live child or not. This definition is in line with other birth cohort studies (Fraser et al., 2013).

Age at entry into parenthood. This outcome was defined as the age at which women gave birth to their first live child, calculated in years and days.

Number of children. This outcome was defined as the number of live children women had given birth to.

Mental health related measures:

Diagnoses of mental health conditions were collected via the standardized NCMH interview. Participants were asked to self-report if they had been given any psychiatric diagnoses by a healthcare professional. Where there was uncertainty surrounding a diagnosis, verification was sought from individual's clinical care team if appropriate consent had been given to do so. Categorisation of disorders was based on a list devised by the project team in line with ICD and DSM classification systems to reflect the main diagnostic categories and is as follows: Depression (Depressive Disorder Recurrent; Depressive Disorder Single; Depressive Disorder not otherwise specified; Schizoaffective Disorder; Antenatal Depression; Postnatal Depression); Bipolar (Bipolar I; Bipolar II; Schizoaffective Bipolar; Bipolar other, Cyclothymia, Mania); Psychotic (Schizophrenia; Psychosis not otherwise specified; other Psychotic Illness; Postpartum Psychosis); Anxiety (Generalized Anxiety Disorder; Anxiety other; Panic Disorder; Agoraphobia; Specific Phobia; Social Phobia); and/or Post Traumatic Stress Disorder.

Episodes of mental ill-health during the perinatal period were captured during interview. Participants were asked about their experience of episodes of mental ill-health, whether they had been given a psychiatric diagnosis by a mental health professional, and what this diagnosis was from all disorders listed above. Options were provided to answer if participants had experienced such episodes during a current or previous perinatal period (during pregnancy and/or the first year postpartum) or whether they had only experienced such episodes outside of the perinatal period.

Adverse Childhood Experiences – (Felitti et al., 1998)

Types of early life adversity was captured via the Adverse Childhood Experience (ACE) Questionnaire. The ACEs Study Scale is a 10-item self-report questionnaire that collect information

on maltreatment (abuse (emotional, physical, or sexual), neglect (emotional or physical)) or household dysfunction (HD) (parental separation or divorce, having an abused mother or a substance abusing, criminal, or mentally ill parent) exposure before the age of 18 (Chapman et al., 2004). Such self-report measures of these types of ACEs have been shown to be sufficiently valid despite levels of under-reporting and bias, (Hardt & Rutter, 2004). Each maltreatment and HD ACE can be explored in terms of its effect on the outcomes measured. The Cronbach's alpha value of items on the scale ranged between 0.75-0.77 with a Cronbach's alpha value for the total score of the ACE scale was 0.742 showing good reliability throughout (Gunduz et al., 2018).

3.2.4 Statistical analysis

Descriptive statistics (e.g., means, standard deviations, medians, and percentages) are reported to characterise the data. Correlation matrices were created where predictors were examined with the Pearson's correlation coefficient in relation to the outcome. Significant correlations were included within the regression analyses that followed.

Research aim 1, entry to parenthood:

A binary logistic regression was used to compare the role of maltreatment and HD ACEs in predicting entry to parenthood, as is common in healthcare analysis (Maroof, 2012; Park, 2013). In addition, the association between each individual ACE and entry to parenthood was assessed with binary logistic regression analysis to produce the individualised odds ratio and confidence intervals following adjustment for covariates. All ten ACEs, as well as education, employment, ethnicity, and income were placed into the regression model simultaneously. An Exp (β) score is generated from the binary logistic regression models from which an odds ratio of the association between predictor and outcome can be determined. An Exp (β) score between 0-1 indicates a reduced likelihood, with a score of 0.5 for example indicating that exposure to the specific predictor is associated with only a 50% likelihood of entering parenthood. A score of above 1 indicates an increase in the likelihood of entering parenthood, with a Exp (β) score of 2.5 indicating a two-and-a-half-fold increase in the

likelihood of the outcome occurring (Maroof, 2012; Norton & Dowd, 2018; Park, 2013). As the value of Exp (β) increases or decreases away from 1, the association grows increasingly stronger (Chen et al., 2010).

Research aim 2, age at first entry to parenthood:

Linear regression was conducted to assess the impact of the ACE subtypes (maltreatment and HD) on age at entry to parenthood. A further linear regression analysis was run to assess the unique association between each individual ACE and age at entry to parenthood while controlling for the impact of the other ACEs and significantly correlated covariate variables, with predictors added to the model simultaneously. A Beta weight (β) estimate score is generated from the linear regression models from which the change in age at entry to parenthood can be determined based off exposure to the ACE. A β score below 0 indicates a reduced age of entry to parenthood, with a score of -1.5 for example indicating that exposure to the specific predictor is associated with a reduction in age of 1.5 years at entry to parenthood. A score of above 0 indicates an increase in the age of entering parenthood, with a β score of 2.5 indicating a 2.5-year increase in the age at which parenthood is entered if exposure to the ACE had occurred (Chen et al., 2010).

Research aim 3, number of children:

Linear regression was also used to assess the impact that ACE subtype (maltreatment and HD) had on the number of children that mothers had given birth to. A further linear regression analysis was run to assess the unique role of each individual ACE in the model whilst controlling for the other ACEs and significant covariates, with predictors added to the model simultaneously.

Research aim 4, episodes of perinatal mental ill-health:

A binary logistic regression was used to examine the impact of the maltreatment and HD ACE subgroups on the risk of an episode of mental ill-health during the perinatal period. The unique association between each individual ACE and the risk of an episode of mental ill-health during the perinatal period was further assessed in a second model with binary logistic regression analysis to produce an Exp (β) and significance score. These analyses were conducted for each group of

psychiatric disorders (e.g., depression, anxiety, bipolar, psychosis, PTSD) whilst controlling for the other ACEs and significant covariates in the regression model, with predictors added to the model simultaneously.

3.3 Results

Table 3.1 Inter-correlations between ACEs, identified covariates, and childbearing and mental health outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.**Maltreatment ACEs**	---													
2.**HD ACEs**	.001	---												
3.**Ethnicity**	-.031	.049*	---											
4.**Education**	-.062**	-.048*	.016	---										
5.**Income**	-.067**	.107**	.018	-.096**	---									
6.**Employment**	.113*	.050	.042	-.442**	-.178**	---								
7.**Biological children**	.001	-.035	-.051*	-.142**	-.002	.075**	---							
8.**Age at entry to parenthood**	-.079**	-.173**	-.010	.302**	-.127**	-.216**	.011	---						
9.**Number of children**	.040	.001	-.035	-.177**	.012	.153**	.694**	-.300**	---					
10.**Perinatal depressive disorders**	.003	-.011	-.075**	-.011	-.028	-.018	.097**	.038	.105**	---				
11.**Perinatal anxiety disorders**	.011	-.011	-.047*	-.004	-.017	-.161**	.019	.008	-.016	-.258**	---			
12.**Perinatal bipolar disorders**	.029	.046*	.052*	-.032	.020	.210**	-.026	-.062*	-.029	-.359**	-.154**	---		
13.**Perinatal psychosis disorders**	-.003	.058*	-.070**	-.059*	.112**	.118**	-.094**	-.006	-.091**	-.187**	-.080**	-.112**	---	
14.**Perinatal PTSD disorders**	.057*	.051*	.003	-.024	.017	.080**	-.003	-.039	.005	-.210**	-.090**	-.126**	-.065**	---

N=1937, *p≤.05, **p≤.01 – correlations between dichotomous variables were kappas.

3.3.1 Socio-demographic characteristics

Socio-demographic characteristics of participants, childbearing outcomes, and ACE exposure can be seen in Table 3.2.

Table 3.2. Socio-demographic characteristics and exposure to early adversity among women in the NCMH sample (N=1934)

	Variables	Whole sample	Entered parenthood	Did not enter parenthood
Number of participants		1934	1284 (66.4%)	650 (33.6%)
Median number of children (range)		N/A	2 (1-9)	N/A
Mean age at entry to parenthood (range)		N/A	25.5 (14-48)	N/A
Ethnicity	Arab	1 (0.1%)	1 (0.01%)	0
	Asian	10 (0.5%)	5 (0.4%)	5 (0.8%)
	Black	7 (0.4%)	4 (0.3%)	3 (0.5%)
	Mixed	24 (1.2%)	12 (0.9%)	12 (1.8%)
	White	1862 (96.3%)	1246 (97.1%)	616 (94.7%)
	Other	10 (0.5%)	7 (0.5%)	3 (0.5%)
	Unknown	20 (1.0%)	9 (0.7%)	11 (1.7%)
ACE exposure	Any Maltreatment ACEs	1136 (58.7%)	757 (59.0%)	379 (58.3%)
	Emotional Abuse	771 (39.8%)	516 (40.2%)	255 (39.2%)
	Physical Abuse	530 (27.4%)	392 (30.5%)	138 (21.2%)
	Sexual Abuse	500 (25.8%)	342 (26.6%)	158 (24.3%)
	Emotional Neglect	793 (41.0%)	524 (40.8%)	269 (41.4%)
	Physical Neglect	206 (10.6%)	151 (11.8%)	55 (8.5%)
	Any Household Dysfunction ACEs	1188 (61.4%)	766 (59.7%)	422 (64.9%)
	Prison	108 (5.6%)	74 (5.8%)	34 (5.2%)
	Divorce	579 (29.9%)	350 (27.3%)	229 (35.2%)
	Substance Abuse	410 (21.2%)	277 (21.6%)	133 (20.5%)
	Mental Illness	838 (43.3%)	533 (41.5%)	305 (46.9%)
	Mother Abused	263 (13.6%)	187 (14.6%)	76 (11.7%)

3.3.2 Entering parenthood

Maltreatment ACEs and HD ACEs were compared to determine the differential impact of these ACE categories on entry into parenthood. Tables 3.3 shows the findings. Associations with individual ACEs were then compared as shown in Table 3.. Ethnicity, education, and employment were factored into the model as significant covariates identified in Table 3.1.

Table 3.3. The effect of maltreatment and household dysfunction ACEs on entry to parenthood

Entry to parenthood	Mean Maltreatment ACEs (SD)	Wald	P value	Exp (β) (95% C.I.)
Yes	1.45 (1.56)	.113	.737	.987 (.916 - 1.064)
No	1.45 (1.56)			
Ethnicity		.107	.744	.950 (.526 – 2.462)
Education		22.473	≤.001*	.828 (.766 - .895)
Employment		.185	.667	1.069 (.789 – 1.448)
Model		115.186	≤.001*	1.886 (1.213 – 2.441)
Entry to parenthood	**Mean HD ACEs (SD)**	**Wald**	**P value**	**Exp (β) (95% C.I.)**
Yes	1.11 (1.20)	1.064	.302	.950 (.861 - 1.048)
No	1.20 (1.19)			
Ethnicity		.135	.713	1.156 (.524 – 2.505)
Education		22.884	≤.001*	.827 (.765 - .894)
Employment		.172	.678	1.066 (.788 – 1.443)
Model		115.186	≤.001*	1.886 (1.213 – 2.441)

Table 3.4. The effect of individual ACEs on entry to parenthood

ACE		Entry to parenthood		Multivariate Analysis		
		Yes	No	Wald	P Value	Exp (β) (95% C.I.)
Emotional Abuse	Yes	516 (66.9%)	255 (33.1%)	3.914	.048*	.703 (.495 - .997)
	No	768 (66.1%)	394 (33.9%)			
Physical Abuse	Yes	392 (74.0%)	138 (26.0%)	22.221	≤.001*	2.477 (1.699 - 3.612)
	No	889 (63.5%)	510 (36.5%)			
Sexual Abuse	Yes	342 (68.4%)	158 (31.6%)	.313	.576	1.088 (.809 - 1.464)
	No	930 (65.8%)	484 (34.2%)			
Emotional Neglect	Yes	524 (66.1%)	269 (33.9%)	1.276	.259	.837 (.650 to 1.248)
	No	754 (66.4%)	381 (33.6%)			
Physical Neglect	Yes	151 (73.3%)	55 (26.7%)	.120	.729	1.090 (.670 - 1.774)
	No	1130 (65.5%)	594 (34.5%)			
Mother Abused	Yes	187 (71.1%)	76 (28.9%)	.964	.326	1.234 (.811 - 1.880)
	No	1090 (65.6%)	571 (34.4%)			
Parent's Divorced	Yes	350 (60.4%)	229 (39.6%)	8.099	.004*	.662 (.499 - .880)
	No	915 (68.7%)	416 (31.3%)			
Parental Substance Abuse	Yes	277 (67.6%)	133 (32.4%)	1.555	.212	1.245 (.882 - 1.755)
	No	1003 (66.0%)	516 (34.0%)			
Parental Mental Illness	Yes	533 (63.6%)	305 (36.4%)	2.731	.098	.802 (.617 - 1.042)
	No	744 (68.4%)	344 (31.6%)			
Parental Imprisonment	Yes	74 (68.5%)	34 (31.5%)	.051	.821	.934 (.519 - 1.683)
	No	1209 (66.2%)	616 (33.8%)			
Ethnicity				.002	.963	1.020 (.449 – 2.314)
Education				16.664	≤.001*	.841 (.774 - .914)
Employment				.001	.978	.996 (.722 – 1.373)
Model				104.927	≤.001*	1.854 (1.221 – 2.103)

Neither cumulative maltreatment ACEs nor cumulative HD ACEs were significant predictors of whether or not a woman entered parenthood. Education was found be a significant predictor of entry to parenthood in both the maltreatment and HD ACEs model, with lower education predicting increased likelihood of entering parenthood. When individual ACEs were factored in, women who were exposed to physical abuse prior to age 18 were shown to have a 2.48 (C.I.=1.70 to 3.61) increased likelihood of entering parenthood. Women exposed to emotional abuse prior to age 18 and women whose parents had divorced, were found to have a reduced likelihood of entering parenthood, with the likelihood being over 30% less for each, as shown in Table 3.4. Thus, the specific form of maltreatment-based childhood adversity that women were exposed to impacts

entry to parenthood in differing directions. Additionally, education once again significant predicted entry to parenthood, with lower education predicting increased likelihood of entering parenthood.

3.3.3 Age at entering parenthood

Logistic regression examined the association between the broad ACE categories (maltreatment and household dysfunction) and age at entry to parenthood, as shown in Table 3.5. The impact of each individual ACE on the age at entry to parenthood is reported in Table 3.6.

Table 3.5. The effect of maltreatment and household dysfunction ACEs on age at entry to parenthood

ACE category	β (95% C.I.)	T (df)	P value
Maltreatment	-.229 (-.463 to -.004)	-1.089 (1273)	.045*
Education	.864 (.648 – 1.080)	7.865 (1273)	≤.001*
Income	.031 (-.085 - .148)	.527 (1273)	.598
Employment	-.613 (-1.584 - .359)	-1.239 (1273)	.216
Model	33.195 (20.056 – 24.334)	20.373 (1273)	≤.001*
HD	-.718 (-1.025 to -.410)	-4.586 (1273)	≤.001*
Education	.823 (.609 – 1.037)	7.547 (1273)	≤.001*
Income	.058 (-.058 - .174)	.986 (1273)	.325
Employment	-.645 (-1.601 - .311)	-1.324 (1273)	.186
Model	22.871 (20.736 – 25.007)	21.023 (1273)	≤.001*

Table 3.6. The effect of individual ACEs on age at entry to parenthood

ACE		Mean age at entry to parenthood (SD)	Linear Regression β (95% C.I.)	P Value
Emotional Abuse	Yes	24.68 (5.476)	.051 (-1.081 - 1.182)	.930
	No	26.09 (5.364)		
Physical Abuse	Yes	24.41 (5.503)	-.436	.454

	No	26.02 (5.360)	(-1.579 - .706)	
Sexual Abuse	Yes	24.09 (5.357)	-1.487 (-2.376 - -.599)	≤.001*
	No	26.08 (5.374)		
Emotional Neglect	Yes	24.59 (5.512)	-.228 (-1.285 - .730)	.641
	No	26.18 (5.333)		
Physical Neglect	Yes	23.49 (5.422)	.150 (-1.185 - .730)	.825
	No	25.80 (5.402)		
Mother Abused	Yes	23.28 (5.241)	-1.227 (-2.423 - -.030)	.044*
	No	25.94 (5.389)		
Parent's Divorce	Yes	24.49 (5.210)	-1.023 (-1.917 - -.128)	.025*
	No	25.93 (5.479)		
Parental Substance Abuse	Yes	24.41 (5.638)	-.622 (-1.612 - .369)	.218
	No	25.81 (5.327)		
Parental Mental Illness	Yes	25.13 (5.509)	.112 (-.699 - .922)	.787
	No	25.80 (5.373)		
Parental Imprisonment	Yes	23.38 (4.918)	.699 (-1.117 - 2.515)	.450
	No	25.65 (5.454)		
Education	.798 (.570 – 1.025)	≤.001*		
Income	.067 (-.052 - .187)	.268		
Employment	-.257 (-1.259 - .745)	.614		
Model	22.870 (20.643 – 25.097)	≤.001*		

The cumulative effect of an increase in exposure to maltreatment ACEs was associated with a significant reduction in the age of entry to parenthood. Each additional maltreatment ACE exposed to was associated with a reduction in the age of entry to parenthood by 0.23 (C.I.=0.46 to 0.01) years. Similarly, an increase in HD ACEs was significantly associated with a reduction in the age of entry to parenthood, with each HD ACE exposed to associated with a reduction in the age of entry to parenthood by 0.72 (C.I.=1.03 to 0.41) years.

Being sexually abused, having an abused mother, and having divorced parents prior to the age of 18 independently predicted age at entry to parenthood. Sexual abuse reduced the age of entry to parenthood by 1.50 (C.I.=2.38 to 0.60) years, having an abused mother by 1.23 (C.I.=2.42 to

0.30) years and having divorced parents by 1.02 (C.I.=1.92 to 0.12) years.. In all 3 models, education was found to be a significantly influential covariate, with each increase in educational attainment level predicting an increased age at entry to parenthood by 0.86 (C.I.=0.65 to 108) years in the maltreatment model, 0.82 (C.I.=0.61 to 1.04) years in the HD model, and 0.80 (C.I.=.57 to 1.03) years in the individual ACEs model.

3.3.4 Number of children

In a linear regression model, the maltreatment and HD ACE categories were compared in their prediction of the number of children that women had given birth to, (Table 3.7). The unique effect of each individual ACE in predicting the number of children women had given birth to was assessed in a subsequent linear regression model, (see Table 3.8).

Table 3.7. The effect of maltreatment and household dysfunction ACEs on number of children

ACE category	β (95% C.I.)	T (df)	P value
Maltreatment	.051 (.001 to .101)	2.019 (1281)	.044*
Education	-.033 (-.078 - .011)	-1.464 (1281)	.144
Employment	.331 (.136 - .526)	3.333 (1281)	≤.001*
Model	1.744 (1.305 – 2.182)	7.808 (1281)	≤.001*
HD	.024 (-.041 to .089)	.721 (1281)	.471
Education	-.034 (-.079 - .010)	-1.510 (1281)	.131
Employment	.347 (.153 - .542)	3.505 (1281)	≤.001*
Model	1.779 (1.336 – 2.222)	7.880 (1281)	≤.001*

Table 3.8. The effect of individual ACEs on number of children

ACE	Linear Regression β (95% C.I.)	P Value
Emotional Abuse	.002 (-.235 to .238)	.988
Physical Abuse	.102 (-.135 to .340)	.398
Sexual Abuse	.392 (.206 to .577)	≤.001*
Emotional Neglect	.113 (-.087 to .313)	.269
Physical Neglect	-.184 (-.465 to .097)	.199
Mother Abused	-.047 (-.298 to .204)	.714
Parent's Divorce	-.019 (-.209 to .171)	.844
Parental Substance Abuse	.013 (-.197 to .223)	.904
Parental Mental Illness	-.049 (-.219 to .121)	.569
Parental Imprisonment	-.123 (-.489 to .243)	.509
Education	-.031 (-.077 - .016)	.194
Employment	.308 (.108 – .508)	.003*
Model	1.693 (1.243 – 2.143)	≤.001*

At the sample level, and irrespective of ACE exposure, the median number of children that women gave birth to was 2. A cumulative effect of maltreatment ACEs was observed in the prediction of the number of children that women had given birth to. For each maltreatment ACE exposed to, the number of children that women had increased by .05 (C.I.=.01 to .10). In contrast, the cumulative HD ACE variable did not significantly predict the number of children that women had given birth to. For the individual ACE analysis, linear regression showed that exposure to sexual abuse was the only individual ACE that independently predicted the number of children that

mothers had given birth to. Mothers with exposure to sexual abuse were shown to have a .39 (C.I.=.21 to .58) more children than women not exposed to sexual abuse.

Across all models, employment was a significant predictor of number of children. In the model with maltreatment ACEs, being employed predicted .33 (C.I.=.14 to .53) more children than unemployment. Similarly, in the HD model and individual ACE model, .35 (C.I.=.15 to .54) and .31 (C.I.=.11 to .51) more children were predicted than in unemployed participants.

3.3.5 Perinatal episodes of mental ill-health

Participants were (N=1010) parous women diagnosed with a mental health condition. Women who had given birth to at least 1 child and had a mental health diagnosis reported giving birth to a median number of 2 children and a mean age of 25.43 years when they first entered parenthood. Table 3.9 reports the proportion of women by mental health condition who did and did not report an episode of mental ill-health during the perinatal period.

Table 3.9. Frequency and percentages of participants by diagnosis group who experienced an episode of mental ill-health during the perinatal period

Disorder type	Total number (percentage) of sample with disorder	Number (percentage) of women with the disorder who did not have a perinatal episode	Number (percentage) of women with the disorder who did have a perinatal episode
Depression	523 (51.8%)	250 (47.8%)	273 (52.2%)
Bipolar	217 (21.5%)	98 (45.2%)	119 (54.8%)
Psychosis	51 (5.0%)	30 (58.8%)	21 (41.2%)
Anxiety	132 (13.1%)	79 (59.8%)	53 (40.2%)
PTSD	87 (8.6%)	38 (43.7%)	49 (56.3%)
Total	**1010**	**495 (49.0%)**	**515 (51.0%)**

3.3.5.1 Depressive disorders

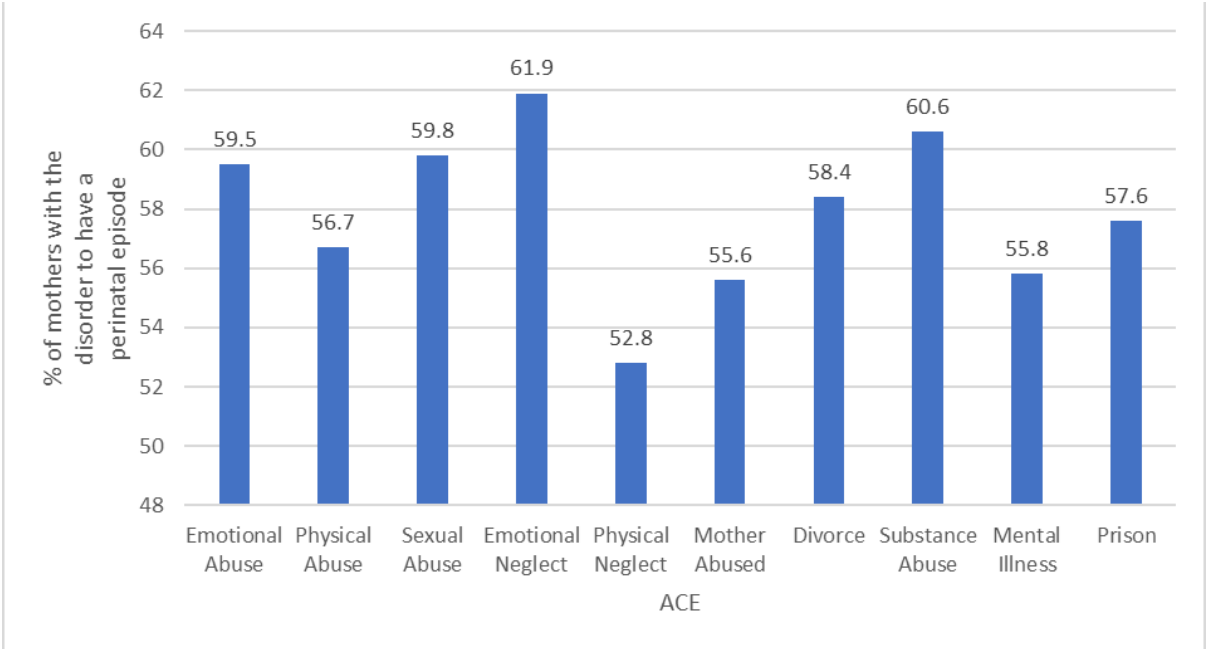
For women with a primary diagnosis of a depressive disorders (N=523), the frequency of ACE exposure can be seen in Table 3.10.

Table 3.10. The frequency and percentages of ACE exposure in mothers with depressive disorders

ACE	Frequency (%)
Emotional Abuse	215 (41.1%)
Physical Abuse	164 (31.4%)
Sexual Abuse	132 (25.2%)
Emotional Neglect	218 (41.7%)
Physical Neglect	53 (10.1%)
Abused Mother	81 (15.5%)
Parental Divorce	137 (26.2%)
Parental Substance Abuse	99 (18.9%)
Parental Mental Illness	208 (39.8%)
Parental Imprisonment	33 (6.3%)

The percentage of mothers who experienced an episode of perinatal depression by each individual type of ACE exposure can be seen in Figure 3.2.

Figure 3.2. The percentage of mothers who have experienced a perinatal episode of depressive disorders in relation to ACE exposure



The impact of exposure to maltreatment and HD ACEs, as well as individual ACEs on perinatal episodes of depression was assessed by logistic regression. Neither cumulative maltreatment ACEs nor cumulative HD ACEs were significant predictors of a perinatal episode of depressive disorder. When examined individually, only exposure to emotional neglect was a significant predictor of an episode of a depressive disorder during the perinatal period (Table 3.11). Women who were exposed to emotional neglect during childhood were over twice as likely to experience an episode of a depressive disorder during the perinatal period (OR=2.26, C.I.=1.34 to 3.81).

Table 3.11. The relationship between ACEs and the likelihood of perinatal episodes of depressive disorders

	ACE	Wald	P Value	Exp (β) (95% C.I.)
Model 1	Maltreatment ACEs	.676	.411	1.055 (.928 to 1.199)
	HD ACEs	.105	.746	.868 (.368 to 2.045)
	Ethnicity	.044	.912	1.002 (.038 – 21.742)
	Model	16.665	≤.001*	1.489 (1.010 – 1.782)
Model 2	Emotional Abuse	.378	.538	1.213 (.655 to 2.245)
	Physical Abuse	.767	.381	.747 (.390 to 1.434)
	Sexual Abuse	2.275	.131	1.477 (.890 to 2.450)
	Emotional Neglect	9.344	.002*	2.260 (1.340 to 3.811)
	Physical Neglect	3.609	.058	.481 (.226 to 1.024)
	Abused Mother	.027	.870	.911 (.300 to 2.765)
	Parental Divorced	.488	.485	1.448 (.513 to 4.092)
	Parental Substance Abuse	1.059	.303	1.727 (.610 to 4.886)
	Parental Mental Illness	.266	.606	1.295 (.485 to 3.463)
	Parental Imprisonment	.055	.831	.874 (.291 to 2.639)

	Ethnicity	.083	.773	1.415 (.134 – 14.901)
	Model	16.665	≤.001*	1.489 (1.010 – 1.782)

3.3.5.2 Bipolar disorders

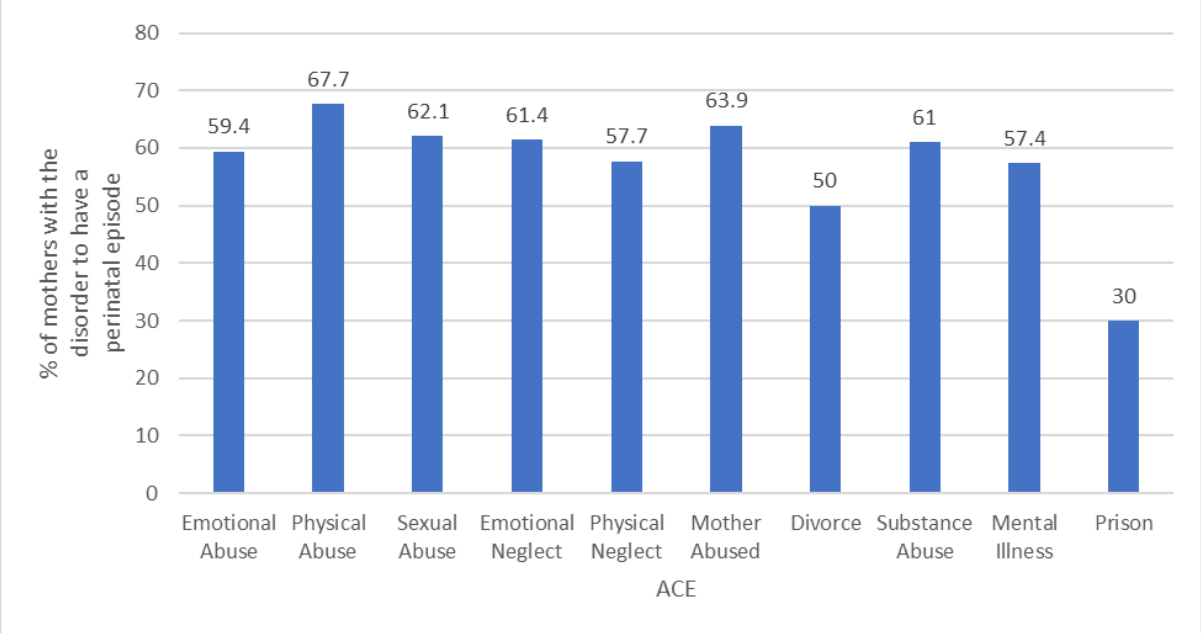
For women with a primary diagnosis of a bipolar disorders (N=217), the frequency of ACE exposure can be seen in Table 3.12.

Table 3.12. The frequency and percentages of ACE exposure in mothers with bipolar disorders

ACE	Frequency (%)
Emotional Abuse	96 (44.2%)
Physical Abuse	65 (30.0%)
Sexual Abuse	66 (30.4%)
Emotional Neglect	101 (46.5%)
Physical Neglect	26 (12.0%)
Abused Mother	36 (16.6%)
Parental Divorce	64 (29.5%)
Parental Substance Abuse	59 (27.2%)
Parental Mental Illness	115 (53.0%)
Parental Imprisonment	10 (4.6%)

The percentage of mothers who experienced an episode of bipolar disorder during the perinatal period by each individual type of ACE can be seen in Figure 3.3.

Figure 3.3. The percentage of mothers who have experienced a perinatal episode of bipolar disorders in relation to ACE exposure



The impact of exposure to maltreatment and HD ACEs, as well as individual ACEs on perinatal episodes of bipolar disorders was assessed by logistic regression. Neither cumulative maltreatment ACEs nor cumulative HD ACEs were significant predictors of a perinatal episode of bipolar disorders. When examined individually, only physical abuse was found to be a significant predictor of a perinatal episodes of bipolar disorder (Table 3.13). Women exposed to physical abuse during childhood were three times as likely to experience an episode of a bipolar disorder during the perinatal period (OR=3.46, C.I.=.97 to 12.41).

Table 3.13. The relationship between ACEs and the likelihood of perinatal episodes of bipolar disorders

	ACE	Wald	P Value	Exp (β) (95% C.I.)
Model 1	Maltreatment ACEs	.002	.963	.994 (.757 - 1.303)
	HD ACEs	2.478	.115	.081 (.004 to 1.853)
	Ethnicity	.068	.818	.423 (.004 – 12.577)

	Employment	1.108	.256	.913 (.688 – 1.279)
	Model	5.144	.019*	5.673 (4.132 – 6.899)
Model 2	Emotional Abuse	.055	.815	.878 (.294 - 2.617)
	Physical Abuse	3.630	.037*	3.460 (.965 - 12.406)
	Sexual Abuse	.461	.497	1.435 (.506 - 4.071)
	Emotional Neglect	.061	.806	.884 (.330 - 2.368)
	Physical Neglect	1.534	.216	4.229 (.432 to 41.428)
	HD ACEs	2.478	.115	.081 (.004 to 1.853)
	Abused Mother	2.013	.156	11.433 (.395 to 33.149)
	Parental Divorced	1.173	.279	6.192 (.228 to 17.413)
	Parental Substance Abuse	2.530	.112	1.247 (.331 to 4.288)
	Parental Mental Illness	2.538	.125	1.397 (.292 to 5.113)
	Parental Imprisonment	1.602	.221	.167 (.002 to 4.841)
	Ethnicity	.102	.750	.670 (.057 – 7.817)
	Employment	.976	.323	.642 (.266 – 1.547)
	Model	4.202	.031*	4.953 (2.281 – 7.014)

3.3.5.3 Psychotic disorders

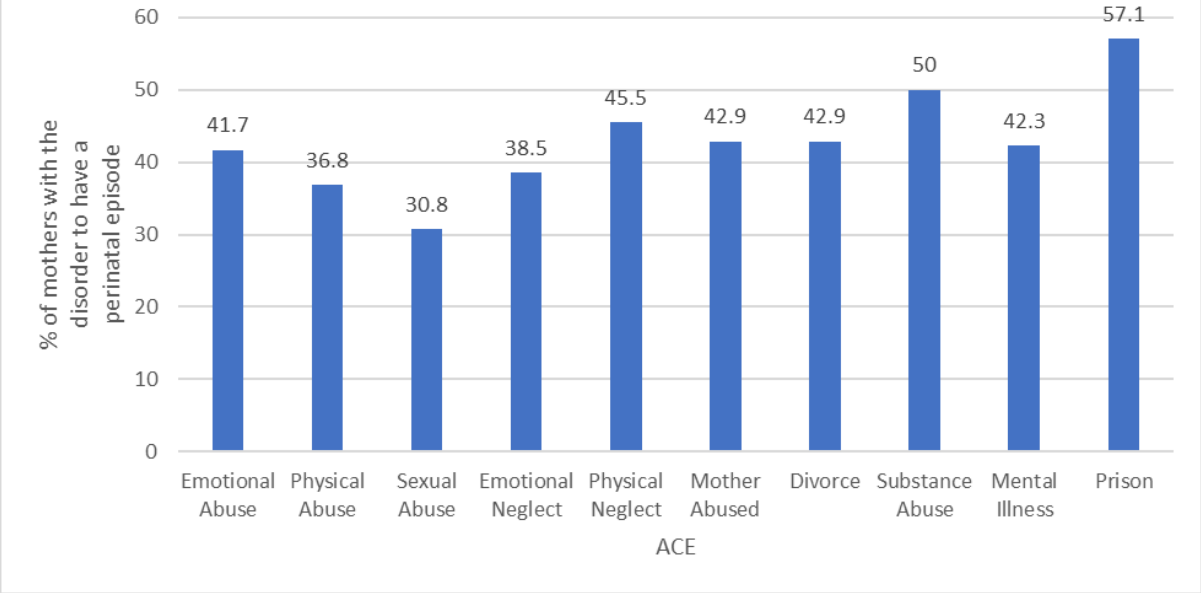
For women with a primary diagnosis of a psychotic disorders (N=51), the frequency of ACE exposure can be seen in Table 3.14.

Table 3.14. The frequency and percentages of ACE exposure in mothers with psychotic disorders

ACE	Frequency (%)
Emotional Abuse	24 (47.1%)
Physical Abuse	19 (37.3%)
Sexual Abuse	13 (25.5%)
Emotional Neglect	26 (51.0%)
Physical Neglect	11 (21.6%)
Abused Mother	7 (13.7%)
Parental Divorce	14 (27.5%)
Parental Substance Abuse	18 (35.5%)
Parental Mental Illness	26 (51.0%)
Parental Imprisonment	7 (13.7%)

The percentage of mothers who experienced an episode of perinatal psychosis by each individual type of ACE exposure can be seen in Figure 3.4.

Figure 3.4. The percentage of mothers who have experienced a perinatal episode of psychotic disorders in relation to ACE exposure



The impact of exposure to maltreatment and HD ACEs, as well as individual ACEs on perinatal episodes of psychosis was assessed by logistic regression. No group or individual ACEs were found to be significant predictors of perinatal episodes of psychosis, as shown in Table 3.15.

Table 3.15. The relationship between ACEs and the likelihood of perinatal episodes of psychotic disorders

	ACE	Wald	P Value	Exp (β) (95% C.I.)
Model 1	Maltreatment ACEs	3.121	.077	1.639 (.947 - 2.837)
	HD ACEs	.585	.444	1.193 (.759 - 1.874)
	Ethnicity	.000	.999	.000 (.000 - N/A)
	Education	.000	.999	.000 (.000 - N/A)
	Income	.000	.999	.000 (.000 - N/A)
	Employment	.000	.999	.000 (.000 - N/A)
	Model	4.212	.038*	3.454 (1.821 – 4.435)
Model 2	Emotional Abuse	.000	.998	.000 (.000 - N/A)
	Physical Abuse	.000	.998	.000 (.000 - N/A)
	Sexual Abuse	.000	.997	.000 (.000 - N/A)
	Emotional Neglect	.000	.997	.000 (.000 - N/A)
	Physical Neglect	.000	.999	.000 (.000 - N/A)
	HD ACEs	.585	.444	1.193 (.759 - 1.874)
	Abused Mother	.000	.998	.000 (.000 - N/A)
	Parental Divorced	.000	.998	.000 (.000 - N/A)
	Parental Substance Abuse	.000	.999	.000 (.000 - N/A)
	Parental Mental Illness	.000	.999	.000 (.000 - N/A)
	Parental Imprisonment	.000	.999	.000 (.000 - N/A)
	Ethnicity	.000	.998	.000

			(.000 - N/A)
Education	.000	.997	.000 (.000 - N/A)
Income	.000	.999	.000 (.000 - N/A)
Employment	.000	.999	.000 (.000 - N/A)
Model	3.906	.048*	2.800 (1.101 – 4.021)

3.3.5.4 Anxiety disorders

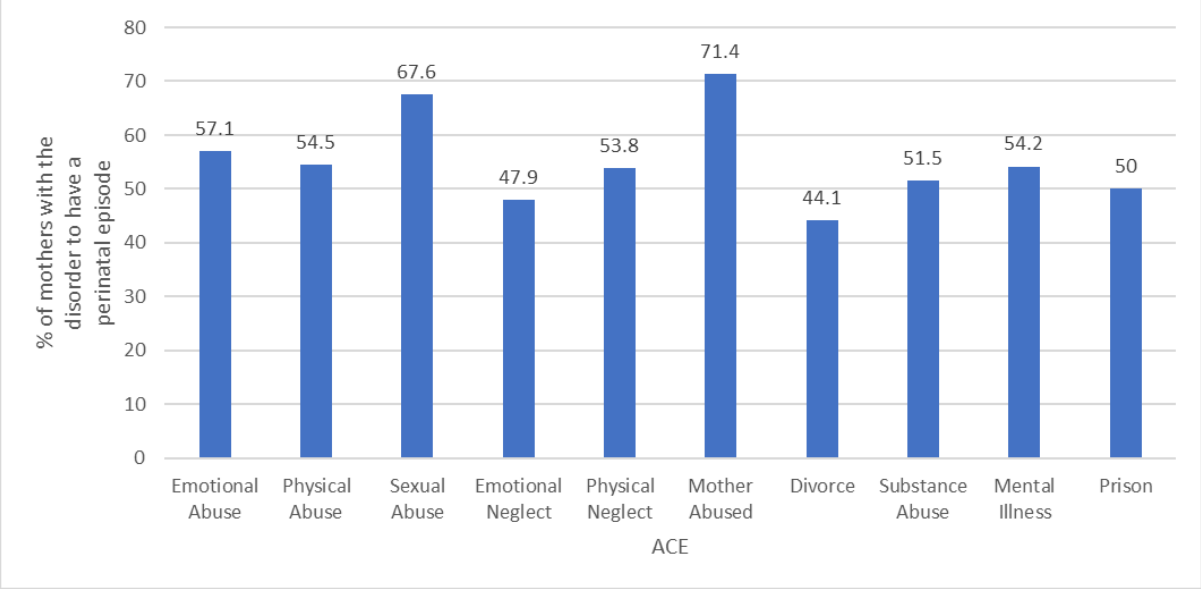
For women with a primary diagnosis of an anxiety disorders (N=132), the frequency of ACE exposure can be seen in Table 3.16.

Table 3.16. The frequency and percentages of ACE exposure in mothers with anxiety disorders

ACE	Frequency (%)
Emotional Abuse	49 (37.1%)
Physical Abuse	33 (25.0%)
Sexual Abuse	34 (25.8%)
Emotional Neglect	48 (36.4%)
Physical Neglect	13 (9.8%)
Abused Mother	14 (10.6%)
Parental Divorce	34 (25.8%)
Parental Substance Abuse	33 (25.0%)
Parental Mental Illness	59 (44.7%)
Parental Imprisonment	6 (4.5%)

The percentage of mothers who experienced an episode of perinatal anxiety by each individual type of ACE exposure can be seen in Figure 3.5.

Figure 3.5. The percentage of mothers who experienced a perinatal episode of an anxiety disorders in relation to ACE exposure



The impact of exposure to maltreatment and HD ACEs, as well as individual ACEs on perinatal episodes of anxiety was assessed using logistic regression. The cumulative effect of HD ACEs was found to increase the likelihood of a perinatal episode of an anxiety disorder by 1.48 (C.I.=1.04 to 2.31) times. However, no individual HD ACE independently predicted an increased likelihood of experiencing an episode of an anxiety disorder during the perinatal period. In contrast, as a cumulative variable, maltreatment ACEs did not significantly predict whether women experienced an episode of an anxiety disorder during the perinatal period. Whereas, at the level of individual ACE exposure, sexual abuse significantly predicted an increased likelihood of experiencing an episode of an anxiety disorder during the perinatal period by 12.1 times (C.I.=2.17 to 66.86) once the impact of the other ACEs and the covariates (education, employment, ethnicity, income) were controlled for (see Table 3.17).

Table 3.17. The relationship between ACEs and the likelihood of perinatal episodes of anxiety disorders

	ACE	Wald	P Value	Exp (β) (95% C.I.)
Model 1	Maltreatment ACEs	.872	.350	.808 (.517 - 1.264)
	HD ACEs	4.521	.031*	1.479 (1.0017 - 2.312)
	Ethnicity	.000	.999	.000 (.000 - N/A)
	Employment	.000	.999	.000 (.000 - N/A)
	Model	4.875	.028*	3.442 (2.058 – 5.318)
Model 2	Emotional Abuse	.092	.761	1.324 (.217 - 8.071)
	Physical Abuse	.152	.696	1.479 (.207 - 10.542)
	Sexual Abuse	8.106	.004*	12.051 (2.172 - 66.863)
	Emotional Neglect	.222	.637	1.598 (.228 - 11.221)
	Physical Neglect	.133	.715	.610 (.043 - 8.664)
	HD ACEs	4.521	.031*	1.479 (1.0017 - 2.312)
	Abused Mother	.000	.999	.000 (.000 to N/A)
	Parental Divorced	2.172	.213	.241 (.022 - 1.683)
	Parental Substance Abuse	1.403	.192	3.712 (.578 to 18.719)
	Parental Mental Illness	.398	.571	1.491 (.213 - 4.923)
	Parental Imprisonment	.000	.999	.000 (.000 - N/A)
	Ethnicity	.000	.999	.000 (.000 - N/A)
	Employment	.000	.999	.000 (.000 - N/A)
	Model	4.057	.031*	3.121 (1.422 – 6.498)

3.3.5.5 PTSD

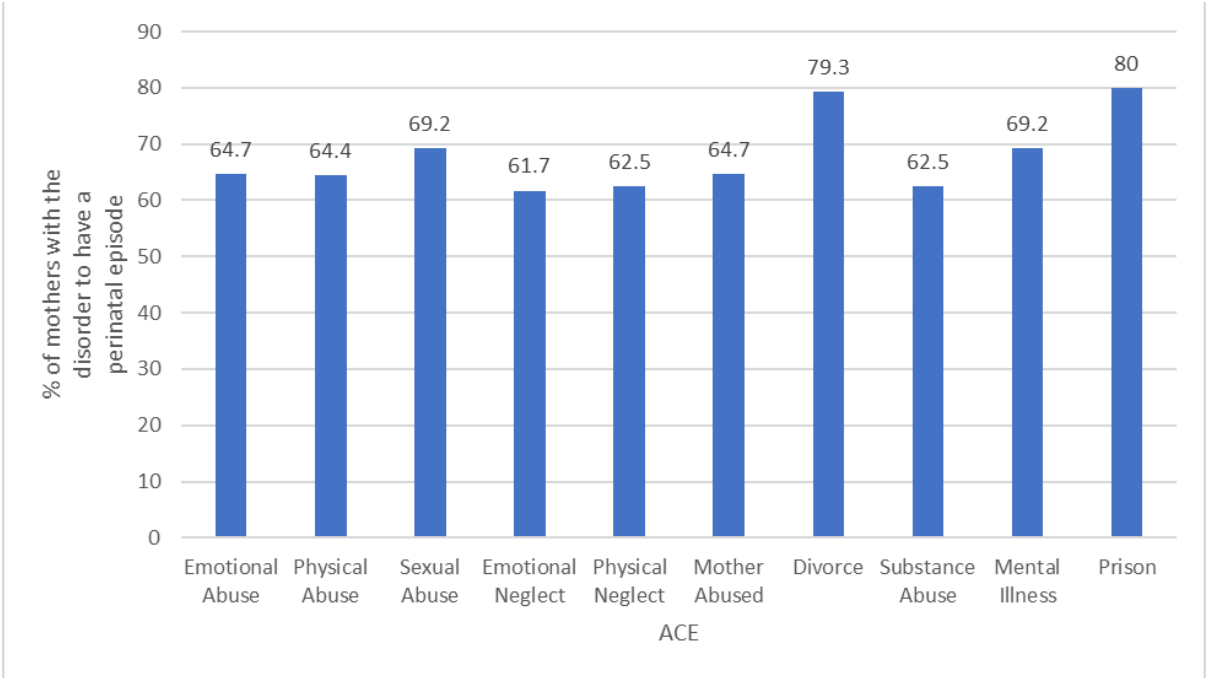
For women with a primary diagnosis of PTSD (N=87), the frequency of ACE exposure can be seen in Table 3.18.

Table 3.18. The frequency and percentages of ACE exposure in mothers with PTSD

ACE	Frequency (%)
Emotional Abuse	51 (58.6%)
Physical Abuse	45 (51.7%)
Sexual Abuse	39 (44.8%)
Emotional Neglect	60 (69.0%)
Physical Neglect	24 (27.6%)
Abused Mother	17 (19.5%)
Parental Divorce	29 (33.3%)
Parental Substance Abuse	24 (27.6%)
Parental Mental Illness	39 (44.8%)
Parental Imprisonment	10 (11.5%)

The percentage of mothers who experienced an episode of perinatal PTSD by each individual type of ACE exposure can be seen in Figure 3.6.

Figure 3.6. The percentage of mothers who have experienced a perinatal episode of PTSD in relation to ACE exposure



The impact of exposure to maltreatment and HD ACEs, as well as individual ACEs on perinatal episodes of PTSD was assessed by logistic regression. Both the cumulative effect of maltreatment ACEs and the cumulative impact HD ACEs independently predicted an increased likelihood of a perinatal episode of PTSD, with an odds ratio of 1.53 (C.I.=.87 to 2.12) and 1.78 (C.I.=1.09 to 2.84) respectively, (Table 3.19). No individual ACEs significantly increased the likelihood of a perinatal episode of PTSD.

Table 3.19. The relationship between ACEs and the likelihood of perinatal episodes of PTSD

	ACE	Wald	P Value	Exp (β) (95%, C.I.)
Model 1	Maltreatment ACEs	2.225	.038*	1.533 (.874 - 2.118)
	HD ACEs	3.729	.021*	1.781 (1.091 - 2.843)
	Employment	.104	.726	.687 (.088 – 4.715)
	Model	3.577	.035*	3.213 (2.045 – 4.245)
Model 2	Emotional Abuse	1.091	.296	.136 (.003 - 5.742)
	Physical Abuse	2.018	.155	17.601 (.336 - 98.844)
	Sexual Abuse	.638	.424	1.922 (.387 - 9.554)
	Emotional Neglect	2.161	.142	.164 (.015 - 1.826)
	Physical Neglect	.258	.613	.629 (.105 - 3.784)
	HD ACEs	3.729	.021*	1.781 (1.091 - 2.843)
	Abused Mother	.729	.386	7.188 (.083 - 623.164)
	Parental Divorce	1.225	.268	21.603 (.094 - 49.924)
	Parental Substance Abuse	.298	.585	3.999 (.028 - 24.742)
	Parental Mental Illness	1.992	.171	31.048 (.002 - 91.281)
	Parental Imprisonment	1.989	.215	.000 (.000 - N/A)
	Employment	.131	.718	.719 (.120 – 4.315)

	Model	2.936	.041*	1.667 (.012 – 3.878)

3.4 Discussion

The findings of this chapter suggest that ACEs predict childbearing outcomes. Cumulative effects of maltreatment ACEs were shown to predict the age at entry to parenthood and the number of children women had given birth to. Specifically, as exposure to maltreatment ACEs increased so too did the number of children that women had given birth to. Similarly, increased exposure to maltreatment ACEs predicted a decrease in the age at first entry to parenthood. Cumulatively, the more HD ACEs experienced, the younger the age of entry to parenthood. When explored by exposure to specific ACEs, maltreatment-based adversities were shown to be particularly influential across a range of outcomes. Exposure to physical abuse was shown to predict an increased likelihood of having children, whilst exposure to emotional abuse predicted a reduced likelihood of having children. Exposure to sexual abuse predicted a younger age at entry to parenthood and giving birth to more children. Of the household dysfunction adverse experiences, parental divorce predicted a decreased likelihood of parenthood and a younger entry to parenthood. Having an abused mother also predicted a younger age at entry to parenthood. This is the first study to explore the role of cumulative and individual ACEs on childbearing outcomes, including entry to parenthood, age at first entry to parenthood, and the number of children given birth to.

It has previously been suggested that the transition to parenthood for women who have been exposed to ACEs is associated with additional adversity, including an increased likelihood of experiencing mother-infant bonding problems (Fuchs et al., 2015; Morelen et al., 2016) and elevated physical pain during pregnancy (Drevin et al., 2015). ACEs have been also associated with biological changes, such as altered maternal cortisol levels (Brand et al., 2010; Bublitz & Stroud, 2013). With maltreatment-based ACEs predicted to either increase the likelihood of entering parenthood or increase the number of children that women had given birth to, it appears that the perinatal period is experienced more frequently by women who have been exposed to early life adversity.

Maltreatment-based ACEs played a prominent role in predicting perinatal outcomes. Sexual abuse predicted a decreased age of entry to parenthood and in the wider literature, childhood sexual abuse has been extensively linked to an increased likelihood of teenage pregnancy (Brady, 2018; Fortin-Langelier et al., 2019; Madigan et al., 2014; Noll et al., 2003; Noll et al., 2009; Senn et al., 2008; Seto et al., 2015). The link between childhood maltreatment-based adversity and teenage pregnancies has been hypothesised as being due to an increased likelihood of being sexually active at a younger age, and practicing unsafe sex (Draucker & Mazurczyk, 2013; Fortin-Langelier et al., 2019; Senn et al., 2008), as well as more cognitive distortions regarding sexuality and expressed greater pregnancy desire (Noll et al., 2003). Furthermore, the increased speed of cell maturation and pubertal development due to maltreatment exposure, as previously discussed, increases this likelihood of entering parenthood earlier (Colich et al., 2020; Lawn et al., 2018; Marini et al., 2020; McLaughlin et al., 2020; Simons et al., 2016; Sumner et al., 2019). However, many studies look at the binary outcome of pregnancy occurring in teenage years or not. This study has looked further than segregating by teenage entry to parenthood by looking at age of entry to parenthood as a continuous variable, and the effect that ACE exposure has on the age of entry to parenthood. Sexual abuse, as well as having an abused mother and divorced parents were independently shown to predict a reduced age at first entry to parenthood. The mechanisms that underlie why exposure to early life adversity reduces the age at entry to parenthood should be further explored in future research, with sexual behaviour and cognition being considered as risk factors and pathways respectively. Such behaviours and cognition relating to increased and riskier sexual activity may also outline the mechanisms by which forms of maltreatment-based early life adversity increase the likelihood of entering parenthood and having more children.

Having divorced parents was found to predict a reduced likelihood of entering parenthood. Experiencing the divorce of parents has been shown to increase the likelihood of divorce and poorer relationship quality in the next generation (Lee, 2018; Mustonen et al., 2011), and leads to lower relationship adjustment and more negative communication (Cui et al., 2011; Rhoades et al., 2012;

Roper et al., 2020). Whilst far from removing the possibility of having children, the avoidance of close romantic relationships, and increased anxiety and conflict within such relationships may reduce the likelihood of women with divorced parents having children. Exposure to emotional abuse was found to also predict a reduced likelihood of entering parenthood. Emotional abuse has been associated with a disruption to parent-infant relationship quality (Bigras et al., 2015; Fitzgerald & Ledermann, 2020; Maneta et al., 2015; Zamir, 2021). In line with the effects of divorced parents, a poor parent-infant relationship quality is predicted to lead to poorer relationship quality in infants later in life (Girme et al., 2021). Poorer relationship quality, and issues in communication (Cui et al., 2011; Rhoades et al., 2012; Roper et al., 2020), can increase the avoidance of close romantic relationships outlined above, and in turn, reduce the likelihood of entering parenthood.

The findings of this chapter show that exposure to maltreatment-based early life adversity was particularly associated with episodes of mental ill-health during the perinatal period for women already diagnosed with a mental health condition. The cumulative effect of maltreatment ACEs showed that for each increase in maltreatment ACE experienced, the likelihood of having a perinatal episode of PTSD increased by 1.53 times. Emotional neglect was associated with increasing the likelihood of a perinatal depressive episode, physical abuse predicted an increased likelihood of experiencing an episode of bipolar disorder during the perinatal period, and exposure to sexual abuse predicted an increased likelihood of experiencing a perinatal episode of mental ill-health for women diagnosed with an anxiety disorder. These findings indicate that the perinatal period is a time of heightened vulnerability for women exposed to maltreatment-based early adversities prior to the age of 18.

The cumulative effect of HD ACEs was associated with an increased likelihood of both perinatal episodes of anxiety and PTSD. An increase in exposure of 1 HD ACE predicted to increase the likelihood of experiencing a perinatal episode of an anxiety disorder by 1.48 times and a perinatal episode of PTSD by 1.78 times. No individual HD ACEs were found to predict an increased likelihood of a perinatal episode of any disorder. Episodes of mental ill-health during the perinatal

period are associated with negative outcomes for both the mother and infant, including preterm birth, lower birthweight, difficulties in the mother-infant relationship, and an increased likelihood of offspring developing a mental health condition later in life (Goodman, 2019; Grigoriadis et al., 2013; Hakanen et al., 2019; Hazell Raine et al., 2020; Hoffman et al., 2017; Pawlby et al., 2009; Rossen et al., 2016; Smith et al., 2011; Verbeek et al., 2012). The findings of this study suggest the perinatal period carries particular risk for episodes of mental ill-health when adversities before the age of 18 were experienced, above and beyond the risk carried at other timepoints in a woman's life, potentially leading to negative, intergenerational outcomes for both mother and child.

Most of the research that has explored the effects of ACEs on perinatal mental health has been limited to depression. The current study included depressive disorders and extended the existing evidence base by examining the impact of ACE exposure on perinatal episodes of bipolar, psychotic, anxiety and post-traumatic stress disorders. Again, maltreatment-based adversities were associated with poorer perinatal mental health outcomes. Emotional neglect was associated with an increased likelihood of an episode of depressive disorders during the perinatal period. Emotional neglect has been extensively linked to an increased risk of depression (Cohen et al., 2017; Humphreys et al., 2020), and bipolar disorder (Daruy-Filho et al., 2011; Dualibe & Osorio, 2017; Duarte et al., 2020; Watson et al., 2014), and during the perinatal period depression has been associated with maternal body changes and maternal self-efficacy (Aran et al., 2021; Talmon et al., 2019). Sexual abuse predicted an increased likelihood of experiencing an episode of perinatal anxiety disorders. Pregnancy and childbirth related healthcare assessments and changes in body shape and boundaries are prominent in terms of their anxiety provoking nature for victims of childhood sexual abuse (Byrne et al., 2017; Leeners et al., 2007; Talmon & Ginzburg, 2019). In the current study, prior research was extended by highlighting the association between childhood sexual abuse and an elevated risk of experiencing an episode of a clinically significant anxiety disorder during the perinatal period specifically among women already diagnosed with an anxiety disorder. This finding requires replication due to the relatively small number of women with an anxiety

disorder who were exposed to childhood sexual abuse. Finally, physical abuse was shown to predict an increased likelihood of perinatal bipolar episodes. In people with bipolar disorders, exposure to childhood physical abuse has been shown to lead to poorer outcomes including increased number of symptoms (Leverich et al., 2002; Pascual et al., 2020; Romero et al., 2009), increased sensitivity to stressors (McCraw & Parker, 2017), and reduced treatment efficacy (Etain et al., 2017). This study suggests that this is particularly the case during the perinatal period.

The findings of this chapter support the literature that exposure to ACEs is associated with an elevated risk of mental health problems in adulthood (Carbone et al., 2019; Chase et al., 2019; Damian et al., 2021; Dobson et al., 2020; Lee et al., 2020; McLaughlin et al., 2012; Nemeroff, 2016; Roper et al., 2015; Skehan et al., 2012; Xie et al., 2022). This study highlights that the perinatal period is a time of heightened risk for mental ill-health among trauma exposed women with a lifetime diagnosis of a mental health condition. Previous research is extended by demonstrating that specific ACEs, namely maltreatment-based early life adversities, increase the likelihood of episodes of different disorders during the perinatal period. Therefore, identification of which ACEs women have experienced may better help them and their care providers prepare for potential episodes of mental ill-health during the perinatal period. Research suggests that the earlier perinatal mental ill-health is detected, the more successful treatment and management is likely to be (Cox et al., 2016). The identification of risk factors for episodes of perinatal mental ill-health could therefore aid screening, detection, and early intervention. Mother and infant outcomes such as parenting adjustment, sense of competence, mother-infant bonding, and children's developmental outcomes can be adversely affected by episodes of mental ill-health during the perinatal period, as highlighted in Chapter 2. Prompt access to treatments including Interpersonal Psychotherapy, Cognitive Behavioural Therapy, Maternal-Child Interaction Guidance, and Psychotherapeutic Group Support (Beeber et al., 2013; Bilszta et al., 2012; Letourneau et al., 2017; Milgrom et al., 2015; Mulcahy et al., 2010; Perry et al., 2011; Reay et al., 2012) can improve perinatal outcomes for both mother and

child. These findings highlight the importance of early identification of risk factors for episodes of perinatal mental ill-health, as treatment can be administered, and outcomes improved.

3.4.1 Limitations

It is important to identify the effects of specific ACEs to determine their but these experiences, by their very nature, tend to co-occur. Some ACEs are also likely to be underreported, despite their frequency of being exposed to, particularly because perpetrators are often people close to the individual, such as a parent or friend (ONS, 2016). In this sample it is not known whether women who do not have children have done so through choice or whether they are unable to have children. Research has shown that as ACE exposure increases, fertility decreases (Jacobs et al., 2015). It therefore may have been the case that participants wanted children but were unable to. This may also be the case for participants with children. They may have wanted to have additional children to the ones they currently have at time of participation in the study but were unable to do so. In the current study we did not collect data on miscarriages and terminations, and it is possible that pregnancy rates differ from the birth outcomes that were examined. Participants in the current study were assessed if they were aged 18 or over. Given that a cross-sectional design was used, it is possible that some participants may have chosen to have (more) children after this assessment had taken place. Again, this would influence findings as some participants may have completed all of their childbearing decisions whereas others may have not.

Mental health diagnosis and experiences of perinatal episodes were initially obtained through self-report. Where possible, these reports were corroborated with mental health care teams, however this was not possible for all participants. It may therefore be the case that not all diagnoses were accurate. Furthermore, categorisation of mental ill-health was done by primary diagnosis. It may be the case that participants present with multiple mental health diagnoses. Such comorbid disorders may overlap categories and influence the documented associations between ACE exposure and episodes of perinatal mental ill-health. With regards to bipolar disorder, it is not

known whether perinatal episodes experienced were of a depressive or a manic nature, and further research should explore any impact of ACEs on the specific nature of perinatal episodes of bipolar disorder. Finally, in the current study, the perinatal period was defined as pregnancy and the first postnatal year at the point of data collection. Therefore, I could not disentangle associations between ACE exposure and pregnancy versus postnatal effects.

3.4.2 Conclusions

ACEs predict childbearing outcomes, including entry to parenthood, age at entry into parenthood, and number of children. Maltreatment ACEs were the most influential but with differing effects. Exposure to physical abuse predicted an increased likelihood of entering parenthood, yet emotional abuse reduced this likelihood. Sexual abuse predicted a reduced age at first birth and an increased number of children given birth to. Maltreatment-based adversity was associated with having children, age at first entering parenthood and the number of children had. The potentially different mechanisms to reach these outcomes have been discussed in Chapter 1. HD ACEs were associated with a reduced likelihood of entering parenthood through parental divorce. Parental divorce and having an abused mother predicted reduced age at first entry to parenthood.

Perinatal mental health, beyond just depression, is also associated with exposure to ACEs. Exposure to sexual abuse predicted an increased likelihood of experiencing an episode of an anxiety disorder during the perinatal period. Physical abuse predicted an increased likelihood of a perinatal episodes of bipolar disorder, and emotional neglect an increased likelihood of a perinatal episode of a depressive disorder. From a clinical point of view, it is important for perinatal care teams to determine which ACEs women have been exposed to in order to ensure that care and treatment plans are tailored toward women's unique needs and circumstance.

Evidence of an association of early life adversity on childbearing outcomes and perinatal mental health was observed. However, some of the methodological problems identified in the systematic review persist with the NCMH sample used in this chapter. As such, a new study is

developed in Chapter 4 that allows me to further address the identified methodological issues and evidence gaps. This sample is described in the methods section of the next chapter together with an overview of the procedure and measures that are pertinent to the empirical chapters that follow.

Chapter 4 - Early Life Adversity, Post Traumatic Stress Disorder (PTSD), and Complex Post Traumatic Stress Disorder (CPTSD) in Perinatal Women

4.1 Introduction

As outlined in Chapter 1, exposure to early life adversity has been associated with an increased risk of physical (Goldsmith et al., 2012; Kendall-Tackett, 2000; Romans et al., 2002; Runtz, 2002; López-Martínez et al., 2018) and mental health problems (Jones et al., 2018; Schilling et al., 2007; Poole et al., 2017; Fuller-Thomson et al., 2016; Tilson, 2018; Crouch et al., 2018) in adult life. As highlighted in the systematic review presented in Chapter 2, much of the research into the impact of early life adversity on mothers' mental health outcomes during the perinatal period has focused on perinatal depression. Chapter 3 aimed to further the evidence base by examining the association between exposure to early life adversity and the risk of experiencing an episode of mental ill-health during the perinatal period among women diagnosed with a broader range of mental health conditions beyond depression, including bipolar disorder, psychotic disorders, anxiety disorders and post-traumatic stress disorder.

As the evidence base develops and ICD and DSM diagnostic systems are revised, there has been a trend toward the increased specification of mental health conditions (First et al., 2021). In contrast to the DSM-V, the most recently published International Classification of Diseases, 11th edition (ICD-11) (World Health Organisation, 2018) proposes greater specification of trauma related stress disorders. Specifically, Post-Traumatic Stress Disorder (PTSD) and Complex Post-Traumatic Stress Disorder (CPTSD) are differentiated (ICD-11; Maercker et al., 2013). In ICD-11, both PTSD and

CPTSD are conceptualised as trauma related stress disorders with distinct, yet related symptom profiles (Cloitre et al., 2013). PTSD consists of three clusters of symptoms, each of which are required for a diagnosis: re-experiencing of the traumatic event in the present, avoidance of traumatic reminders, and a sense of current threat (Cloitre et al., 2013; Maercker et al., 2013). For CPTSD, as well as the three clusters of symptoms of PTSD, three clusters of symptoms of Disturbances in Self-Organisation (DSO) are required for a diagnosis including: affective dysregulation, negative self-concept, and disturbances in relationships. If all symptom clusters are present, a diagnosis of CPTSD is given. However, if the DSO symptom clusters are present but the PTSD symptoms clusters are not, then there is currently no diagnosis to capture these individuals. This chapter aims to determine the frequency of symptoms of PTSD, DSO, and CPTSD, and as to support previous chapters, specifically in a perinatal population.

CPTSD is likely to occur as a result of trauma exposure which is inter-personal in nature, prolonged and/or repeated, or consists of multiple forms, that also occurs under circumstances where escape from the trauma is difficult or impossible (Hyland et al., 2017). Amongst other traumas which result in actual or potential harm, CPTSD is particularly likely to develop as a result of exposure to childhood maltreatment, physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm (World Health Organisation, 2016). These forms of trauma are clear examples of the maltreatment-based adversities outlined as problematic in the Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014). The disruption of relationships (Busby et al., 2011; Karatzias et al., 2021; Kong, 2018), poor emotion regulation (Cloitre et al., 2019; Gruhn & Compas, 2020; Hebert et al., 2018), and propensity toward a negative self-concept (Ju & Lee, 2018; Sachs-Ericsson et al., 2010) associated with exposure to abuse and neglect highlights how CPTSD is particularly linked with these maltreatment-based forms of early life adversity. Maltreatment adversities were shown in both the systematic review of Chapter 2 and the exploration of the role of ACEs on perinatal outcomes in Chapter 3 to be associated with increased risk of negative perinatal outcomes. Exploration of the

frequency of exposure to early life adversity and the presence of symptoms of PTSD, DSO, and CPTSD is essential to understand the process by which early life adversity may lead to mental ill-health in the perinatal period.

The perinatal period is a time point in the life course where potential triggers of PTSD and CPTSD symptoms are more prominent. For example, intimate antenatal, intrapartum and postnatal assessments, such as vaginal examinations, can trigger memories of childhood sexual abuse, leading to the re-experiencing symptom cluster (Degiannis & Tsepelaki, 2021; Leeners et al., 2016; Millar et al., 2021; Sobel et al., 2018), and the avoidance of reminders symptom cluster (Diestel et al., 2022; Sobel et al., 2018) of PTSD and CPTSD. Any further stress in the pregnancy can lead to a reminder of previous adversity and can lead to avoidance of such reminders (Kara et al., 2021; Keren & Tyano, 2019) which may result in women missing appointments that are important for their own and their baby's health. The process of pregnancy and childbirth can impact affect regulation and increase the prominence of affect dysregulation symptoms (Basharpoor & Taherifard, 2019; Grolleman et al.,2022; Penner & Rutherford, 2022; Rutherford et al., 2015). Additionally, the increased responsibilities that come with parenthood can negatively impact an individual's self-concept and sense of competence (Grolleman et al., 2022; Inanir et al., 2015).

The language used by health professionals during the perinatal period can result in triggers of previous adversity (Gerber, 2019; Millar et al., 2021; Sobel et al., 2018). The symptom clusters that characterise CPTSD are associated with a range of adverse outcomes during pregnancy and the postpartum. A perceived sense of persistent threat can be present in the perinatal period due to concerns relating to the health and wellbeing of the baby (Black, 2007; Giurgescu et al., 2006; Leeners et al., 2008; Markovic et al., 2006; Mirzakhani et al., 2020). A perceived sense of threat is associated with an increased likelihood of ectopic pregnancy, miscarriage, preterm labour, gestational diabetes, preeclampsia, and low birthweight (Seng et al., 2014; Seng et al., 2001; Shaw et al., 2017). Maternal affect dysregulation has been associated with disrupted postnatal attachment

between mother and infant (Brake et al., 2020; Rutherford et al., 2015). Similarly, negative self-concept and lower confidence in one's own parenting ability is associated with reduced adaptive parenting behaviours (Vance & Brandon, 2017). Furthermore, DSO symptoms that characterise CPTSD can mean that affected individuals have an increased difficulty in forming and maintaining relationships (Bachem et al., 2021; Brewin, 2020; Friedman et al., 2010; Heim et al., 2022). This can be due to feeling more mistrustful of others (Bell et al., 2019), and to feelings of self-inadequacy (Cloitre et al., 2013). Trust in perinatal health professionals such as midwifes and doctors can be reduced as a result of trauma exposure and associated symptoms (Gokhale et al., 2020; Gordon et al., 2019; Kuzma et al., 2020; Ward, 2020).

Maternal bonding pre and postnatally is key for the development of attuned, positive mother-infant interactions. PTSD and DSO symptoms may lead to disrupted interpersonal factors that if not effectively managed by intervention, could greatly impact mother-infant bonding and interaction. Many other aspects of perinatal care could be negatively impacted by CPTSD symptoms including trust in health care professionals, comfort with physical examinations and coping with perinatal complications. It is hypothesised that exposure to early life adversity, PTSD, and CPTSD are frequently under-detected in the perinatal period (Bailey & Brown, 2020; Lewis et al., 2018; Zammitt et al., 2018) or misdiagnosed (Bailey & Brown, 2020; Baxter, 2022; Matto et al., 2019), resulting in a lack of clarity around the prevalence and impact of these conditions and adverse experiences. Early life adversity is often underreported in the perinatal period (Hopkins & Hellberg, 2021) and perinatal mental health problems are at risk of under-detection, with 10% of pregnant women and 13% of postpartum women experiencing an undiagnosed mental health disorder (Vignato et al., 2017; WHO, 2012). PTSD is often misdiagnosed in the perinatal period (Beck et al., 2011; Cirino & Knapp, 2019; Vesel & Nickasch, 2015), and there is little research exploring the prevalence of DSO symptoms and CPTSD diagnoses in the perinatal period. Therefore, the aim of this chapter is to conduct a novel assessment of the frequency of DSO and CPTSD symptoms in the perinatal period, as well as strengthening the literature on the frequency of PTSD symptoms and early life adversity

exposure, including but not limited to sexual abuse. Whether women are currently under the care of specialist mental health teams or are receiving specialist mental health treatments will also be investigated.

If PTSD and CPTSD are either undiagnosed or misdiagnosed, then potential treatments for these conditions may not be provided. When randomised control trials of psychological treatments for PTSD were compared in their efficiency for treating the DSO symptoms of CPTSD, Cognitive Behavioural Therapy (CBT), Exposure Therapy (ET) and Eye Movement Desensitization and Reprocessing (EMDR) performed at least equally well for PTSD and DSO symptom clusters (Karatzias et al., 2019). CBT has been shown to be effective for the treatment of depressive and anxiety disorder related symptoms during the perinatal period (Sockol, 2015; Green et al., 2020), especially when focussing on three domains of perinatal-specific themes: including self, motherhood, and interpersonal functioning (O'Mahen et al., 2012). EMDR (Cortizo, 2020; Chiorino et al., 2020; Baas et al., 2017) has also be shown to be successful in the perinatal period. Given that CBT and EMDR are effective treatments for CPTSD and PTSD, the accurate detection of these conditions is essential in order to improve the outcomes of both mother and infant through the provisions of the most appropriate evidence-based treatments.

Trauma exposure is a prerequisite for PTSD and CPTSD. Chapters 2 and 3 highlight that early life adversity, particularly maltreatment-based adversities, are particularly detrimental forms of traumatic events that are associated with elevated rates of mental health problems during the perinatal period. It is therefore helpful to understand what types of adversities have been experienced by participants in the sample, especially in women with probable PTSD and CPTSD. Given the potential adverse impact of untreated PTSD and CPTSD during the perinatal period, it is vitally important to understand the frequency of symptoms of these conditions in a perinatal population so that the scale of the potential impact can be better understood. Estimates of the prevalence of PTSD in the perinatal period vary widely and are proposed to range between 3.3% and

19.0% depending on the specific population under investigation, e.g., samples drawn from the general population versus samples of women under clinical services (Yildiz et al., 2017). In contrast, much less is known about the prevalence and impact of CPTSD among perinatal populations. Whilst prevalence rates of CPTSD have been reported in UK samples of prisoners (Facer-Irwin et al., 2021), firefighters (Langtry et al., 2021), adolescents (Elliott et al., 2021), veterans (Spikol et al., 2022), and police officers (Steel et al., 2021), to the best of my knowledge, a perinatal CPTSD prevalence rate has yet to be determined.

This chapter therefore has four aims:

(1) To assess the frequency of probable PTSD and CPTSD symptoms during the perinatal period. When addressing this question, women meeting criteria for ICD-11 defined trauma exposure and clinically significant DSO symptoms, but not clinically significant PTSD symptoms, will be considered as a separate group.

(2) To determine whether women with probable PTSD and CPTSD have received the corresponding diagnosis from a mental health professional during the current perinatal period.

(3) To examine the association between exposure to early life adversity and the risk of developing PTSD or CPTSD during the perinatal period. When addressing this question, women meeting criteria for an ICD-11 defined traumatic event and clinically significant DSO symptoms, but not clinically significant PTSD symptoms, will be considered as a separate group.

(4) To explore participants mental health care and treatment during the perinatal period.

4.2 Methods

4.2.1 Sample

The Maternal Wellbeing, Mental Health, and Life Experiences (MWMHLE) study was developed to assess the frequency and impact of PTSD, DSO, and CPTSD symptom clusters during the perinatal period. N=628 participants were recruited via the National Centre for Mental Health (NCMH), a Health and Care Research Wales and Welsh Government funded research collaboration between Cardiff, Swansea, and Bangor Universities. The centre runs in partnership with National Health Service (NHS) Health Boards and NHS trusts across Wales and England and investigates neurodevelopmental and psychiatric conditions. Participants were volunteers, recruited via both systematic and non-systematic approaches between 17th May 2021 and 5th October 2022. Systematic approaches targeted NHS primary and secondary health care services, primarily specialist perinatal mental health and midwifery services. Non-systematic recruitment involved online and localised advertising campaigns. Targeted social media advertising on Facebook, Twitter and Instagram was run with "Pregnancy" and "Postnatal" used as key target terms for the paid advertising. Funding for the advertising was acquired from Cardiff University School of Psychology PhD funding and the National Centre for Mental Health. Eligibility criteria at the point of recruitment included being currently pregnant or within 1-year of giving birth and being aged 18 years or older.

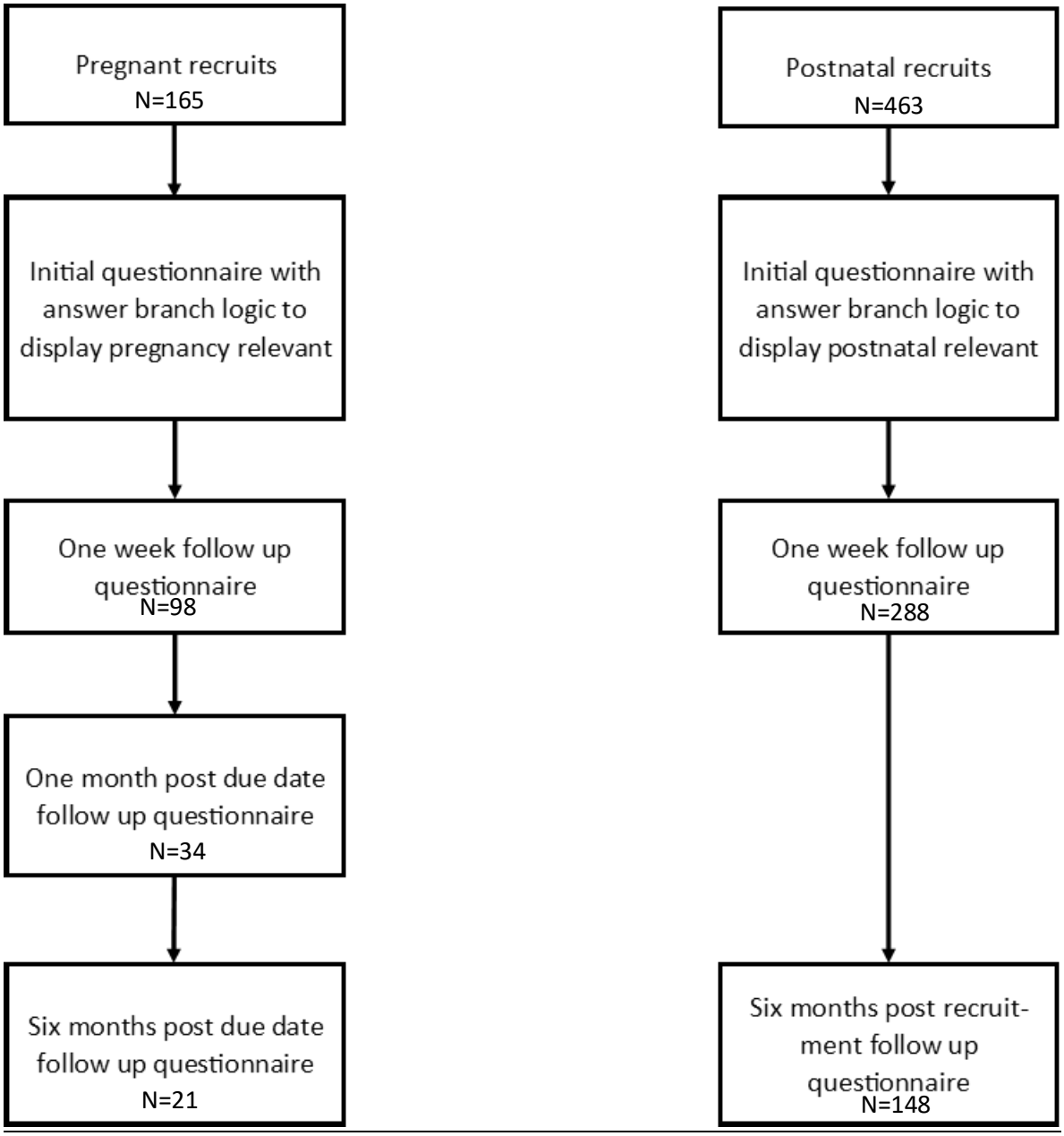
The recruited sample was divided into clinical and non-clinical subgroups. The clinical sample was defined as women who were assessed or received treatment for a mental health condition from primary or secondary care mental health services (e.g., specialist perinatal mental health services, primary care psychological therapy services, or other specialist mental health services) during the current perinatal period (e.g., either pregnancy or during the first year postpartum). The non-clinical group was defined as women who were neither assessed nor received treatment for a mental health condition during the current perinatal period.

4.2.2 Procedure

Participants were directed to an on-line questionnaire platform via the NCMH website. An information sheet was presented first followed by a consent form to be completed by participants before continuing. Following this, participants were asked to complete a pack of standardised, validated measures as part of the NCMH MWMHLE assessment. The MWMHLE assessment was split into two arms with participants being recruited either whilst pregnant or within one year postpartum. All participants completed an initial online questionnaire that took between 30-40 minutes to complete. The questions include background and demographic information, questions about participants own and their families physical and mental health conditions, questions about their current pregnancy or postpartum period (displayed accordingly using branch logic) in terms of mental and physical wellbeing as well as expectations and experiences. Furthermore, questions related to exposure to traumatic and stressful life events and COVID-19 experiences were captured.

All participants received a follow-up questionnaire via email that was sent out one week after recruitment and took in the region of 20 minutes to complete. The standardised questionnaires included in this survey asked about emotions (e.g., emotion regulation), relationships (e.g., mother-infant bonding), behaviours (e.g., self-harm), and experiences during certain situations (e.g., childbirth). Participants recruited in pregnancy received a follow-up questionnaire which was emailed to them one month after their due date. This questionnaire took in the region of 30 minutes to complete. The questions included asked about childbirth, the relationship with the baby, the babies sleep, COVID-19, mental health support, life experiences, social support, and mental health and wellbeing. All participants received one final follow up questionnaire via email. For participants recruited in pregnancy, this final questionnaire was received at six months after their due date. For participants recruited postnatally, this final questionnaire was received at six months after recruitment. This final questionnaire took in the region of 25 minutes to complete. The standardised questionnaire included in this survey asked about social support, COVID-19, mental health support, life experiences, and mental health and wellbeing. Figure 4.1 outlines the stages involved for participants depending on the time at which they were recruited.

Figure 4.1. Participant procedure for the MWMHLE study



4.2.3 Measures

Socio-demographic characteristics

The first measure of socio-demographic characteristics was perinatal status, defined as either currently pregnant or within one year postpartum. Ethnicity was captured and was conceptualised as white and non-white due to the small participant numbers of non-white ethnicity. Education was captured on an ordinal scale of; no qualifications, 1-4 GCSEs, 5+ GCSEs, Apprenticeship, 2+ A-Levels, Degree or above, or other qualifications. Sexuality was another characteristic conceptualised into two categories of heterosexual or not due to the small number of participants identifying as gay or lesbian, bisexual, or other/prefer not to say. The final measure captured was relationship status, defined as currently living with a partner or married as yes or no. These measures were identified in Chapter 1 as potential correlates of perinatal outcomes.

Current trauma related stress disorder symptoms

The International Trauma Questionnaire (ITQ) was used to establish current PTSD, DSO, and CPTSD symptom clusters and was completed during timepoint 1 of the MWMHLE online study. The ITQ is a self-report measure that reflects the 3 symptoms clusters of PTSD and the 3 symptoms clusters of DSO. For each symptom cluster, 2 questions are asked about how much participants are bothered by a given symptom within the last month. Scoring is on a 5-point Likert scale that includes: 0 - Not at all, 1 - A little bit, 2 - A moderate amount, 3 - Very much so, and 4 - Extremely. To reach the threshold for clinical significance, a score of 2 or above must be reached on at least 1 of the 2 items that assess each symptom cluster. To reach a diagnosis of probable PTSD, participants must score positively on all 3 PTSD symptom clusters, (re-experiencing of traumatic reminders, avoidance of traumatic reminders, and hypervigilance) and endorse impairment in social, relational or occupational functioning. For probable CPTSD, the same criterion for PTSD needs to be met in addition to the endorsement of all 3 DSO symptom clusters and a positive rating on the items that assess social, relational and occupational functioning. The ITQ has been well validated, including showing that the ITQ possesses excellent internal reliability. The six-first-order subscales

demonstrated high levels of reliability (Re: α=.90, Av=.90, Th=.86, AD=.92, NSC=.96, and DR=.90), as did the 6 PTSD (α=.96) and 6 DSO (α=.97) items (Hyland et al., 2017).

Mental health diagnoses

Mental health diagnoses were taken from a self-report measure that asked participants whether they had been told by a mental health professional that they had a diagnosable mental health condition during the current perinatal period from a bespoke list of disorders designed by the NCMH team to capture ICD-11 and DSM-V diagnoses. The list of diagnoses included PTSD and CPTSD. Women were also asked to report on diagnoses that they were given by a mental health professional prior to the current perinatal period from the same list.

Mental health assessment intervention

Participants were asked whether they had been referred to a primary (e.g., a psychological therapy service) and/or secondary care (e.g., specialist perinatal mental health service) mental health service for assessment and treatment during the current perinatal period. Women who selected that they had been under the care of a primary or secondary care mental health service during the current perinatal period were assigned to the clinical subsample. Women who selected "No" were assigned to the non-clinical subsample. Women who were referred to mental health services were asked to specify the psychological, pharmacological and psychosocial interventions that they received. A bespoke list of psychological interventions based on NICE guidelines (Nice. 2014) and Matrics Cymru (Matrics Cymru, 2017) was constructed by the NCMH team including: cognitive behavioural therapy (CBT); trauma-focused cognitive behavioural therapy (TF-CBT); exposure response prevention therapy (ERP); couples therapy; dialectical behaviour therapy (DBT); acceptance and commitment therapy (ACT); cognitive analytic therapy (CAT); eye movement

desensitization and reprocessing therapy (EMDR); systemic family therapy; interpersonal psychotherapy; parent-infant relationship intervention; psychoanalytic psychotherapy; counselling; self-management; psychoeducation. Treatments are grouped as: Evidence based treatments for PTSD (CBT, TF-CBT, EMDR and ERP); third wave therapies (ACT, and DBT); psychoeducation and self-management; couples therapy and systematic family therapy; parent-infant relationship intervention; and other (counselling, CAT, and psychoanalytic psychotherapy). Similarly, medication was assessed as being "Currently receiving" or "Not currently receiving" for anti-depressants, mood stabilizers, anti-psychotics, anti-anxiety, and sleep tablets. Participants also had the option to detail additional medications that they were prescribed for a mental health condition.

Early life adversity

Types of early life adversity were captured via the Adverse Childhood Experience (ACE) Questionnaire. The ACEs Study Scale is a 10-item self-report questionnaire that collects information on maltreatment (emotional, physical, or sexual abuse, and emotional or physical neglect) or household dysfunction (HD) (parental separation or divorce, having an abused mother or a substance abusing, criminal, or mentally ill parent) exposure before the age of 18 (Chapman et al., 2004). The separation of items into the subscales of maltreatment and household dysfunction was confirmed as a model to fit the data well using confirmatory factor analysis (Meinck et al., 2017). Such self-report measures of these types of ACEs have been shown to be sufficiently valid despite levels of under-reporting and bias, (Hardt & Rutter, 2004). Each maltreatment and HD ACE can be explored in terms of their effect on the outcomes measured. The Cronbach's alpha value for the total score of the ACE scale in this sample was 0.77, in line with other ACE studies such as 0.74 (Chegeni et al., 2020), and showing good internal consistency throughout (Gunduz et al., 2018). The subscales of maltreatment and HD ACEs were also assessed in terms of Cronbach's alpha, with values of 0.74 and 0.53 in this sample respectively.

4.2.4 Statistical analysis

Descriptive statistics are calculated to describe the socio-demographic characteristics of the whole sample, and of the clinical and non-clinical sub-samples. Current cases of probable PTSD, DSO, and CPTSD were calculated according to the ITQ scoring algorithm. Case reports were produced to determine the clinician administered diagnoses that each participant was given during the current perinatal period. Probable cases of PTSD and CPTSD as identified on the ITQ were compared against clinician administered diagnoses during the current perinatal period.

The data was screened to ensure that the assumptions of the multivariate statistical test were met. Multinomial logistic regression was used to assess differences in ACE exposure between five groups of women: women with probable PTSD, women with probable CPTSD, women with clinically significant DSO symptoms, women in the clinical sample without a trauma related stress disorder, and women in the non-clinical sample. The latter group were the reference category in the multivariate analyses. The first model had trauma-related stress disorder group as the outcome variable, the total maltreatment ACE variable as the predictor variable, with education, ethnicity, living status, and sexuality entered as covariates. These socio-demographic characteristics were identified in Chapter 1 as key correlates of adverse perinatal outcomes. A similar model was analysed with the total household dysfunction ACE variable replacing the maltreatment ACE variable, as collinearity prevented running both groups in the same model. A final model was analysed with all 10 individual ACE variables factored into the model as predictor variables. The psychological treatments and psychotropic medications received by women with probable PTSD and CPTSD are reported.

4.3 Results

The MWMHLE whole sample included N=628 women who were pregnant or within one-year of childbirth at the first assessment. N=213 (33.9%) of participants reached the criterion of being in the clinical subsample. N=415 (66.1%) participants who were not referred to primary or secondary care mental health services during the current perinatal period were assigned to the non-clinical subsample.

4.3.1 Socio-demographic characteristics

The characteristics of the whole MWMHLE sample, as well as the clinical and non-clinical subsamples, can be seen in Table 4.1.

Table 4.1. Socio-demographic characteristics of the MWMHLE study

Variables		Whole sample (N=628)	Clinical sample (N=213)	Non-clinical sample (N=415)
Perinatal status	Pregnant	165 (26.3%)	47 (22.1%)	118 (28.4%)
	Postpartum	463 (73.7%)	166 (77.9%)	297 (71.6%)
Ethnicity	White	598 (95.2%)	203 (95.3%)	395 (95.2%)
	Non-white	30 (4.8%)	10 (4.7%)	20 (4.8%)
Education	No qualifications	6 (1.0%)	2 (0.9%)	4 (1.0%)
	1-4 GCSEs	21 (3.3%)	10 (4.7%)	11 (2.7%)
	5+ GCSEs	44 (7.0%)	19 (8.9%)	25 (6.0%)
	Apprenticeship	2 (0.3%)	1 (0.5%)	1 (0.2%)
	2+ A Levels	60 (9.6%)	20 (9.4%)	40 (9.6%)
	Degree or above	483 (76.9%)	160 (75.1%)	323 (77.8%)
	Other qualification	2 (0.3%)	0	2 (0.5%)
Sexuality	Heterosexual	536 (85.4%)	179 (84.0%)	357 (86.0%)
	Not heterosexual	92 (14.6%)	34 (16.0%)	58 (14.0%)
Married or living with partner	Yes	587 (93.5%)	197 (92.5%)	390 (94.0%)
	No	32 (5.1%)	15 (7.0%)	17 (4.1%)

The characteristics of the women in the MWMHLE study showed a high percentage of the sample being of white ethnicity, degree educated, heterosexual and married or living with a partner compared to UK norms. The clinical and non-clinical subsamples were comparable on these key socio-demographic variables and were not significantly different. The MWMHLE sample is over representative of women of White ethnicity (95.2%), compared to the UK wide rate of 82.9% (ONS,

2022). In the UK, 34.4% of the population hold a university degree level of educational attainment (or equivalent) or above (NOMIS, 2021), which is extensively lower than the 76.9% rate in the current sample. It is estimated that in the UK, 65% of adults live with or are married to a partner (ONS, 2020), although it is unsurprising that this is lower than the rate of 93.5% in this sample given it is a perinatal cohort, and therefore recruited women more likely to be in stable relationships. The current sample had rates of sexuality of 85.4% heterosexual, compared with rates of 94.1% heterosexual in UK women (ONS, 2022).

4.3.2 Frequency and detection of PTSD symptoms

Clinical subsample

Of the women in the clinical subsample, 9 of 213 (4.2%) met criteria for probable caseness of PTSD on the ITQ. Of these N=9 women with probable PTSD only N=2 (22.2%) had been diagnosed with PTSD by a mental health professional during the current perinatal period. Put another way, 77.8% of women (7 of 9) with probable PTSD were not diagnosed with this condition by primary and/or secondary care mental health services (see Figure 4.6 and 4.7). The alternate clinician administered diagnoses for the N=7 women with probable PTSD as identified on the ITQ are shown in Figure 4.2.

Figure 4.2. Clinician administered diagnoses of clinical subsample women with undiagnosed PTSD symptoms in the current perinatal period

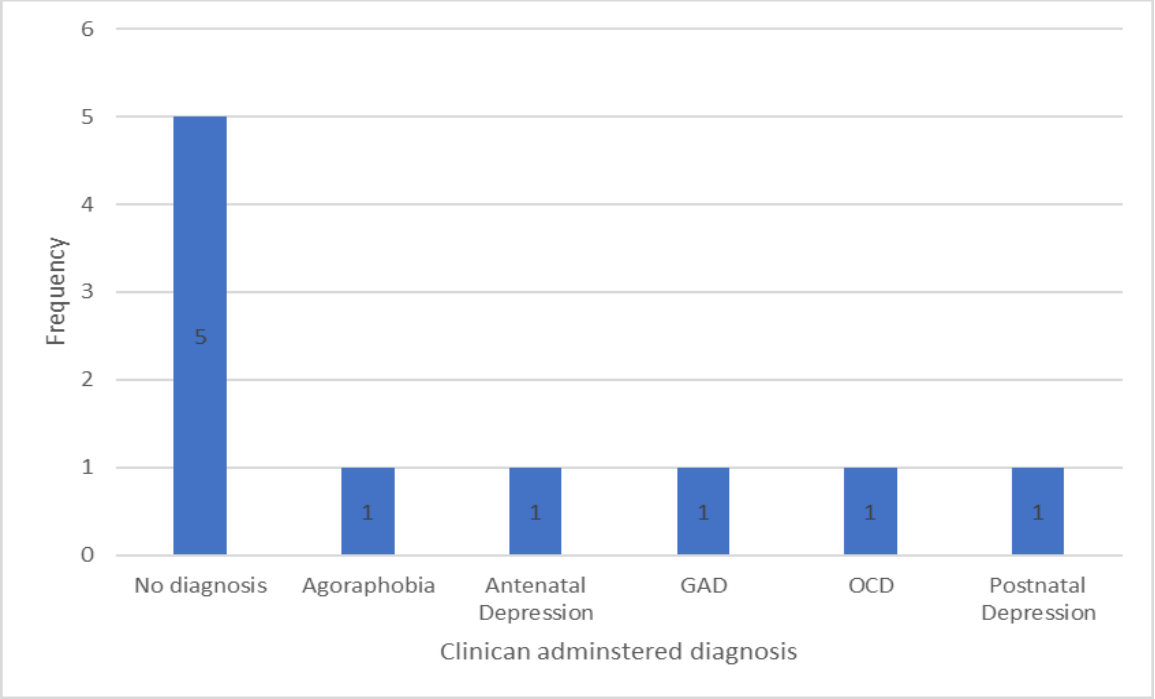


Figure 4.2 presents women in the clinical sample with undetected PTSD in the current perinatal period and the clinician administered mental health diagnoses. This figure does not account for the comorbidity of women in this subsample. Of the 7 women with undetected PTSD: N=5 (71.4%) had not been given a diagnosis by their mental health team, N=1 (14.3%) had the comorbid diagnoses of agoraphobia, antenatal depression, generalised anxiety disorder, and obsessive-compulsive disorder, and N=1 (14.3%) had a diagnosis of postnatal depression.

Non-clinical Sample:

Of the women in the non-clinical subsample, 6 of 415 (1.4%) met criteria for probable caseness of PTSD on the ITQ. Of these N=6 women with probable PTSD, none had been diagnosed with PTSD by a mental health professional during the current perinatal period, as shown in Figures 4.4 and 4.5.

4.3.3 Frequency and detection of CTSD symptoms

Clinical Sample:

For the clinical subsample, 32 of 213 women (15.0%) meet criteria for probable CPTSD on the ITQ. Of these 32 women, only N=1 (3.1%) had received a CPTSD diagnosis from a mental health professional during the current perinatal period. Put another way, 96.9% of women with probable CPTSD who at some point during the current perinatal period were under the care of a mental health service were not diagnosed with this condition (see Figures 4.4 and 4.5). The alternative diagnoses given by a mental health professional for the N=31 women with probable CPTSD, but no CPTSD diagnosis, are detailed in Figure 4.3.

Figure 4.3. Clinician administered diagnoses of clinical subsample women with undiagnosed CPTSD symptoms in the current perinatal period

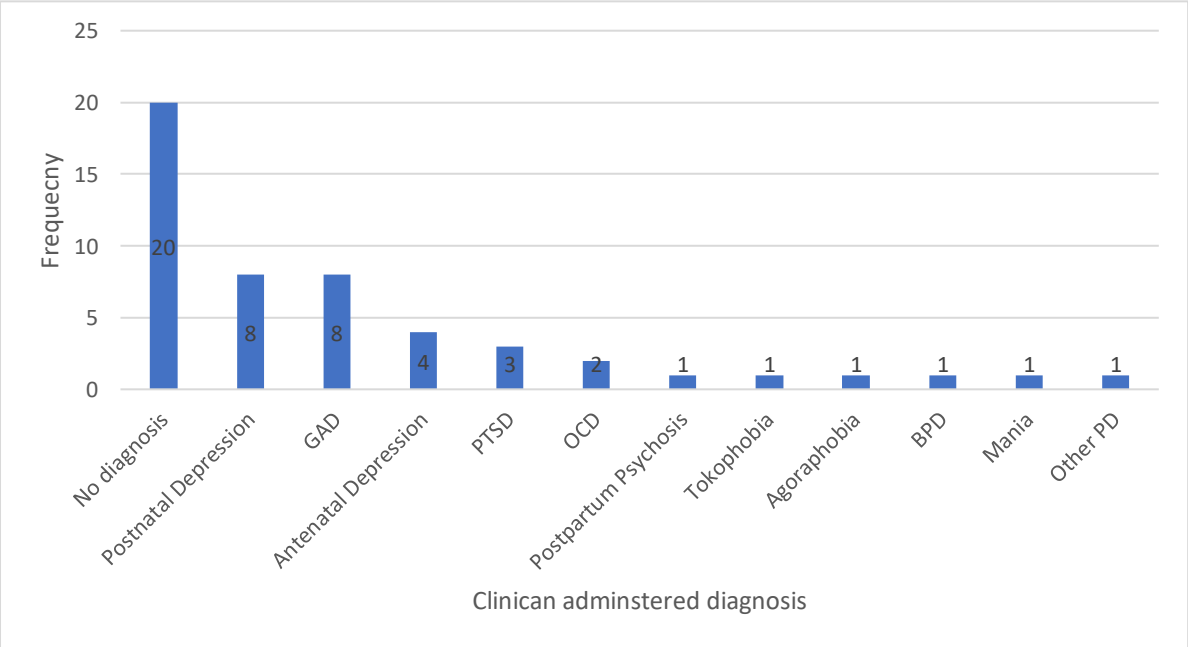


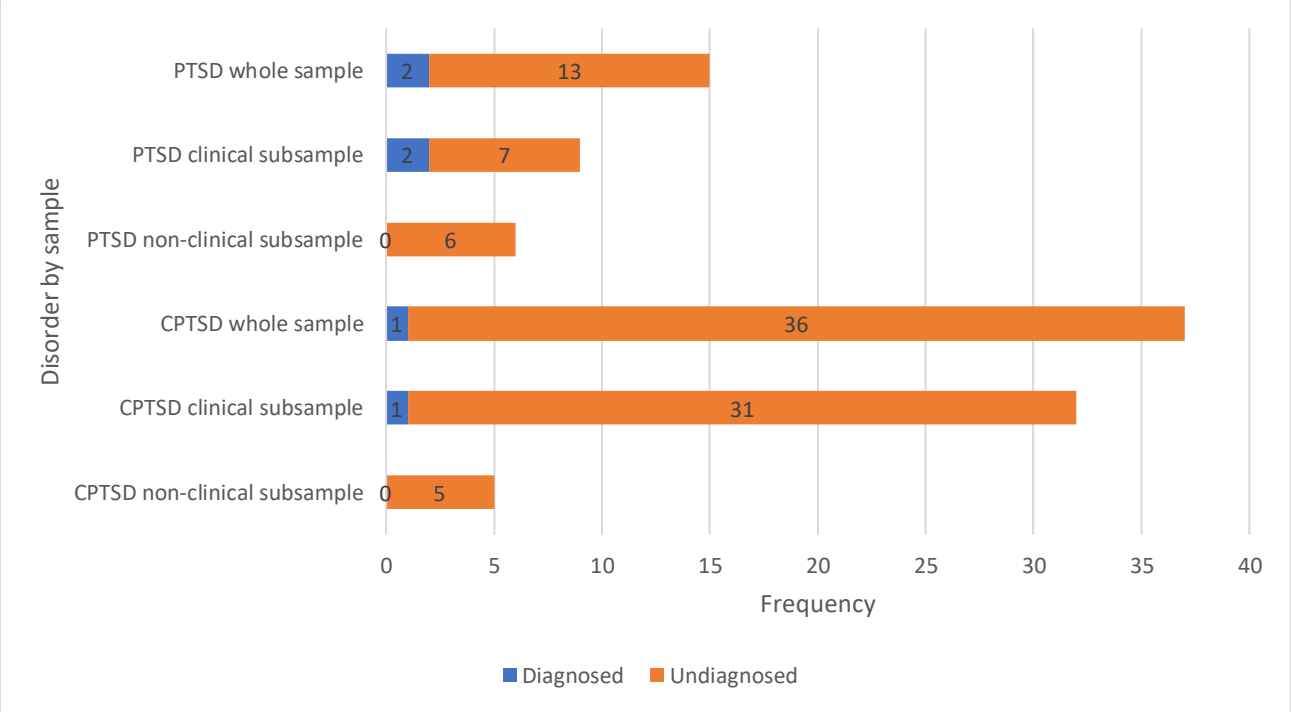
Figure 4.3 presents clinical women with undetected CPTSD in the current perinatal period and the frequency of clinician administered mental health diagnosis within this current perinatal period that women had instead been given. This figure does not account for the comorbidity of women in this subsample. Of the 31 women with probable CPTSD under the care of mental health

services: N=20 (62.5%) had not been given an alternative diagnosis, N=3 (9.4%) had been diagnosed with postnatal depression, N=2 (6.3%) with generalised anxiety disorder, N=1 (3.1%) with agoraphobia, antenatal depression, generalised anxiety disorder, borderline personality disorder, mania, other personality disorder, and postnatal depression, N=1 (3.1%) with antenatal depression, generalised anxiety disorder, postnatal depression, and PTSD, N=1 (3.1%) with antenatal depression and generalised anxiety disorder, N=1 (3.1%) with generalised anxiety disorder, postnatal depression, and obsessive-compulsive disorder, N=1 (3.1%) with generalised anxiety disorder, obsessive-compulsive disorder, postnatal depression, and postpartum psychosis, N=1 (3.1%) with postnatal depression and PTSD, and N=1 (3.1%) with antenatal depression, generalised anxiety disorder, PTSD, and tokophobia.

Non-clinical Sample:

N=5 (1.2%) of women in the non-clinical sample presented with probable CPTSD on the ITQ. Of these 5 women, none had received a CPTSD diagnosis from a mental health professional during the current perinatal period, see Figure 4.4.

Figure 4.4. Probable caseness for PTSD and CPTSD on the ITQ benchmarked against clinician administered diagnosis during the current perinatal period



4.3.4 Frequency of DSO symptoms

Clinically significant DSO symptoms (without the PTSD symptom clusters) as detected on the ITQ were present for N=32 women (15.0%) in the clinical sample, and for N=29 women (7.0%) in the non-clinical sample. Taken together, a total of N=61 of 628 women (9.7%) presented with clinically significant DSO symptoms but did not reach criteria for PTSD or CPTSD. DSO is not an ICD diagnosis, so an assessment of un-detection cannot be completed. The current clinician administered

diagnoses for women presenting with clinically significant DSO symptoms are detailed in the following section.

Clinical Sample:

The diagnoses of women with current DSO symptoms as detected on the ITQ in the clinical sample (N=32), is outlined in Figure 4.5.

Figure 4.5. Clinician administered diagnoses for women in the clinical sample with DSO symptoms

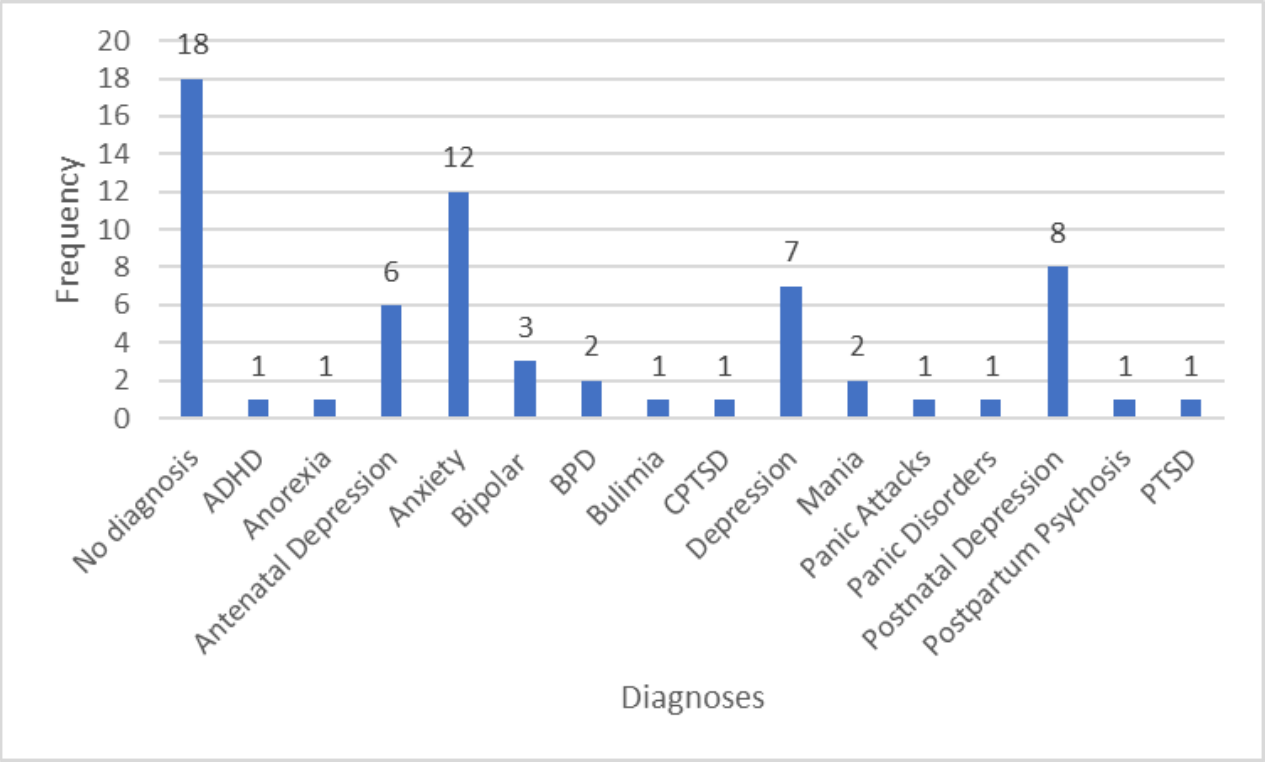


Figure 4.5 presents women in the clinical sample who reached criteria for the DSO symptom cluster on the ITQ during the current perinatal period and the clinician administered mental health diagnoses. This figure does not account for the comorbidity of women in this subsample. Of these N=32 women, N=18 (56.3%) women had no alternative diagnosis. Clinician administered diagnoses were as follows: N=2 (6.3%) generalised anxiety disorder and postnatal depression, N=1 (3.1%) ADHD, antenatal depression, generalised anxiety disorder, depression, and postnatal depression, N=1 (3.1%) antenatal depression, depression, generalised anxiety disorder, panic attacks, and

postnatal depression, N=1 (3.1%) generalised anxiety disorder, depression, postnatal depression, and postpartum psychosis, N=1 (3.1%) antenatal depression, generalised anxiety disorder, bipolar, BPD, depression, and mania, N=1 (3.1%) generalised anxiety disorder, N=1 (3.1%) generalised anxiety disorder, bipolar, CPTSD, depression, mania and PTSD, N=1 (3.1%) generalised anxiety disorder and panic disorder, N=1 (3.1%) antenatal depression, generalised anxiety disorder, bipolar, and postnatal depression, N=1 (3.1%) antenatal depression, generalised anxiety disorder, BPD, and postnatal depression, N=1 (3.1%) anorexia, generalised anxiety disorder, bulimia, and depression, N=1 (3.1%) antenatal depression, and N=1 (3.1%) had depression and postnatal depression.

4.3.5 Adversity

Given the frequency of detected and undetected PTSD and CPTSD symptoms in the sample, in addition to women with DSO symptoms, it is important to investigate the childhood adversity that women were exposed to. The frequency of ACEs exposure by trauma related stress disorder group are outlined in Table 4.2. For these analyses, women with a probable trauma related stress disorder (PTSD, CPTSD, DSO) were compared against clinical women without probable trauma related stress disorder symptoms and women in the non-clinical sample without probable symptoms.

Table 4.2. The frequency of ACEs by current symptoms of trauma related stress disorders

ACE	Current PTSD (N=15)	Current DSO (N=61)	Current CPTSD (N=37)	Clinical sample other (N=140)	Non-clinical sample other (N=369)
Mean Maltreatment ACEs	1.60 SD=1.64	1.33 SD=1.34	2.22 SD=1.60	0.89 SD=1.28	0.45 SD=0.98
Emotional Abuse	7 (46.7%)	26 (42.6%)	26 (70.3%)	29 (20.7%)	30 (8.1%)
Physical Abuse	3 (20.0%)	14 (23.0%)	17 (45.9%)	16 (11.4%)	15 (4.1%)

Sexual Abuse	4 (26.7%)	8 (13.1%)	13 (35.1%)	24 (17.1%)	9 (2.4%)
Emotional Neglect	8 (53.3%)	28 (45.9%)	20 (54.1%)	28 (20.0%)	26 (7.0%)
Physical Neglect	2 (13.3%)	5 (8.2%)	6 (16.2%)	6 (4.3%)	10 (2.7%)
Mean Household Dysfunction ACEs	2.07 SD=1.16	1.39 SD=1.10	1.89 SD=1.24	1.13 SD=1.15	0.84 SD=1.01
Abused Mother	3 (20.0%)	6 (9.8%)	9 (24.3%)	9 (6.4%)	6 (1.6%)
Parental Divorce	9 (60.0%)	28 (45.9%)	20 (54.1%)	53 (37.9%)	72 (19.5%)
Parental Substance Abuse	8 (53.3%)	14 (23.0%)	17 (45.9%)	22 (15.7%)	29 (7.9%)
Parental Mental Illness	10 (66.7%)	34 (55.7%)	20 (54.1%)	43 (30.7%)	56 (15.2%)
Parental Imprisonment	1 (6.7%)	3 (4.9%)	4 (10.8%)	4 (2.9%)	4 (1.1%)

A correlation matrix was created to explore the association between trauma related stress disorder group, the covariates, and maltreatment and household dysfunction ACEs. This matrix can be seen in Table 4.3.

Table 4.3. Inter-correlations between participant symptoms, ACE group and identified covariates

	1	2	3	4	5	6	7	8	9	10	11
1. Probable PTSD	---										
2. Probable CPTSD	-.044	---									
3. Clinically significant DSO	-.053	-.080*	---								
4. Clinical other	-.092*	-.138**	-.166**	---							
5. Non-clinical other	-.210**	-.314**	-.378**	-.654**	---						
6. Ethnicity	-.032	-.012	-.027	.070	-.027	---					
7. Education	-.019	-.062	.006	.002	.031	-.006	---				
8. Sexuality	.101*	.113**	.060	-.019	-.110**	-.073	.004	---			
9. Living status	-.133**	.031	-.004	-.049	.075	.003	.227**	-.059	---		
10. Maltreatment ACEs	.092	.306**	.123*	.007	-.303**	.028	-.167**	.212**	-.022	---	
11. HD ACEs	.118*	.212**	.102*	-.002	-.237**	-,002	-.183**	.184**	-.052	.567**	---
N=628. *p≤.05, **p≤.01											

Multinomial logistic regression was used with the outcome of current trauma related stress disorder group, and the predictors of mean maltreatment ACEs, and the identified correlated covariates of education, and sexuality. Maltreatment ACEs were found to significantly predict probable PTSD (Exp (*ϐ*)=1.52, C.I.=1.07 to 2.14, *p*=.02), clinically significant DSO symptoms (Exp (*ϐ*)=1.50, C.I.=1.21 to 1.87, *p*≤.01), and probable CPTSD (Exp (*ϐ*)=2.01, C.I.=1.57 to 2.55, *p*≤.01) compared to women in the non-clinical sample comparison group. This implies that for each additional maltreatment ACE experienced, the likelihood of women meeting criteria for PTSD increased by 1.07 times, for CPTSD the risk increased by 2.01 times, and the likelihood of meeting criteria for clinically significant DSO symptoms increased by 1.50 times. Sexuality was further a predictor of current PTSD symptoms (Exp (*ϐ*)=1.24, C.I.=1.01 to 1.53, *p*=.04) with women who were not heterosexual being more likely to reach criteria for probable PTSD.

A similar model was analysed with mean household dysfunction ACEs replacing mean maltreatment ACEs. HD ACEs were found to predict probable PTSD (Exp (*ϐ*)=1.77, C.I.=1.18 to 2.65, *p*≤.01), probable CPTSD (Exp (*ϐ*)=1.95, CI=1.42 to 2.68, *p*≤.01), and clinically significant DSO symptoms (Exp (*ϐ*)=1.43, C.I.=1.08 to 1.90, *p*=.01). This implies that for each additional HD ACE women experienced, the likelihood of having probable PTSD increased by 1.77 times, the likelihood of having probable CPTSD by 1.95 times, and the likelihood of having clinically significant current DSO symptoms by 1.43 times compared to the non-clinical comparison group. Sexuality was a further predictor of probable PTSD (Exp (*ϐ*)=1.26, C.I.=1.02 to 1.56, *p*=.03), with women who were not heterosexual being more likely to currently have probable PTSD symptoms.

A final multinomial logistic regression was conducted with all 10 individual ACE variables entered as predictor variables and with the covariates of education, ethnicity, sexuality and living with a partner factored into the model. The outcome variable was diagnostic group, e.g., PTSD, CPTSD, DSO, clinical (with no-trauma related disorder), and non-clinical. Parental substance abuse (Exp (*ϐ*)=3.81, CI=1.13 to 12.87, *p*=.03) significantly increased the likelihood of probable PTSD by 3.81

times compared to the non-clinical comparison group, and not being married or living with a partner was significantly more likely in women with probable PTSD (Exp (*β*)=.13, CI=.02 to .74, *p*=.02), again compared to women in the non-clinical comparison group. Current DSO symptoms were significantly more likely to be present if emotional neglect (Exp (*β*)=3.13, CI=1.47 to 6.70, *p*≤.01) and parental mental illness (Exp (*β*)=2.31, CI=1.23 to 4.36, *p*≤.01) had been experienced during childhood. Probable CPTSD were significantly more likely to be present if emotional abuse (Exp (*β*)=6.87, CI=2.36 to 20.04, *p*≤.01), and parental imprisonment (Exp (*β*)=6.15, CI=1.12 to 33.95, *p*=.04) had been experienced once other ACEs and covariates were controlled for.

4.3.6 Psychological treatments

Table 4.4 details the mental health services that women accessed during the current perinatal period by current trauma related stress disorder group.

Table 4.4. The mental health services accessed by women during the current perinatal period by trauma related stress disorder group

Level of Mental Health Service	Current PTSD symptoms (N=15)	Current DSO symptoms (N=61)	Current CPTSD symptoms (N=37)
NHS primary care	5 (33.3%)	14 (23.0%)	18 (48.6%)
Third sector care	1 (6.7%)	5 (8.2%)	8 (21.6%)
Private provider	1 (6.7%)	5 (8.2%)	5 (13.5%)
No mental health service access	**7 (46.7%)**	**39 (63.9%)**	**8 (21.6%)**

With nearly 80% of women with current CPTSD symptoms having been seen by specialist perinatal mental health services in the current perinatal period, the under detection of the CPTSD symptoms is a point of significant importance. Additionally, why over 20% with current symptoms are not being referred to specialist perinatal mental health services is concerning. Furthermore,

nearly half of women with probable PTSD had not been referred to specialist perinatal mental health services.

Psychological treatments that were currently being received by participants by trauma related stress disorder group are detailed in Table 4.6. Despite the under-detection of probable PTSD and CPTSD, there are a range of psychological therapies offered to women during the current perinatal period.

Table 4.5. The psychological treatments accessed by women by trauma related stress disorder group

Psychological treatment		Current PTSD (N=15)	Current DSO (N=61)	Current CPTSD (N=37)
No current psychological treatment		13 (86.7%)	34 (55.7%)	19 (51.4%)
Evidence Based Treatments For PTSD	Cognitive Behavioural Therapy	1 (6.7%)	6 (9.8%)	11 (29.7%)
	Eye Movement Desensitization and Reprocessing Therapy	0	4 (6.6%)	2 (5.4%)
Third Wave Therapies	Acceptance and Commitment Therapy	0	0	1 (2.7%)
	Dialectical Behaviour Therapy	0	1 (1.6%)	1 (2.7%)
Self-Management	Self-Management	2 (13.3%)	11 (18.0%)	9 (25.7%)
Couples Therapy	Couples Therapy	0	0	1 (2.7%)
Parent Infant Relationship Intervention	Parent Infant Relationship Intervention	0	1 (1.6%)	3 (8.1%)
Other Therapies	Psychoanalytic Psychotherapy	0	0	2 (5.7%)
	Counselling	1 (6.7%)	8 (13.1%)	10 (27.0%)

Note: Women may have received multiple treatments

4.3.7 Psychotropic medication

The medication that women in the sample were prescribed for their mental health are presented in Table 4.6 by trauma related stress disorder group. Just under half of women with probable CPTSD and just over three-quarters of women with clinically significant DSO symptoms were currently prescribed psychotropic medication. The majority of these women were prescribed an anti-depressant or to a lessor extent an anti-anxiety medication. Contrastingly, only just over a quarter of women with probable PTSD were prescribed psychotropic medication. For women with probable PTSD or CPTSD, the combination of both psychotropic medication and a psychological therapy was relatively uncommon, with only 8 of 49 (16.3%) women receiving both treatment options.

Table 4.6. The psychotropic medication prescribed to women by trauma related stress disorder group

Psychotropic medication	Current PTSD symptoms (N=15)	Current DSO symptoms (N=61)	Current CPTSD symptoms (N=37)
No current psychotropic medication	**11 (73.3%)**	**40 (65.6%)**	**19 (51.4%)**
Anti-depressants	4 (26.7%)	19 (31.1%)	15 (40.5%)
Mood stabilizers	1 (6.7%)	3 (4.9%)	4 (10.8%)
Anti-psychotics	0	2 (3.3%)	3 (8.1%)
Anti-anxiety	2 (13.3%)	6 (9.8%)	9 (24.3%)
Sleep tablets	1 (6.7%)	3 (4.9%)	6 (16.2%)
Other	0	1 (1.6%)	0

Note: Women may have received multiple medications

4.4 Discussion

The frequency of PTSD and CPTSD symptoms were assessed in a perinatal sample, with current PTSD symptoms reaching ICD-11 criteria present in N=15 (2.4%) women, and current CPTSD symptoms reaching ICD-11 criteria present in N=37 (5.9%) women. It was shown that both PTSD and CPTSD were frequently under detected. For example, 13 of 15 women (86.7%) of the N=15 women

in the MWMHLE sample with probable PTSD had not received this diagnosis by a mental health professional. Even more stark was that N=36 of the 37 women (97.3%) with probable CPTSD had not been given this diagnosis by a mental health professional. Additionally, N=61 (9.7%) of the MWMHLE sample presented with clinically significant DSO symptoms, although a comparison of detection was not possible as DSO is not a formal diagnosis in ICD-11. A secondary aim of this chapter was to explore the frequency of exposure to early life adversity in women with probable PTSD, DSO, and CPTSD. It was found that maltreatment ACEs and HD ACEs were collectively associated with probable caseness for PTSD, DSO and CPTSD, with specific ACEs associated with specific trauma-related stress disorders. Finally, the psychological treatments and psychotropic medications used by women in the different trauma-related stress disorder groups were compared, and it was shown that despite being under the care of clinical services, a significant number of women were not receiving an evidence-based treatment.

As discussed in section 4.1, the presence of PTSD and CPTSD symptoms during the perinatal period has the potential to lead to negative perinatal outcomes relating to the health and wellbeing of the baby (Black, 2007; Giurgescu et al., 2006; Leeners et al., 2008; Markovic et al., 2006; Mirzakhani et al., 2020), increasing the likelihood of ectopic pregnancy, miscarriage, preterm labour, gestational diabetes, preeclampsia, and low birthweight (Seng et al., 2014; Seng et al., 2001; Shaw et al., 2017). Mother-infant attachment (Brake et al., 2020; Rutherford et al., 2015), parenting confidence (Vance & Brandon, 2017) and trust in perinatal health professionals such as midwifes, and doctors (Gokhale et al., 2020; Gordon et al., 2019; Kuzma et al., 2020; Ward, 2020) has also been hypothesised to be disrupted by the presence of these trauma related stress disorders. The need for accurate identification of both PTSD and CPTSD during the perinatal period is therefore essential. The MWMHLE sample was divided into women in contact with mental health services (the clinical subsample), and women not in contact with such services, (the non-clinical subsample). In the clinical subsample, only N=2 (22.2%) of women who had probable PTSD had received this diagnosis of PTSD from a mental health professional. Thus, 77.8% of women under the care of a

mental health service during the current perinatal period with probable PTSD did not have a current diagnosis of PTSD.

For women with probable CPTSD during the current perinatal period, only N=1 (3.1%) had received a CPTSD diagnosis. This means that the vast majority of women (N=31; 96.9%) under the care of mental health services with probable CPTSD had not received a CPTSD diagnosis. Given the potential negative perinatal consequences associated with PTSD and CPTSD, this is a worrying and significant finding. Additionally, it is of concern that N=6 women with probable PTSD, and N=5 women with probable CPTSD were in the non-clinical subsample and thus, had not received assessment or treatment for their mental health. This would suggest that symptomatic women are either not always being identified and referred to relevant services or are not seeking out these services. As discussed in section 4.1, minimal research has explored the prevalence of trauma related stress disorders, particularly CPTSD, during the perinatal period. This chapter therefore offers a novel contribution to the literature of the frequency of PTSD and CPTSD symptoms in the perinatal period of 2.4% and 5.9% respectively. Furthermore, I have highlighted a clinical implication of un-detection of PTSD and CPTSD in the perinatal period as current symptoms were not correctly diagnosed in over 85% of women with probable PTSD, and in over 95% of women with probable CPTSD.

Due to many women having had probable PTSD and CPTSD undetected during the perinatal period, it was important to explore what diagnoses these women had received, as well as the treatment provided to them. Of women under clinical care with undiagnosed probable PTSD, 11.1% had received a diagnosis of generalised anxiety disorder (GAD) from a mental health professional. PTSD and GAD are frequently diagnosed as comorbid disorders (Barbano et al., 2019; Spinhoven et al., 2014), with overlap occurring relating to negative affect (Price et al., 2019) and perceived threat (Li et al., 2020). Other disorders present in clinical women with probable PTSD, but no current PTSD diagnosis included perinatal depression (22.2%). Like GAD, the negative affect of PTSD means that

there is frequently comorbidity between the traumatic stress disorder and depression (Barbano et al., 2019; Flory & Yehuda, 2022; Price et al., 2019). Research has suggested that if more prominent and salient symptoms of an alternative disorder are present, then a diagnosis of PTSD and CPTSD is more likely to be missed (Lewis et al., 2018). Due to the frequent comorbidity between PTSD with depression and GAD, it is likely that these disorders are receiving a diagnosis whilst PTSD is missed due to the depressive and GAD symptoms being more prominent. Similarly, Agoraphobia (11.1%) and OCD (11.1%) were diagnosed by a mental health professional in women with undetected PTSD. Avoidance is a shared symptoms across PTSD and Agoraphobia, and PTSD and OCD have been shown to have overlapping symptomology and high comorbidity (Franklin & Raines, 2019; Van Kirk et al., 2018). The common comorbidity across these mental health conditions may result from an overlap of three specific symptoms: unwanted thoughts and memories; repetitive behaviours aimed at reducing distress; and avoidance of stimuli to control intrusive thoughts (Fletcher et al., 2018).

In women with probable CPTSD but no CPTSD diagnosis, the diagnoses for these women were postnatal depression (25.0%), GAD (25.0%), antenatal depression (12.5%) and PTSD (9.4%). As with PTSD, there is frequently a large overlap between CPTSD with GAD (Gilbar, 2020; Karatzias et al., 2019) and depression (Gilbar, 2020; Hyland et al., 2021; Karatzias et al., 2019). Again, as with PTSD, it could be that the prominence of the depressive and generalised anxiety disorder symptoms coupled with the lack of screening for trauma exposure meant that clinicians may have overlooked the presence of the CPTSD symptoms (Lewis et al., 2018) instead of the CPTSD symptoms currently present. With regards to the women with probable CPTSD, but a PTSD diagnosis, it can be assumed that when these women had contact with mental health professionals for their trauma related symptoms, the first three symptom clusters of re-experiencing, persistent sense of threat, and avoidance of reminders were all present, but the DSO symptom clusters were not present or identified. In the here and now when women are taking part in the MWMHLE study they are reporting that these DSO symptoms, in addition to the PTSD symptoms, were present. This means that these DSO symptoms have either developed since their diagnosis and their clinical team has not

reassessed or updated their diagnosis in relation to this, or that DSO symptoms were and continue to be missed. OCD was present in 6.3% women with current CPTSD symptoms but no current CPTSD diagnosis and may be explained by the overlapping symptomology and high comorbidity with the PTSD symptom clusters of CPTSD (Franklin & Raines, 2019; Van Kirk et al., 2018).

Given the absence of a diagnosis in ICD-11 for DSO symptoms as a distinct condition, a comparison of detection and under-detection cannot be assessed. However, an assessment of the frequency of clinically significant DSO symptoms is possible with the ITQ. Affective dysregulation, negative self-concept, and disturbances in relationships have been discussed in relation to the negative perinatal outcomes that these difficulties are associated with (see section 4.1). This highlights the potential need for DSO symptoms to be identified in the perinatal period. In terms of clinician administered diagnoses, generalised anxiety disorder (37.5%), postnatal depression (25.0%), depression (21.9%), and antenatal depression (18.8%) were the most common diagnoses. Fewer clinical diagnosed conditions included bipolar (9.4%), BPD (6.3%), and mania (6.3%) which were found in multiple women with DSO symptoms, and ADHD, anorexia, bulimia, CPTSD, panic attacks, panic disorders, postpartum psychosis, and PTSD all occurred in single instances. To the best of my knowledge, this is the first investigation of the diagnoses that women with current perinatal DSO symptoms have been given by healthcare professionals during pregnancy and the postpartum. These findings highlight an opportunity for further research into this group of women that are trauma exposed and present with clinically significant DSO symptoms during the perinatal period.

For women within the clinical sample, it may be that current PTSD and CPTSD symptoms are in the process of being assessed, and that the correct diagnosis will eventually be given. Or alternatively, the PTSD and DSO symptoms are being treated independent of a diagnosis. PTSD leads to the avoidance of traumatic reminders, be it internal or external, hence its requirement to be present to reach the threshold of a diagnosis (Cloitre et al., 2014). For many who have experienced adversity, particularly sexual abuse, physical assessments throughout the perinatal period can be a

cause of great stress due to the traumatic reminders that are brought back up (Leeners et al., 2016; Sobel et al., 2018). Furthermore, the hypervigilance that accompanies such avoidance can further increase the stress associated with healthcare appointments. For women with PTSD and CPTSD, it could be that they under-report the trauma-related stress disorder symptoms due to the nature of the conditions. Women with current DSO symptoms have been shown to experience greater difficulties in forming relationships (Busby et al., 2011; Karatzias et al., 2021; Kong et al., 2018). Such difficulties in forming relationships may lead to a lack of willingness to engage with mental health professionals, leading to the under-detection of symptoms. Additionally, trauma exposure and the DSO symptom cluster could give rise to a lack of trust in perinatal healthcare professionals including midwifes, and doctors (Gokhale et al., 2020; Gordon et al., 2019; Kuzma et al., 2020; Ward, 2020) and consequently, under-detection.

As well as the behaviours of women that may be impacted by their current PTSD and DSO symptoms during assessment and treatment sessions during the perinatal period, healthcare professionals' awareness and understanding of PTSD and CPTSD needs to be considered. PTSD has been shown to be highly comorbid with depression and GAD (Galatzer-Levy et al., 2013; Drapkin et al., 2011; Ikin et al., 2010; Cougle et al., 2009; Sareen et al., 2005; Sareen et al., 2005), a finding supported in this chapter. Similarly, CPTSD is highly comorbid with depressive disorders and GAD in non-perinatal samples (Karatzias et al., 2019), again a finding replicated in this perinatal sample. The reason for the under detection of PTSD and DSO symptoms may therefore be as proposed by Lewis et al., (2018) that symptoms are attributed to comorbid diagnoses instead of seeking specific treatment or support for PTSD or CPTSD. Similarly, it may also be the case that clinicians misdiagnose or find difficulty in disentangling traumatic stress symptoms from the more salient symptoms of the primary mental disorder (Lewis et al., 2018). Such comorbid disorders are also often excluded in current guidelines for the treatment and management of traumatic related stress disorders (Bisson et al., 2013), potentially highlighting a reluctance to diagnose and treat, especially if there are worries it will complicate symptoms (Frueh et al., 2006).

In the non-clinical sample, which consisted of the women that took part in the MWMHLE study that were not under the care of a mental health service during the current perinatal period, it was found that PTSD and CPTSD were equally as under-detected. None of the N=6 women with probable PTSD and none of the N=5 women with probable CPTSD in the non-clinical sample had received a diagnosis of PTSD or CPTSD respectively from a healthcare professional. This finding is less surprising than the under-detection in the clinical subsample given that these women are not currently being seen by a mental health professional for any form of treatment or care.

Across the whole MWMHLE sample, probable PTSD was identified via the ITQ in N=15 (2.4%) women. The UK national prevalence rate for PTSD is 4.4% (Fear et al., 2016; Shevlin et al., 2020). The lower rates of PTSD in the current sample may be accounted for by the fact that in the current chapter, CPTSD was also screened for. Probable CPTSD was identified in N=37 (5.9%) of the whole perinatal sample. The prevalence rate for CPTSD in the literature varies greatly with estimates between 2.6% and 12.9% (Ben-Ezra et al., 2018; Cloitre et al., 2019; Karatzias et al., 2019; McGinty et al., 2021). The findings reported in this chapter contributes to the literature by offering a further estimate of the frequency of clinically significant CPTSD in a specific perinatal UK population.

Exposure to trauma is a prerequisite for PTSD and CPTSD. Early life adversity is frequently the source of the trauma associated with PTSD and CPTSD developing (Bosch et al., 2020; Motsan et al., 2021; Owen, 2020; van Dijke et al., 2018). Understanding the role of early life adversity and the development of PTSD and CPTSD, particularly during the perinatal period, can aid the process of screening for such adversities and implementing suitable management strategies. Across the whole MWMHLE sample, exposure to cumulative maltreatment and cumulative HD ACEs increased the risk of developing PTSD and CPTSD. When explored by individual ACEs, having a parent with a substance abuse problem significantly increased the risk of developing PTSD. Additionally, not living with a partner was also significantly related to current PTSD symptoms being present. Whereas exposure to emotional and sexual abuse during childhood increased the risk of developing CPTSD. These findings

suggest that it is a HD ACE that carries the greatest individual risk for later life PTSD, whereas exposure to maltreatment-based early life adversities predict CPTSD once the impact of other ACEs are controlled for. These findings are in line with those of previous chapters and further highlight the association between exposure to early life adversity and adverse mental health outcomes during the perinatal period. Exposure to the maltreatment-based adversities of emotional and sexual abuse during childhood can have lasting implications for an individual's sense of safety and wellbeing (Ellis et al., 2022; McLaughlin et al., 2014). Brain structure and function have been suggested to change as a result of exposure to threat, including a reduced amygdala and hippocampal volume, and elevated amygdala response to threat cues (McLaughlin et al., 2019). These changes imply that children exposed to a threatening early environment exhibit cognitive biases that facilitate the rapid identification of potential future threats (Ellis et al., 2022; Heleniak et al., 2016; Pollak et al., 2009 Weissman et al., 2019). Fear-learning processes rapidly detect potential threats and mobilize resources to respond (Delgado et al., 2006; McLaughlin & Sheridan, 2016). The implication of such neural plasticity alterations linked to maltreatment-based adversities could be the development of PTSD and DSO symptoms later in life.

Both the psychological and pharmacological treatments administered to women depending on the current symptoms were assessed. Of concern, a significant number of women with probable PTSD and CPTSD were not offered an evidence-based treatment. For women with probable CPTSD, self-management and counselling were accessed by 26% and 27% respectively, with approximately 30% of women with probable CPTSD receiving at least one form of an 'evidence-based psychological treatment for PTSD'. Regarding psychotropic medication, for women with probable PTSD, anti-depression medication was currently being taken by 26.7%, anti-anxiety medication by 13.3%, mood stabilizers by 6.7%, and sleep tablets by 6.7%. Women with probable CPTSD were receiving medication at much greater rates; anti-depression medication at 40.5%, anti-anxiety medication at 24.3%, sleep tablets at 16.2%, mood stabilizers at 10.8%, and anti-psychotics at 8.1%. Women with probable PTSD and CPTSD were treated infrequently with both psychological therapies and

psychotropic mediations (21.6%), with healthcare providers instead tending to use one or the other. Further research should explore the effectiveness of psychological therapies and psychotropic medications in tandem and separately in the context of perinatal PTSD and CPTSD.

One limitation of this study was that medication was only captured in relation to the group of medication, e.g., anti-depressant or anti-anxiety, rather than individual types of medication within these categories. At present, four medications (fluoxetine, paroxetine, sertraline and venlafaxine) have supporting evidence from randomized control trials to show their success in treating PTSD (Bahji et al., 2020; Bisson et al., 2019; Bisson et al., 2020; Guo et al., 2015; Hamblen et al., 2019; Hoskins et al., 2021), and differences in usage rates and outcomes should be captured by research at this individual medication level. However, psychological treatments are recommended above psychotropic medication in PTSD guidelines (NICE, 2018). It is suggested that more people with PTSD would benefit from medication if it were prescribed according to the current evidence base, however, guidelines rarely provide sufficient detail to allow clinicians to determine the optimal way to prescribe recommended drugs (Bisson et al., 2020). Additionally, evidence suggests that the mean dosage of medication required to successfully treat PTSD often is at the maximum level suggested by treatment guidelines (Bisson et al., 2020; Joint Formulary Committee, 2019). As a result, the Cardiff PTSD prescribing algorithm offers clinicians guidance on prescribing specific medications, and with further guidance on dosage, in line with the participants specific needs, and in line with the supporting evidence base (Bisson et al., 2020). Guidance is often limited to PTSD, and future research should consider the role of evidence-based prescribing for CPTSD also. Further research should also explore the interaction between psychotropic medication and psychological treatments for women with PTSD and CPTSD.

In line with the first aim of this chapter, 2.4% of women were identified as suffering from probable PTSD and 5.9% from probable CPTSD. The second aim of this chapter was to determine whether probable cases of PTSD and CPTSD had been detected by mental health services. Of

concern was the finding that over 86% of women with probable PTSD and 97% of women with probable CPTSD did not have a diagnosis of the respective disorder. In line with the third aim of this chapter, maltreatment-based early life adversities carried the greatest risk for CPTSD, independent of other ACEs. Both cumulative maltreatment and household dysfunction ACEs were associated with a greater likelihood of developing PTSD and CPTSD during the perinatal period. Future research should consider whether healthcare professionals knowledge of the relationship between exposure to early adversity and the risk of PTSD and CPTSD is important for care of women in pregnancy and the postpartum period, as to appropriately detect risk factors, and implement relevant management and treatment processes. The final aim of this chapter was to determine the clinician administered mental health conditions that women with current PTSD and CPTSD symptoms had been diagnosed with, as well as the treatments that were offered. Clearer understanding of the ways in which psychological treatments and psychotropic medications are administered for PTSD and CPTSD should be further explored to determine the best treatment plans for trauma related stress disorders during the perinatal period.

Given the understanding of the frequency of early life adversity exposure and subsequent trauma related stress disorder symptoms in this perinatal sample, it is important to explore how these experiences and conditions are associated with perinatal outcomes. In particular, childbirth related outcomes. Chapter 5 will investigate whether physical outcomes of childbirth, as well as the psychological perception of the childbirth experience differ in women who meet ICD-11 criteria for a trauma related stress disorder. The association between exposure to early life adversity and adverse childbirth related outcomes will be further explored.

Chapter 5 - Childbirth Outcomes for Mother and Infant in Relation to Maternal Early Life Adversity and PTSD and CPTSD Symptoms During the Perinatal Period

5.1 Introduction

Early life adversity, PTSD, DSO, and CPTSD symptoms were all shown to be prevalent in the sample recruited into the MWMHLE study in Chapter 4. Across the whole sample, including women currently under the care of a specialist Perinatal Mental Health service, probable cases of PTSD and particularly CPTSD were shown to be frequently undetected by clinical services. Across the clinical and non-clinical samples, a perinatal frequency rate of 2.4% for PTSD symptom threshold and 5.9% for CPTSD symptom threshold was observed. Over 86% and 97% of these cases respectively, were undiagnosed. This is particularly concerning within the clinical cohort of women under the care of a mental health services, where 87.5% and 96.9% of women with probable PTSD and CPTSD had not received these diagnoses. Cumulative maltreatment and HD ACEs, as well as a select few individual ACEs, were shown in Chapter 4 to predict the symptom clusters of PTSD, DSO, and CPTSD during the perinatal period. As such, a pathway between early life adversity and perinatal mental ill-health is apparent. Chapter 2 documented that the presence of early life adversity has been shown to predict a range of adverse perinatal outcomes for mother and infant. However, there was a clear need for further research into childbirth related outcomes and mental health outcomes other than depression. The aim of this chapter is to examine the association between current trauma related stress symptom disorder symptom clusters (PTSD, DSO, and CPTSD) and perinatal outcomes relating specifically to childbirth. A consistent measure of trauma related stress disorder and a theoretically based measure of early life adversity allows for the current chapter to build upon the findings of prior chapters.

Many aspects of pregnancy and childbirth can carry increased risk for women with a history of exposure to adversity. The psychological impact of early life adversity can resurface during the perinatal period due to the frequency and saliency of potential triggers (Byrne et al., 2017; LoGiudice & Beck, 2016; Price-Roberston, 2012; Stephenson et al., 2018). Prior exposure to sexual abuse can be particularly disruptive for women in pregnancy, where cervical examinations, health care provider language, body exposure, disclosure, and male staff can be triggering for women (Carroll et al., 2020; Kuzma et al., 2020; Sobel et al., 2018; White, 2014). Loss of control, pain, encounters with strangers, and the crossing of body boundaries can all further act as traumatic reminders of prior adversity (Coles & Jones, 2009; Garratt & Kirkham, 2018; Montgomery et al., 2015). Such intrusive reminders can also lead to the avoidance of situations where these triggers may arise (Schwerdtfeger & Wampler, 2009; Seng et al., 2004), meaning that women may miss important appointments for their own and/or their infant's health. Mothers in the perinatal period tend to avoid recounting their experiences of early life adversity, which can negatively impact upon relationships with healthcare providers, choice and control in prenatal care, and the opportunity to develop coping strategies for pregnancy and childbirth (Millar et al., 2021).

Pregnancy itself is a time period where increased hypervigilance has been documented (Marca-Ghaemmaghami & Ehlert, 2015; Michopoulos et al., 2015; Schetter & Tanner, 2012; Woods et al., 2010). PTSD and CPTSD both require the presence of hypervigilance for a diagnosis (Cloitre et al., 2013). Hence, in women with a trauma related stress disorder diagnosis, and/or exposure to early life adversity, the combination of the already heightened stress of pregnancy with the hypervigilance often associated with these experiences could lead to excess levels of stress in pregnancy. Elevated prenatal stress is associated with poorer pregnancy outcomes including preterm delivery and low birthweight (Cherak et al., 2018; Rondo et al., 2003; Wheeler et al., 2018; Wood et al., 2010). This highlights a path from early life adversity to poorer childbirth related outcomes that can have a negative impact on the next generation.

Early life adversity has been associated with an increased likelihood of experiencing delivery complications (Fortin-Langelier et al., 2019), which in turn are associated with elevated rates of PTSD symptoms during the perinatal period (Mohler et al., 2008; Stephenson et al., 2018). Childhood sexual abuse is frequently explored in the literature in relation to childbirth outcomes (Brunton & Dryer, 2021; Leeners et al., 2016; Zambaldi et al., 2016). Women who were victims of childhood sexual abuse have been shown to be at increased risk of childbirth complications (Brunton & Dryer, 2021), and the need for intrapartum interventions has been shown to increase as the number of ACEs exposed to increases (Ciciolla et al., 2021). Intrapartum interventions are an index of a more complicated birth, with the more interventions required, the more complicated the birth (Clement et al., 1999). Such intrapartum complications included the need for an emergency caesarean section (Heimstad et al., 2006; Schei et al., 2014), with epidural analgesia the most frequently applied intervention, both when used as a single intervention (18.7%), and in combination with other interventions (79.9%), (Iobst et al., 2020). Several factors have been identified as influencing the number of intrapartum interventions, including the duration of labour and the mode of birth (Petersen et al., 2013). Additionally, ethnicity has been shown to play a significant role, with women of Black and Hispanic ethnicity being shown to experience elevated rates of delivery complications in relation to early life adversity than women of White ethnicity (Cicolla et al., 2021). Similarly, elevated rates of emergency caesarean sections have been documented in women living in Denmark who were immigrants from Asian and African countries (Rasmussen et al., 2019). Nonetheless, there is limited research exploring the role of childhood adversity, PTSD, DSO, and CPTSD and the need for intrapartum interventions, a knowledge gap that this chapter will address.

A fear of childbirth can complicate up to 17% of pregnancies (Laursen et al., 2008; Nilsson et al., 2012). Fear of childbirth may result from the fact that the process can involve events that are potentially traumatic, such as stillbirth, life-threatening complications like a haemorrhage, or undergoing medical interventions without pain relief (Ford & Ayers, 2011). A small yet growing body of research has documented an association between PTSD and an increased risk of childbirth

complications (Ayers et al., 2016; Ertan et al., 2021; Garthus-Niegel et al., 2020; Radoš et al., 2018). For example, whilst concluding that for many outcomes the evidence was limited and inconsistent, a recent systematic review has shown that PTSD is associated with elevated rates of suboptimal childbirth outcomes, including preterm birth, poor foetal growth, poor mother-infant interaction, low birth weight, and lower rates of breastfeeding (Cook et al., 2018). In community samples, simply knowing of the potential impact of these negative childbirth outcomes is associated with between 20-48% of women rating the experience of childbirth as traumatic (Alcorn et al., 2010; Ford et al., 2009; Ford & Ayers, 2011). This implies that the threat of potential childbirth complications, independent of experiencing these complications, can result in a more negative perception of the birth. Where a greater need for intrapartum interventions is required, a less positive perception of childbirth has been documented (Taheri et al., 2018). This chapter explores the association between the symptom clusters of PTSD, DSO, and CPTSD, the need for intrapartum interventions, and women's perception of the childbirth experience.

Effective communication and trust between pregnant women and midwives have been shown to promote more positive outcomes in labour and childbirth (Attarha et al., 2016; Lewis et al., 2017). A relationship characterised by trust and clear communication can provide women with effective social support throughout labour and childbirth (Zamani et al., 2019). Effective social support during labour and childbirth has been suggested to act as a protective factor against the development of trauma symptoms following intrapartum intervention (Baptie et al., 2020). Outside of the perinatal period, DSO and CPTSD symptom clusters have been associated with reductions in perceived social support (Simon et al., 2019). Current DSO and CPTSD symptoms may therefore be associated with perinatal women perceiving reduced social support from midwives and other healthcare providers during labour and childbirth (Cigoli et al., 2006; Ford & Ayers, 2011; Soet et al., 2003), which in turn may result in intrapartum interventions being experienced by the mother as more distressing. In addition to DSO and CPTSD symptoms being associated with a reduction in perceived social support (Simon et al., 2019), there is further evidence to suggest that DSO and

CPTSD symptoms can impact the experience and perception of events. For example, those with CPTSD have been shown to experience elevated levels of distress in relation to the COVID-19 pandemic (Tsur & Abu-Raiya, 2020). Trauma exposure has been found to alter the functioning of the stress response system (Bowers & Yehuda, 2016; Davis & Narayan, 2020; Moog et al., 2018; Schreier et al., 2015; Swales et al., 2018) which could alter an individual's perception of stressful events. Childbirth presents a range of potential stressors and unique risks for mother and baby (Adams et al., 2012; Capik & Durmaz, 2018; Ertan et al., 2021; Frazier et al., 2018; Stevens et al., 2017). Previous research has indicated that PTSD and DSO symptom clusters are associated with more negative perceptions of the quality of care outside of the perinatal period (De Schepper et al., 2016; Patterson et al., 2019; Sorenson & Tschetter, 2010), feelings of insecurity (Werner-Bierwisch et al., 2018), and the overall childbirth experience (Garthus-Niegel et al., 2013). As such, it is possible that PTSD, DSO, and CPTSD symptoms are associated with a more negative childbirth experience, something that this chapter will explore further.

Whilst early life adversity, and to a lesser extent, PTSD have been shown to be associated with elevated rates of adverse childbirth related outcomes and more negative perceptions of the childbirth experience, the evidence is limited and inconsistent (Cook et al., 2018; Souch et al., 2022: Chapter 2). Furthermore, there is a paucity of research that examines the need for intrapartum interventions and perceptions of the childbirth experience within the same study, particularly among women presenting with clinically significant PTSD, DSO, or CPTSD symptoms. Additionally, investigations of early life adversity in relation to childbirth are often limited to sexual abuse. Chapter 4 explored the association between exposure to early life adversity and PTSD, DSO, and CPTSD symptoms in a UK sample of perinatal women. Early life adversity, particularly maltreatment related ACEs were shown to predict PTSD, DSO, and CPTSD symptom clusters during the perinatal period in Chapter 4. In order to build upon these findings and address important gaps in the evidence base the aims of the current chapter are:

(1) To examine whether women meeting the criteria for clinically significant PTSD, DSO, and CPTSD symptoms (trauma-related stress disorders) experience more negative childbirth related outcomes including preterm delivery, low birth weight and elevated intrapartum interventions than women being treated for other mental health conditions, or women not under the care of mental health services.

(2) To examine whether women with a probable trauma-related stress disorder (PTSD, DSO, CPTSD) report a more negative perception of the experience of childbirth relative to women being treated for other mental health conditions, or women not under the care of mental health services.

(3) To examine whether PTSD, DSO, and CPTSD symptoms in the current perinatal period predicts suboptimal perinatal outcomes after accounting for the impact of exposure to early life adversity and the physical need for intrapartum interventions.

In line with the literature on ACEs and the findings of the previous chapters, ACEs will be considered in relation to maltreatment and HD ACEs, as well as in terms of individual ACEs. Based on the wider literature and findings in previous chapters, it is hypothesised that women with a probable trauma related stress disorder in the current perinatal period will experience elevated rates of adverse childbirth related outcomes and more negative perceptions of the childbirth experience.

5.2 Methods

5.2.1 Sample

N=497 participants were recruited into the Maternal Wellbeing, Mental Health, and Life Experiences (MWMHLE) study via the National Centre for Mental Health (NCMH), website for this study. Participants were recruited via both systematic and non-systematic approaches, as outlined in Chapter 4. Participants in the MWMHLE were women, aged 18 years or over, who were either

pregnant or within 1 year postpartum at recruitment into the study. The participants from the MWMHLE study that were eligible for inclusion in the analyses reported in this chapter were women recruited into the sample either prenatally and had completed the one-month postpartum follow-up questionnaire, or those recruited postnatally. Sample characteristics are reported in Table 5.1.

5.2.2 Procedure

Participants were asked to complete an online survey that contained a set of standardised and well validated questionnaires. The NCMH website hosted the survey. The procedure is described in full in Chapter 4.

5.2.3 Measures

Socio-demographic characteristics

Socio-demographic measures that characterise the sample were explored. Ethnicity was captured and was conceptualised as white and non-white due to the small participant numbers of non-white ethnicity. Education was captured on an ordinal scale of; no qualifications, 1-4 GCSEs, 5+ GCSEs, Apprenticeship, 2+ A-Levels, Degree or above, or other qualifications. Sexuality was another characteristic conceptualised into two categories of heterosexual or not due to the small number of participants identifying as gay or lesbian, bisexual, or other/prefer not to say. The final measure captured was relationship status, defined as currently living with a partner or married as yes or no. These measures were identified in Chapter 1 as potential correlates of perinatal outcomes.

Infant birthweight

Infant birthweight was reported by mothers in the MWMHLE study. Birthweight was measured in two forms, firstly as a continuous measure in Kg and g, and secondly as a binary

categorical measure of low birthweight (yes or no). Low birthweight is defined by the WHO as anything under 2500g (5lbs, 8oz), (Nuffield Trust, 2021). In other longitudinal birth cohort studies such as ALSPAC, birthweight has been measured as both a continuous variable (Chen et al., 2021) and as a categorical variable with 2.5kg as a cut-off for low birthweight (Dachew et al., 2021; Kwok et al., 2022; Taylor et al., 2015).

Preterm birth

Date of birth of the infant, as well as due date were captured in the MWMHLE study. This allows for a calculation of whether the infant was born preterm or not. Preterm birth refers to birth at less than 37 weeks' gestation (Goldenberg et al., 2008; Vogel et al., 2018; Walani, 2020; WHO, 2018). A categorical variable that detailed a preterm birth or not was constructed in line with similar studies (Charrois et al., 2022; Chen et al., 2021; Drewett et al., 2004; Odd et al., 2019; Restrepo-Méndez et al., 2015; Zammit et al., 2009).

Intrapartum interventions

Medical interventions were assessed using the Intrapartum Intervention Score, developed by Clement et al., (1999). Twenty obstetric procedures were enquired about with participants responding in a binary fashion of “yes” or “no” to having experienced this intervention during the birth of their most recent child. In line with past research, the total number of intrapartum interventions was calculated (Baptie et al., 2020; Ford & Ayers, 2011; Selkirk et al., 2006). The interventions captured were; [1] having your waters broken by a midwife or doctor, [2] having a drip or needle inserted into a vein in your arm or hand, [3] having labour started off by a means of a pessary or some gel inserted high into your vagina, [4] receiving syntocinon (through a drip), [5] having a catheter inserted into your bladder to drain urine, [6] having some vaginal examinations (internals) during labour, [7] having an enema/suppository, [8] having external monitoring, [9] having internal monitoring, [10] having a blood sample taken from your baby’s scalp during labour, [11] having a Caesarean, [12] having a forceps delivery, [13] having an episiotomy, [14] having gas

and air (Entonox) for pain relief during labour, [15] using TENS, [16] having an injection of pethidine for pain relief during labour, [17] having an epidural or spinal, [18] having a general anaesthetic, [19] having an injection of syntometrine just as your baby is born, and [20] having stiches after the birth. Higher scores reflect a greater number of medical interventions and a more complicated childbirth experience (Clement et al., 1999). The Cronbach's alpha for the scale in this current study was .74, showing good internal consistency.

Childbirth experience

Childbirth experience was measured via the Childbirth Experience Questionnaire (CEQ), Dencker et al., (2010). The CEQ contains 22 items in four domains related to the birth experience: Own capacity, Professional support, Perceived safety, and Participation. The majority of items are rated on a 4-point Likert scale (1=totally disagree, 4=totally agree); three items were assessed with visual analogue scales (VAS), which were later transformed into categorical variables following the instructions of the CEQ's creators (Dencker et al., 2010; Hildingsson et al., 2021). The VAS-scales scores were transformed to categorical values, 0-40=1, 41-60=2, 61-80=3 and 81-100=4. Ratings of negatively worded statements and the pain items were reversed so that higher scores reflect more positive scoring. A mean score and standard deviation were calculated for each domain and for the overall CEQ (Dencker et al., 2010). A weighted kappa of 0.68 for the full scale in this chapter has demonstrated test-retest reliability of the CEQ. Past research has demonstrated a strong Pearson correlation co-efficient of 0.73 between the results of the CEQ (total score) and the results of the 'gold standard' assessment of childbirth experience in the UK: the Maternity Survey and hence criterion validity of the CEQ (Walker et al., 2015). Cronbach's alpha of > 0.70 in the development stage (Dencker et al., 2010) and a Cronbach's alpha for the total scale of 0.82, and for the subscales: own capacity 0.71; professional support 0.78; perceived safety 0.69; and for participation 0.58 (Abbaspoor et al., 2019; Parchaa et al., 2021), shows further reliability of the measure. For the CEQ, a mean score for each subscale within the range of 1-4 is produced, as is a mean total score within

the range of 1-4. Higher scores indicate a more positive childbirth experience (Dencker et al., 2010). Exploring childbirth experience by comparing mean scores on the subscales and the total score is widely published in the literature (Deave et al., 2019; Krogh et al., 2022; Price et al., 2020; Walker et al., 2016).

Early life adversity

Early life adversity was assessed on the ACEs checklist, as described in prior chapters.

Trauma related stress disorder symptoms

Current symptoms of PTSD, DSO, and CPTSD were captured using the ITQ, as outlined in Chapter 4.

5.2.4 Statistical analysis

Participants were divided into five groups based on their scores on the International Trauma Questionnaire (ITQ). Women reporting clinically significant symptoms on the ITQ formed three of the subgroups: probable PTSD, probable CPTSD, and probable DSO. Of the remaining women, those who were assessed, or were assessed and treated by a mental health service during the current perinatal period formed the clinical comparison group. Women who were neither assessed nor assessed and treated by a mental health service during the perinatal period formed the non-clinical comparison group.

Descriptive statistics (e.g., means, standard deviations, medians, and percentages) are reported to characterise the data. Correlation matrices were created where predictors were examined with the Pearson's correlation coefficient in relation to the outcome. Significant correlations were included within the regression analyses that followed.

Perinatal women in the five comparison groups were compared on the childbirth related outcome measures of mean birth weight, intrapartum intervention and childbirth experience using a series of Logistic Regression or Multiple Logistic Regression analyses depending on the scale of measurement of the outcome variable. The data was screened to test the assumptions of the logistic regression analysis. This includes visually screening for independence of errors (Stollzfus, 2011), and assessing for linearity in the logit of continuous independent variables (Stollzfus, 2011) by creating statistic terms representing interactions between each variable and its natural logarithm (Hosmer et al., 2000; Tabachnick et al., 2007). Additionally, the presence of multicollinearity was assessed (Stollzfus, 2011), with one or more collinear variables removed from analyses where appropriate (Tabachnick et al, 2007). Finally, influential outliers were screened for by looking at residuals (Hosmer et al., 2000; Stollzfus, 2011; Tabachnick et al., 2007).

For the subscales capturing women's subjective experience of childbirth and to control for the Type 1 error inflation associated with multiple testing, a MANOVA was first conducted on the subscale total scores. Where significant between group differences were observed on a given subscale, follow-up ANOVA and multiple linear regression analyses and were conducted to examine the impact of ACEs, intrapartum interventions, and any correlated covariates, with predictors added to the model simultaneously.

5.3 Results

5.3.1 Characteristics of the Trauma Related and Non-Trauma Related Comparison Groups

Of the women who entered the MWMHLE cohort, N=497 met criteria for inclusion in the current study. Of these N=497 women, N=17 (3.4%) met criteria for probable PTSD, N=31 for probable CPTSD (6.2%) and N=45 (9.1%) for clinically significant DSO symptoms. A further N=112 women (22.5%) did not report clinically significant trauma related stress disorder symptoms but were under the care of a mental health service at some point during the current perinatal period. A final group of N=292 women (58.8%) in the non-clinical group did not report clinically significant

trauma related stress disorder symptoms and were neither assessed, nor assessed and treated for a mental health condition during the current perinatal period. The socio-demographic characteristics of the women in the trauma related and non-trauma related comparison groups are shown in Table 5.1.

Table 5.1. Socio-demographic characteristics of women in the trauma related and non-trauma related comparison groups

Socio-demographic characteristic		Whole sample (N=497)	PTSD (N=17)	DSO (N=45)	CPTSD (N=31)	Clinical (N=112)	Non-clinical (N=292)
Recruitment	Postnatal recruitment	463 (93.1%)	17 (100%)	39 (86.7%)	29 (93.5%)	106 (94.6%)	272 (93.2%)
	Prenatal recruitment with 1 month follow-up data	34 (6.9%)	0	6 (13.3%)	2 (6.5%)	6 (5.4%)	20 (6.8%)
Education	No qualifications	4 (0.8%)	0	0	0	1 (0.9%)	3 (1.0%)
	1-4 GCSEs	17 (3.4%)	0	2 (4.4%)	2 (6.5%)	5 (4.5%)	8 (2.7%)
	5+ GCSEs	32 (6.4%)	2 (11.8%)	3 (6.7%)	4 (12.9%)	6 (5.4%)	17 (5.8%)
	Apprenticeship	1 (0.2%)	0	0	0	0	1 (0.3%)
	2+ A-Levels	48 (9.7%)	5 (29.4%)	2 (4.4%)	6 (19.4%)	9 (8.0%)	26 (8.9%)
	Degree or above	390 (78.5%)	10 (58.8%)	38 (84.4%)	19 (61.3%)	91 (81.3%)	232 (79.5%)
Married or living with partner	Yes	470 (94.6%)	13 (76.5%)	43 (95.6%)	30 (96.8%)	107 (95.5%)	277 (94.9%)
	No	27 (5.4%)	4 (23.5%)	2 (4.4%)	1 (3.2%)	5 (4.5%)	15 (5.1%)
Ethnicity	White	478 (96.2%)	17 (100%)	45 (100%)	30 (96.8%)	104 (92.9%)	279 (95.5%)
	Non-white	18 (3.6%)	0	0	1 (3.2%)	8 (7.2%)	9 (3.1%)
Sexuality	Heterosexual	428 (86.1%)	12 (70.6%)	35 (77.8%)	25 (80.6%)	100 (89.3%)	256 (87.7%)
	Non-heterosexual	64 (12.9%)	5 (29.4%)	10 (22.2%)	6 (19.4%)	12 (10.7%)	31 (12.3%)

As with the wider MWMHLE sample, the majority of the sample were white, degree educated, married or living with their partner and heterosexual. No significant differences were found between groups. As per Chapter 4, the sample is over representative of women of White ethnicity (96.2%), compared to the UK wide rate of 82.9% (ONS, 2022). Degree level education is again over representative in this sample (78.5% compared to UK rates of 34.4%; NOMIS, 2021). The current sample had rates of sexuality of 86.1% heterosexual, compared with rates of 94.1% heterosexual in UK women (ONS, 2022).

5.3.2 Birth outcomes

Pregnancy, childbirth and childbearing related characteristics of the sample are shown in Table 5.2. The majority of women had been pregnant twice and had given birth to one infant.

Table 5.2. Pregnancy details of the MWMHLE study

Pregnancy outcome		PTSD (N=17)	DSO (N=45)	CPTSD (N=31)	Clinical (N=112)	Non-clinical (N=292)
Number of pregnancies	Mean	2.20	2.31	2.00	1.86	1.90
	Median	1	2	2	2	2
Number of live births	Mean	1.25	1.50	1.32	1.35	1.43
	Median	1	1	1	1	1
Multiple pregnancy	Single	17 (100%)	42 (97.7%)	31 (100%)	107 (95.5%)	272 (93.2%)
	Twin	0	1 (2.3%)	0	3 (2.7%)	3 (1.0%)
Sex of baby	Female	10 (58.8%)	24 (53.3%)	17 (54.8%)	58 (51.8%)	135 (46.2%)
	Male	7 (41.2%)	21 (46.7%)	14 (45.2%)	54 (48.2%)	157 (53.8%)
Stillbirth	Yes	0	0	0	0	1 (0.3%)

5.3.3 Early life adversity

Exposure to ACEs was examined across each of the five comparison groups and is reported in Table 5.3.

Table 5.3. ACE exposure of the postnatal MWMHLE sample

ACE	PTSD (N=17)	DSO (N=45)	CPTSD (N=31)	Clinical (N=112)	Non-clinical (N=292)
Mean Maltreatment ACEs	**1.47**	**1.31**	**2.39**	**0.82**	**0.44**
Emotional Abuse	8 (47.1%)	18 (40.0%)	24 (77.4%)	24 (21.4%)	22 (7.5%)
Physical Abuse	4 (23.5%)	9 (20.0%)	16 (51.6%)	12 (10.7%)	14 (4.8%)
Sexual Abuse	5 (29.4%)	6 (13.3%)	11 (35.5%)	16 (14.3%)	2 (0.7%)
Emotional Neglect	7 (41.2%)	22 (48.9%)	18 (58.1%)	22 (19.6%)	20 (6.8%)
Physical Neglect	1 (5.9%)	4 (8.9%)	5 (16.1%)	2 (1.8%)	7 (2.4%)
Mean HD ACEs	**1.76**	**1.36**	**1.94**	**1.06**	**0.78**
Abused Mother	4 (23.5%)	5 (11.1%)	8 (25.8%)	6 (5.4%)	4 (1.4%)
Parental Divorce	10 (58.8%)	20 (44.4%)	18 (58.1%)	41 (36.6%)	49 (16.8%)
Parental Substance Abuse	7 (41.2%)	10 (22.2%)	13 (41.9%)	17 (15.2%)	24 (8.2%)
Parental Mental Illness	9 (52.9%)	23 (51.1%)	17 (54.8%)	34 (30.4%)	37 (12.7%)
Parental Imprisonment	0	3 (6.7%)	4 (12.9%)	1 (0.9%)	2 (0.7%)

5.3.4 Preterm birth

The frequency of preterm birth was assessed for the women in the 5 comparison groups (e.g., PTSD, CPTSD, DSO, clinical, and non-clinical). As shown in Table 5.4, only 40 of 497 women (8.1%) met criteria for preterm delivery.

Table 5.4. Preterm birth frequencies in relation to current trauma related stress disorder symptoms

Preterm birth	PTSD (N=17)	DSO (N=45)	CPTSD (N=31)	Other diagnosis clinical (N=112)	Non-clinical other (N=292)
Yes	3 (17.6%)	1 (2.2%)	4 (12.9%)	12 (10.7%)	20 (6.8%)
No	14 (82.4%)	44 (87.8%)	27 (87.1%)	100 (89.3%)	272 (93.2%)

Due to only 8.1% of participants experiencing preterm birth, regression analysis comparing the difference in preterm birth rates between participant groups was not possible. Instead, initial descriptive approaches can be taken to explore group differences. Preterm birth occured more frequently amongst women with PTSD or CPTSD, and in the other diagnosis clinical group, compared to the non-clinical group. A significant difference, however, cannot be determined here.

The correlations between women in the trauma-related stress disorder comparison groups, the identified covariates and childbirth outcome were assessed. This matrix can be seen in Table 5.5. Ethnicity was identified as a correlated covariate. As such an initial descriptive overview of the different preterm birth rates between white and non-white mothers can be assessed. Amongst women of white ethnicity, 7.8% had a preterm birth, compared to 16.7% of women of non-white ethnicities, highlighting the trend for non-white women to have an increased likelihood of preterm birth.

Table 5.5 Inter-correlations between participant group, identified covariates, and childbirth outcomes

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Probable PTSD	---														
2. Probable CPTSD	-.049	---													
3. Clinically significant DSO	-.059	-.081	---												
4. Clinical other	-.102*	-.139**	-.170**	---											
5. Non-clinical other	-.225**	-.308**	-.377**	-.644**	---										
6. Ethnicity	.037	.006	.062	-.101*	.033	---									
7. Education	-.037	-.086	.021	.000	.044	-.031	---								
8. Sexuality	-.092*	-.049	-.087	.037	.078	.075	.033	---							
9. Living Status	-.169**	.018	.003	.005	.048	-.008	.190**	-.057	---						
10. Maltreatment ACEs	.102	.363**	.125*	-.035	-.310**	.012	-.173**	.197**	-.016	---					
11. HD ACEs	.135*	.234**	.089	-.017	-.242**	-.012	-.209**	.125**	-.026	.561**	---				
12. Preterm birth	.072	.045	-.071	.045	-.046	.161*	-.027	-.050	-.020	.055	-.033	---			
13. Continuous birthweight	-.052	-.062	.034	-.078	.097*	.018	.003	.003	.021	-.008	.033	-.522**	---		
14. Low birthweight	.039	.023	-.009	.054	-.066	-.014	-.016	.017	.016	.077	.039	.681**	-.652**	---	
15. Intrapartum interventions	.094*	-.016	.025	.049	-.084	-.092*	.047	.024	-.080	.105	.091	-.136**	.105*	-.088	-

N=497, *p≤.05, **p≤.01 – correlations between dichotomous variables were kappas.

5.3.5 Birthweight

The frequency of low birthweight was assessed by probable PTSD, DSO, and CPTSD. These findings are shown in Table 5.6.

Table 5.6. Mean birthweight and low birthweight frequencies in relation to current trauma related stress disorder symptoms

Birthweight		PTSD (N=17)	DSO (N=45)	CPTSD (N=31)	Other diagnosis clinical (N=112)	Non-clinical other (N=292)
Mean birthweight (Kg)		3.22 SD=.68	3.44 SD=.53	3.25 SD=.56	3.30 SD=.59	3.43 SD=.55
Low birthweight	**Yes**	2 (11.8%)	3 (6.7%)	3 (9.7%)	11 (9.8%)	16 (5.5%)
	No	15 (88.2%)	42 (93.3%)	28 (90.3%)	101 (90.2%)	276 (94.5%)

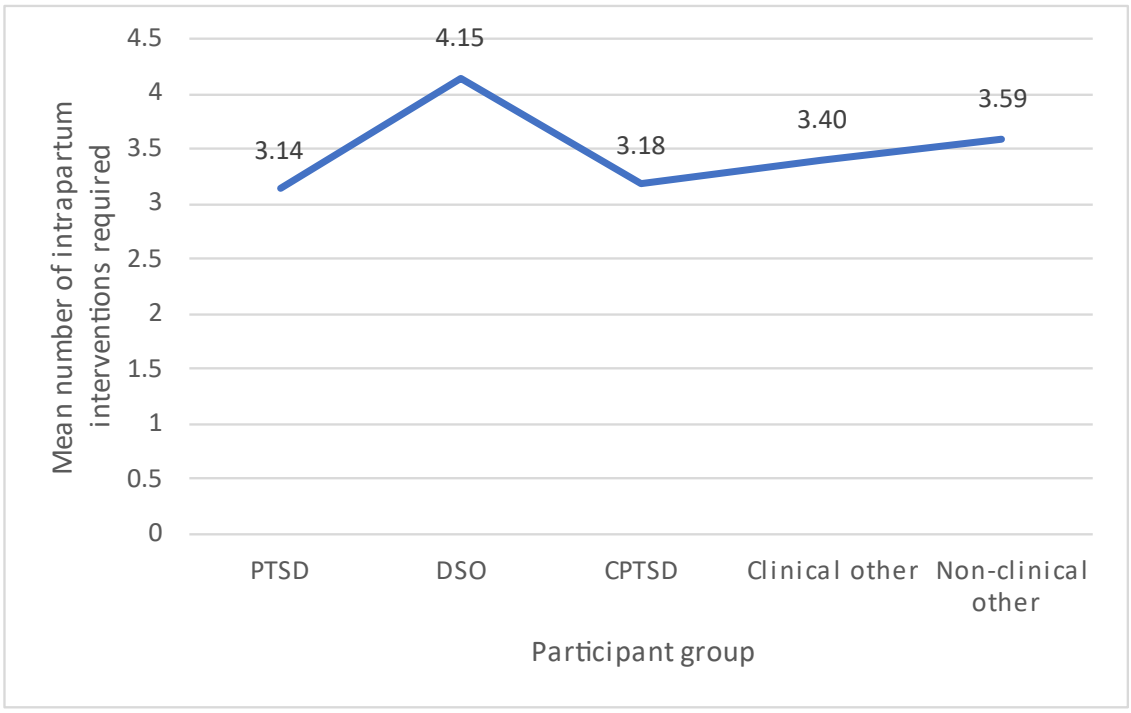
Similarly, to preterm birth, due to low participant numbers with low birthweight, regression analysis could not be run to determine group differences. On initial inspection, rates of low birthweight are higher in all of the PTSD, DSO, CPTSD, and other diagnosis clinical groups, compared with the non-clinical other group. Again, however, whether these differences are significant cannot be determined.

To assess general trends in birthweight, mean birthweight as a continuous variable, rather than the categorical variable of low birthweight, was assessed. Linear regression was conducted with participant group, and mean maltreatment ACEs as predictors of the outcome of birthweight. No factors were found to predict mean birthweight. Similarly, when mean HD ACEs replaced maltreatment ACEs in the model, no factors predicted mean birthweight. When individual ACEs were substituted in for mean HD ACEs, having an abused mother predicted mean birthweight (β=.30, C.I.=.04 to .56, p=.02), with experiencing having an abused mother increasing the mean birthweight of the baby by .30kg.

5.3.6 Intrapartum Interventions

The experience of intrapartum interventions for the women in the five comparison groups are detailed in Figure 5.1. The correlations between trauma-related stress disorder group, identified covariates, and the mean number of intrapartum interventions that women experienced during childbirth can be seen in Table 5.5.

Figure 5.1. Mean exposure to intrapartum interventions in relation to current trauma related stress disorder symptoms



A linear regression model analysis was conducted with participant group, mean maltreatment ACEs, and the correlated covariate of ethnicity factored into the model as predictors of intrapartum interventions. No factors predicted the number of intrapartum interventions required. When mean HD ACEs replaced maltreatment ACEs in the model, the results were unchanged, and no factors were found to significantly predict the number of intrapartum interventions required. Similarly, no individual ACEs significantly predicted the number of intrapartum interventions required when they replaced mean HD ACEs in the model.

5.3.7 Childbirth experience

Childbirth experience was assessed in relation to current trauma-related stress disorder symptoms, as shown below in Table 5.7.

Table 5.7. Mean childbirth experience score, and the mean for each subscale of the CEQ, in relation to current trauma related stress disorder symptoms

Childbirth experience	PTSD (N=17)	DSO (N=45)	CPTSD (N=31)	Other diagnosis clinical (N=112)	Non-clinical (N=292)
Mean own capacity score	2.14 .41	2.22 .63	2.17 .77	2.25 .63	2.54 .63
Mean professional support score	2.76 .99	3.17 .78	2.90 1.04	3.25 .79	3.31 .73
Mean perceived safety score	2.23 .75	2.54 .71	2.30 .80	2.63 .74	2.93 .70
Mean participation score	2.48 .94	2.87 .87	2.58 1.08	2.71 .89	2.96 .92
Mean CEQ score	2.40 .64	2.68 .54	2.49 .73	2.71 .57	2.93 .58

A correlation matrix was created to examine the association between trauma related stress disorder group, mean maltreatment and HD ACEs, and the identified covariates as predictors of the childbirth experience total and subscale scores. This matrix can be seen in Table 5.8.

Table 5.8. Inter-correlations between participant group, childbirth experience total and subscale scores and identified covariates

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1.**Probable PTSD**	---															
2.**Probable DSO**	.448**	---														
3.**Probable CPTSD**	.788**	.606**	---													
4.**Clinical other**	-.176**	-.229**	-.143**	---												
5.**Non-clinical**	-.390**	-.507**	-.306**	-.644**	---											
6.**CEQ total**	-.053	-.147**	-.123**	-.088	.232**	---										
7.**CEQ own capacity**	-.044	-.139**	-.103*	-.130**	.244**	.719**	---									
8.**CEQ professional support**	-.044	-.097*	-.106*	-.010	.106*	.738**	.299**	---								
9.**CEQ perceived safety**	-.070	-.183**	-.151**	-.089	.263**	.850**	.761**	.481**	---							
10.**CEQ participation**	-.015	-.045	-.041	-.84	.134**	.771**	.330**	.467**	.464**	---						
11.**Ethnicity**	.036	.053	.048	-.101*	.033	-.019	.058	-.068	-.015	-.023	---					
12.**Education**	-.043	-.042	-.118**	.000	.044	.126**	.125**	.050	.138**	.071	-.020	---				
13.**Sexuality**	-.065	-.102*	-.027	.037	.078	-.088	-.005	-.122**	-.036	-.098*	-.053	.036	---			
14.**Living status**	-.122*	.015	.016	.005	.048	.071	.057	.031	.078	.060	.018	.190**	-.025	---		
15.**Maltreatment ACEs**	.199**	.353**	.331**	-.035	-.310**	-.216**	-.233**	-.102	-.237**	-.113*	.023	-.173**	.217**	-.016	---	
16.**HD ACEs**	.177**	.234**	.256**	-.017	-.242**	-.134*	-.127*	-.131*	-.159**	-.007	.003	-.209**	.104	-0.26	.561**	---

N=497, *p≤.05, **p≤.01

5.3.7.1 Total childbirth experience

The ANOVA found that the women in the five comparison groups differed significantly in their overall childbirth experience score, F(4, 451)=8.107, $p \leq .01$. Tukey's post hoc analysis found that women in the PTSD (mean difference (MD)=-.525, C.I.=-.940 to -.111, $p \leq .01$), CPTSD (MD=-.441, C.I.=-.751 to -.130, $p \leq .01$), and the clinical other (MD=-.218, C.I.=-.402 to -.035, $p=.01$) groups reported a significantly more negative overall childbirth experience when compared to women in the non-clinical comparison group.

Linear regression was then conducted to determine if effects remained once maltreatment ACEs were accounted for, along with the correlated covariate of educational attainment. The regression model was significant, F(6, 321)=6.632, $p \leq .01$. Table 5.9 summarises the predictors within the regression analysis.

Table 5.9. Linear regression analysis of total childbirth experience, maltreatment ACEs and educational attainment

		B	**SE *B***	**Adjusted *β*** **(C.I. 95%)**
Participant group – comparison to non-clinical	Probable PTSD	-.521	.148	-.191** (-.252 - -.141)
	Probable CPTSD	-.395	.119	-.191** (-.238 - -.142)
	Clinically significant DSO	-.259	.108	-.144* (-.169 - -.105)
	Clinical other	-.218	.067	-.169** (-.197 - -.132)
Education		.026	.019	.067 (.005 - .102)
Intrapartum Interventions		.015	.009	.034 (.011 - .061)
Maltreatment ACEs		-.047	.029	-.120* (-.178 - -.077)
Model		.418	.051	.211** (.194 - .232)

Note R^2=.110. *$p \leq .05$, **$p \leq .01$

The analyses confirmed that compared to women in the non-clinical group, women in the PTSD, CPTSD, DSO, and clinical other group experienced childbirth more negatively, and the significant differences remained after the impact of maltreatment ACEs and educational attainment were accounted for. Maltreatment ACEs further predicted a more negative childbirth experience, with each increase in maltreatment ACE experienced, a reduction of .05 in the mean total score of childbirth experience questionnaire was observed.

Table 5.10. Linear regression analysis of total childbirth experience, household dysfunction ACEs and educational attainment

		B	**SE *B***	**Adjusted *β***
Participant group – comparison to non-clinical	Probable PTSD	-.559	.158	-.199** (-.248 - -.161)
	Probable CPTSD	-.462	.111	-.219** (-.277 - -.178)
	Clinically significant DSO	-.294	.105	-.169** (-.194 - -.132)
	Clinical other	-.239	.083	-.177** (-.210 - -.138)
Education		.037	.028	.075 (.012 - .149)
Intrapartum Interventions		.044	.021	.088 (.041 - .131)
HD ACEs		-.009	.028	-.019 (-.045 - -.001)
Model		.583	.089	.212** (.199 - .231)

Note R^2=.103. *$p \leq .05$, **$p \leq .01$

HD ACEs replaced maltreatment ACEs in the regression model and findings are shown in Table 5.10. The regression model was significant, F(6, 320)=6.100, $p \leq .01$. The analysis confirmed that

compared to women in the non-clinical group, women in the PTSD, CPTSD, DSO, and the clinical other groups experienced childbirth more negatively, and the significant difference remained after the impact of HD ACEs and education attainment were accounted for. Neither HD ACEs nor educational attainment were significant predictors of the total childbirth experience score.

Table 5.11. Linear regression analysis of total childbirth experience, individual ACEs and educational attainment

		B	**SE *B***	**Adjusted *β***
Participant group – comparison to non-clinical	Probable PTSD	-.538	.141	-.189** (-.232 - -.115)
	Probable CPTSD	-.398	.118	-.191** (-.222 - -.168)
	Clinically significant DSO	-.292	.104	-.162** (-.198 - -.128)
	Clinical other	-.234	.084	-.171** (-.202 - -.141)
Education		.041	.027	.069 (.031 - .104)
Intrapartum Interventions		.011	.042	.081 (.035 - .125)
ACEs	Physical abuse	-.191	.094	-.131* (-.182 - -.098)
	Sexual abuse	.036	.111	.019 (.005 - .032)
	Emotional abuse	.060	.100	.045 (.021 - .068)
	Physical neglect	-.062	.096	-.045 (-.088 - -.002)
	Emotional neglect	-.113	.173	-.043 (-.077 - -.008)
	Abused mother	.015	.135	.007 (.001 - .015)
	Parental divorce	.048	.075	.039 (.021 - .065)
	Parental mental illness	-.005	.090	-.003 (-.021 - .029)

	Parental substance abuse	.062	.075	.049 (.021 - .065)
	Parental imprisonment	-.202	.203	-.058 (-.089 - -.023)
Model		-.328	.108	.110* (.098 - .131)

Note R^2=.114. *$p \leq .05$, **$p \leq .01$

Finally, individual ACEs replaced HD ACEs in a regression model and findings are shown in Table 5.11. The regression model was significant, F(6, 319)=6.818, $p \leq .01$. The analysis confirmed that compared to women in the non-clinical group, women in the PTSD, CPTSD, DSO, and the clinical other groups experienced childbirth more negatively, and the significant differences remained after the impact of the individual ACEs and educational attainment were accounted for. Of the individual ACEs, only exposure to physical abuse was a significant predictor of a more negative childbirth experience.

The four subscales of the childbirth experience questionnaire were then examined further. A multivariate analysis of variance was conducted to test between group differences on the four subscales of the childbirth experience questionnaire whilst controlling for their relatedness. The formal inference tests confirmed that the dependent measures were neither significantly skewed, nor kurtotic ($p \leq .001$) at the univariate level (Tabachnik & Fidell, 2001). In addition, an inspection of the Levene and Box M tests confirmed that the homogeneity of covariance assumption had been satisfied. Thus, the findings derived from the MANOVA are deemed to be statistically reliable. There was a significant main effect of participant group on the canonical variate, which represents the subscales of childbirth experience, Multivariate F(4, 447)=3.151, $p \leq .01$; partial eta squared=.027. The separate univariate tests, showed that all of the dependent measures of childbirth experience subscales contributed significantly to the multivariate effect; F(4, 447)=6.889, $p \leq .01$; partial eta squared=.058 for the own capacity scale; F(4, 447)=2.117, p=.01; partial eta squared=.030, for the

professional support scale; F(4, 447)=10.291, $p \leq .01$; partial eta squared=.084, for the perceived safety scale; and F(4, 447)=2.786, $p=.02$; partial eta squared=.024, for the participation scale.

Bonferroni post hoc analysis highlights the difference between participant groups for each subscale. Regarding own capacity, the CPTSD (MD=-.360, C.I.=-.705 to -.015, $p=.03$), DSO (MD=-.322, C.I.=-.613 to -.031, $p=.02$), and clinical other group (MD=-.281, C.I.=-.484 to -.077, $p \leq .01$) were all significantly different from the non-clinical group. The subscale of professional support showed a difference between the PTSD group (MD=-.541, C.I.=-1.116 to -.126, $p=.04$) with the non-clinical group only. For the perceived safety subscale, PTSD (MD=-.696, C.I.=-1.221 to -.171, $p \leq .01$), CPTSD (MD=-.623, C.I.=-1.016 to -.229, $p \leq .01$), DSO (MD=-.383, C.I.=-.716 to -.051, $p=.01$), and the clinical other group (MD=-.291, C.I.=-.524 to -.058, $p \leq .01$), all differed significantly from the non-clinical group. For final subscale of the CEQ, participation, CPTSD (MD=-.378, C.I.=-.780 to -.123, $p=.04$) was the only group that differed significantly from the non-clinical other group.

5.3.7.2 Own capacity experience

A linear regression analysis was then conducted to determine if the significant between group differences on the own capacity subscale remained once the impact of maltreatment ACEs and educational attainment were accounted for. The regression model was significant, F(6, 321)=7.491, $p \leq .01$ (see Table 5.12). The analysis found that compared to women in the non-clinical group, women in the PTSD, CPTSD, DSO, and clinical other groups reported significantly lower scores on the own capacity subscale of the CEQ, and the significant differences remained after the impact of the maltreatment ACEs and educational attainment were accounted for. Maltreatment ACEs were a significant predictor of lower scores on the own capacity subscale of the CEQ. Each additional maltreatment ACE experienced was associated with a reduction in own capacity scores of .07 (see Table 5.12).

Table 5.12. Linear regression analysis of own capacity of childbirth experience, maltreatment ACEs and educational attainment

		B	SE *B*	Adjusted *β*
Participant group – comparison to non-clinical	Probable PTSD	-.378	.158	-.131* (-.179 - -.095)
	Probable CPTSD	-.291	.141	-.132* (-.155 - -.103)
	Clinically significant DSO	-.344	.111	-.184** (-.210 - -.156)
	Clinical other	-.332	.078	-.219** (-.245 - -.191)
Education		.055	.033	.104 (.088 - -.125)
Intrapartum Interventions		.101	.042	.114 (.055 - .168)
Maltreatment ACEs		-.074	.042	-.132* (-.178 - -.101)
Model		.325	.141	.241** (.220 - .264)

Note R^2=.123. *$p \leq .05$, **$p \leq .01$

HD ACEs replaced maltreatment ACEs in the regression model and findings are shown in Table 5.13. The regression model was significant, $F(6, 320)=6.493$, $p \leq .01$. The between group differences remained significant. Neither HD ACEs nor educational attainment were significant predictors of mother's own capacity scores.

Table 5.13. Linear regression analysis of own capacity of childbirth experience, household dysfunction ACEs and educational attainment

		B	SE *B*	Adjusted *β*
Participant group –	Probable PTSD	-.439	.167	-.151** (-.188 - -.131)
	Probable CPTSD	-.401	.131	-.182** (-.210 - -.145)

comparison to non-clinical	Clinically significant DSO	-.392	.114	-.210** (-.255 - -.175)
	Clinical other	-.333	.079	-.231** (-.265 - -.200)
Education		.049	.031	.110 (.088 - .141)
Intrapartum Interventions		.042	.068	.098 (.045 - .152)
HD ACEs		-.021	.029	-.019 (-.045 - -.002)
Model		.389	.134	.225** (.212 - .235)
Note R^2=.109. *p≤.05, **p≤.01				

Finally, individual ACEs replaced HD ACEs in a regression model and findings are shown in Table 5.14. The regression model was significant, F(6, 319)=7.858, p≤.01. Significant between group differences remained. Only physical abuse was a significant predictor of own capacity subscale scores.

Table 5.14. Linear regression analysis of total own capacity of childbirth experience, individual ACEs and educational attainment

		B	**SE *B***	**Adjusted *β***
Participant group – comparison to non-clinical	Probable PTSD	-.392	.148	-.131* (-.174 - -.098)
	Probable CPTSD	-.292	.136	-.122* (-.155 - -.097)
	Clinically significant DSO	-.361	.107	-.184** (-.205 - --.149)
	Clinical other	-.321	.079	-.231** (-.255 - -.219)
Education		.124	.040	.109 (.088 - .131)
Intrapartum Interventions		-.042	.016	-.081 (-.105 - -.052)

ACEs	Physical abuse	-.281	.095	-.164** (-.188 - -.141)
	Emotional abuse	.045	.093	.032 (.005 - .067)
	Sexual abuse	-.039	.102	-.020 (-.045 - -.002)
	Physical neglect	-.055	.088	-.038 (-.071 - -.001)
	Emotional neglect	-.037	.159	-.013 (-.020 - -.002)
	Abused mother	.151	.124	.063 (.041 - .085)
	Parental divorce	.110	.069	.085 (.061 - .102)
	Parental mental illness	-.072	.083	-.047 (-.071 - -.009)
	Parental substance abuse	.065	.069	.049 (.011 - .087)
	Parental imprisonment	-.219	.188	-.060 (-.098 - -.029)
Model		.378	.146	.204** (.188 - .215)

Note R^2=.129. *$p \leq .05$, **$p \leq .01$

5.3.7.3 Professional support experience

A linear regression was conducted to determine if effects on mothers' perception of professional support remained once maltreatment ACEs were accounted for, along with the correlated covariate of sexuality. The regression model was significant, F(6, 321)=2.705, p=.01 (see Table 5.15). The analysis found that compared to women in the non-clinical group, women in the PTSD, and CPTSD groups reported significantly lower scores on the professional support subscale of the CEQ, and the significant differences remained after the impact of the maltreatment ACEs and sexuality were accounted for.

Table 5.15. Linear regression analysis of professional support during childbirth, maltreatment ACEs and sexuality

		B	SE *B*	*β*
Participant group – comparison to non-clinical	Probable PTSD	-.484	.214	-.139* (-.171 - -.095)
	Probable CPTSD	-.367	.169	-.134* (-.165 - -.102)
	Clinically significant DSO	-.097	.142	-.039 (-.071 - -.005)
	Clinical other	.017	.109	-.014 (-.025 - -.005)
Sexuality		-.209	.127	-.096 (-.121 - -.075)
Intrapartum Interventions		.067	.089	.126 (.098 - .151)
Maltreatment ACEs		-.015	.040	-.021 (-.045 - -.001)
Model		.325	.189	.145* (.121 - .165)

Note R^2=.048. *$p \leq .05$, **$p \leq .01$

HD ACEs replaced maltreatment ACEs in the regression model and findings are shown in Table 5.16. The regression model was significant, F(6, 320)=3.005, $p \leq .01$. Only PTSD remained a significant predicter of more negative perceptions of professional support during childbirth once the effects of HD ACEs and sexuality are accounted for. Neither HD ACEs nor sexuality were significant predictors of mother's professional support scores.

Table 5.16. Linear regression analysis of professional support during childbirth, household dysfunction ACEs and sexuality

		B	SE *B*	Adjusted *β*
Participant group – comparison to non-clinical	Probable PTSD	-.444	.213	-.128* (-.168 - -.084)
	Probable CPTSD	-.318	.163	-.119 (-.145 - -.075)
	Clinically significant DSO	-.077	.138	-.035 (-.078 - -.005)
	Clinical other	.031	.111	.021 (.003 - .048)
Sexuality		-.204	.122	-.082 (-.115 - -.051)
Intrapartum Interventions		.051	.031	.021 (.005 - .048)
HD ACEs		-.059	.048	-.084 (-.105 - -.049)
Model		.387	.209	.148* (.100 - .194)

Note R^2=.053. *$p \leq .05$, **$p \leq .01$

Finally, individual ACEs replaced HD ACEs in a regression model and findings are shown in Table 5.17. The regression model was significant, $F(5, 449)=3.219$, $p \leq .01$. Significant between group differences remained. No individual ACEs nor sexuality predicted professional support.

Table 5.17. Linear regression analysis of professional support during childbirth, individual ACEs and sexuality

		B	SE *B*	Adjusted *β*
Participant group – comparison to non-clinical	Probable PTSD	-.521	.199	-.123* (-.165 - -.084)
	Probable CPTSD	-.374	.148	-.127** (-.171 - -.081)
	Clinically significant DSO	-.129	.132	-.050 (-.088 - -.010)

	Clinical other	-.067	.094	-.035 (-.079 - -.008)
Sexuality		-.149	.117	-.070 (-.098 - -.051)
Intrapartum Interventions		.002	.087	.021 (.009 - .032)
ACEs	Physical abuse	.049	.164	.023 (.011 - .037)
	Emotional abuse	-.085	.137	-.049 (-.081 - -.010)
	Sexual abuse	.160	.151	.065 (.028 - .091)
	Physical neglect	.020	.130	.011 (.006 - .019)
	Emotional neglect	-.283	.234	-.082 (-.102 - -.059)
	Abused mother	-.189	.183	-.064 (-.099 - -.032)
	Parental divorce	.036	.101	.023 (.010 - .041)
	Parental mental illness	-.025	.122	-.013 (-.021 - -.004)
	Parental substance abuse	-.072	.102	-.043 (-.061 - -.019)
	Parental imprisonment	.024	.277	.005 (.001 - .015)
Model		.401	.254	.221** (.201 – .242)

Note R^2=.035. *p≤.05, **p≤.01

5.3.7.4 Perceived safety experience

A linear regression was conducted to determine if effects on mothers' perception of perceived safety remained once maltreatment ACEs were accounted for, along with the correlated covariate of education. The regression model was significant, $F(6, 321)=9.470$, $p=.01$ (see Table 5.18). The analysis found that compared to women in the non-clinical group, women in the PTSD,

CPTSD, DSO, and clinical other groups reported significantly lower scores on the perceived safety subscale of the CEQ, and the significant differences remained after the impact of the maltreatment ACEs and education were accounted for. Maltreatment ACEs were a significant predictor of lower scores on the perceived safety subscale of the CEQ. Each additional maltreatment ACE experienced was associated with a reduction in perceived safety scores of .06 (see Table 5.12).

Table 5.18. Linear regression analysis of perceived safety, maltreatment ACEs and educational attainment

		B	**SE *B***	**Adjusted *β***
Participant group – comparison to non-clinical	Probable PTSD	-.729	.195	-.211** (-.242 - -.194)
	Probable CPTSD	-.589	.162	-.235** (-.255 - -.202)
	Clinically significant DSO	-.461	.128	-.199** (-.221 - -.165)
	Clinical other	-.372	.101	-.217** (-.228 - -.198)
Education		.042	.028	.074 (.061 - .088)
Intrapartum Interventions		.044	.068	.021 (.009 - .039)
Maltreatment ACEs		-.061	.029	-.146* (-.161 - -.119)
Model		.512	.104	.388** (.344 - .412)

Note R^2=.150. *$p \leq .05$, **$p \leq .01$

HD ACEs replaced maltreatment ACEs in the regression model and findings are shown in Table 5.19. The regression model was significant, $F(6, 320)=8.900$, $p \leq .01$. Significant between group differences remained. Neither HD ACEs nor education were significant predictors of mother's perceived safety scores.

Table 5.19. Linear regression analysis of perceived safety during childbirth, household dysfunction ACEs and educational attainment

		B	SE *B*	Adjusted *β*
Participant group – comparison to non-clinical	Probable PTSD	-.779	.185	-.224** (-.265 - -.198)
	Probable CPTSD	-.702	.142	-.272** (-.301 - -.242)
	Clinically significant DSO	-.488	.128	-.224** (-.245 - -.203)
	Clinical other	-.391	.107	-.234** (-.245 - -.221)
Education		.049	.028	.069 (.051 - .081)
Intrapartum Interventions		.055	.076	.021 (.009 - .039)
HD ACEs		-.017	.048	-.039 (-.051 - -.029)
Model		.389	.111	.285** (.231 - .301)

Note R^2=.143. *$p \leq .05$, **$p \leq .01$

Finally, individual ACEs replaced HD ACEs in a regression model and findings are shown in Table 5.20. The regression model was significant, $F(6, 319)=10.030$, $p \leq .01$. Significant between group differences remained. Physical abuse and parental imprisonment were significant predictors of own capacity subscale scores.

Table 5.20. Linear regression analysis of perceived safety, individual ACEs and educational attainment

		B	SE *B*	Adjusted *β*
Participant group –	Probable PTSD	-.777	.194	-.217** (-.241 - -.194)
	Probable CPTSD	-.601	.158	-.219** (-.241 - -.197)

comparison to non-clinical	Clinically significant DSO	-.481	.131	-.209** (-.234 - -.185)
	Clinical other	-.378	.105	-.221** (-.245 - -.202)
Education		.046	.028	.081 (.062 - .103)
Intrapartum Interventions		.031	.099	.045 (.003 - .091)
ACEs	Physical abuse	.279	.108	-.144* (-.178 - -.095)
	Emotional abuse	.061	.117	.036 (.015 - .051)
	Sexual abuse	.073	.129	.031 (.019 - .058)
	Physical neglect	-.081	.111	-.047 (-.071 - -.025)
	Emotional neglect	.121	.200	.036 (.009 - .061)
	Abused mother	.097	.157	.034 (.015 - .056)
	Parental divorce	.112	.087	.018 (.009 - .031)
	Parental mental illness	-.393	.105	-.053 (-.084 - -.011)
	Parental substance abuse	.097	.088	.070 (.031 - .109)
	Parental imprisonment	-.028	.237	-.090 (-.116 - -.069)
Model		.543	.228	.304** (.285 - .321)

Note R^2=.159. *$p \leq .05$, **$p \leq .01$

5.3.7.5 Participation experience

A linear regression was conducted to determine if effects on participation remained once maltreatment ACEs were accounted for, along with the correlated covariate of sexuality. The regression model was not significant, $F(6, 319)=1.929$, $p=.08$. Group differences did not remain once maltreatment ACEs and sexuality were accounted for. Neither maltreatment ACEs nor sexuality were significant predictors of participation subscale scores on the CEQ (see Table 5.21).

Table 5.21. Linear regression analysis of participation, maltreatment ACEs and sexuality

		B	**SE *B***	**Adjusted *β***
Participant group – comparison to non-clinical	Probable PTSD	-.445	.255	-.114 (-.135 - -.084)
	Probable CPTSD	-.332	.212	-.111 (-.145 - -.088)
	Clinically significant DSO	-.078	.168	-.041 (-.074 - -.009)
	Clinical other	-.245	.129	-.131 (-.171 - -.094)
Sexuality		-.088	.155	-.038 (-.055 - -.016)
Maltreatment ACEs		-.039	.039	-.065 (-.088 - -.045)
Model		.312	.114	.165* (.121 - .189)

Note $R^2=.035$. *$p\leq.05$, **$p\leq.01$

HD ACEs replaced maltreatment ACEs in the regression model and findings are shown in Table 5.22. The regression model was not significant, $F(6, 318)=1.880$, $p=.08$. Significant between group differences remained between the PTSD, CPTSD, and clinical other groups with the non-clinical group. Neither HD ACEs nor sexuality were significant predictors of mother's participation scores.

Table 5.22. Linear regression analysis of participation, household dysfunction ACEs and sexuality

		B	SE *B*	Adjusted *β*
Participant group – comparison to non-clinical	Probable PTSD	-.540	.261	-.135* (-.151 - -.103)
	Probable CPTSD	-.455	.2102	-.146* (-.162 - -.109)
	Clinically significant DSO	-.142	.168	-.055 (-.075 - -.031)
	Clinical other	-.271	.127	-.134* (-.171 - -.106)
Sexuality		-.104	.155	-.039 (-.055 - -.021)
HD ACEs		-.044	.044	-.052 (-.077 - -.034)
Model		.377	.131	.265** (.222 - .273)

Note R^2=.034. *$p \leq .05$, **$p \leq .01$

Finally, individual ACEs replaced HD ACEs in a regression model and findings are shown in Table 5.23. The regression model was not significant, $F(6, 318)=1.959$, $p=.07$. No group differences remained once sexuality and individual ACEs were accounted for. Neither sexuality nor individual ACEs significantly predicted mothers' participation scores.

Table 5.23. Linear regression analysis of participation during childbirth, individual ACEs and education

		B	SE *B*	Adjusted *β*
Participant group – comparison to non-clinical	Probable PTSD	-.484	.239	-.108 (-.131 - -.085)
	Probable CPTSD	-.328	.203	-.113 (-.134 - -.088)
	Clinically significant DSO	-.107	.163	-.046 (-.077 - -.012)
	Clinical other	-.247	.129	-.217 (-.245 - -.188)

Sexuality		-.084	.155	-.034 (-.055 - -.016)
Intrapartum Interventions		-.022	.015	-.083 (-.102 - -.061)
ACEs	Physical abuse	.019	.160	.009 (.002 - .015)
	Emotional abuse	-.218	.191	-.088 (-.098 - -.076)
	Sexual abuse	-.073	.176	-.026 (-.048 - -.009)
	Physical neglect	-.003	.153	-.001 (-.025 - .000)
	Emotional neglect	-.225	.272	-.057 (-.078 - -.034)
	Abused mother	.015	.213	.004 (.000 - .012)
	Parental divorce	.058	.118	.031 (.005 - .065)
	Parental mental illness	.037	.143	.017 (.005 - .031)
	Parental substance abuse	.193	.119	.100 (.084 - .121)
	Parental imprisonment	.155	.323	.029 (.011 - .042)
Model		.612	.282	.487** (.464 - .503)

Note R^2=.036. *p≤.05, **p≤.01

5.4 Discussion

The impact of early life adversity exposure and clinically significant PTSD, DSO, and CPTSD symptoms during the perinatal period on physical and psychological aspects of childbirth were investigated in the current study. Overall, maltreatment-based early life adversity increased the likelihood of mothers' experiencing childbirth more negatively. Whilst mothers meeting probable caseness for PTSD and CPTSD were not at increased risk of adverse physical childbirth outcomes in

the current study (e.g., pre-term delivery, low birth weight, increased intrapartum intervention), they did consistently report lower scores on the subscales of the childbirth experience questionnaire. Women presenting with clinically significant PTSD, DSO and CPTSD symptoms consistently reported experiencing less agency, reductions in psychological safety, and feeling less supported by professionals during the childbirth experience.

With regards to the outcome of preterm birth, there were too few participants who had experienced preterm birth to be able to run regression analysis, but exploratory descriptive analysis suggests that PTSD, CPTSD and other diagnosis clinical women all have higher rates of preterm birth than non-clinical women. Birthweight was another factor of physical childbirth outcomes measured. Low birthweight as a categorical variable was again unable to be assessed by regression due to small participant numbers with low birthweight. Again, however, descriptive analysis suggests that PTSD, DSO, CPTSD and other diagnosis clinical women all have higher rates of plow birthweight than non-clinical women. Having an abused mother predicted a lower birthweight of 0.30kg lower than women who had not experienced having an abused mother. No other forms of early life adversity, or clinically significant PTSD, DSO, or CPTSD symptoms were found to have any effect on birthweight as a continuous measure. Physical childbirth outcomes relating to the infant appear to be vulnerable to disruption if specific ACEs have been experienced by the mother.

The need for intrapartum interventions can indicate a disrupted and more traumatic childbirth. Prior research has proposed that the presence of PTSD increases the need for intrapartum interventions (Mohler et al., 2208; Stephenson et al., 2018). In this chapter, women with clinically significant PTSD, CPTSD and DSO symptoms were not found to differ in their experience of intrapartum interventions. It was previously found that increased ACE exposure predicted an increased need for intrapartum interventions (Cicolla et al., 2021; Fortin-Langelier et al., 2019). This chapter, however, did not support these findings. After exploring ACEs in their two distinct clusters of maltreatment and household dysfunction ACEs, neither cumulative maltreatment ACEs nor

cumulative household dysfunction ACEs predicted a change in the number of intrapartum interventions required. Similarly, no specific ACEs that were shown to individually increase the likelihood of requiring intrapartum interventions. These findings contrast with those of Brunton & Dryer (2021) who found sexual abuse was associated with an increased need for intrapartum interventions. Women exposed to a threatening environment in early life exhibit cognitive biases that facilitate the rapid identification of potential future threats (Ellis et al., 2022; Heleniak et al., 2016; Pollak et al., 2009; Weissman et al., 2019). Yet, despite heightened detection of potential threats, mothers exposed to threat demonstrate poor discrimination of threat and safety cues during fear conditioning (McLaughlin, 2016). This results in mothers having heightened, yet inaccurate, identification of potential threats during pregnancy, and the fear of these threats can complicate up to 17% of pregnancies (Laursen et al., 2008; Nilsson et al., 2012). Early life maltreatment has been further predicted to increase fear of childbirth through a sense of self-objectification, and a sense of disrupted body boundaries and body shame (Talmon & Ginzburg, 2019). These fears of pregnancy created have been shown to complicate the pregnancy and childbirth (Laursen et al., 2008; Nilsson et al., 2012). This would suggest a pathway of how exposure to early life adversity can contribute to a more problematic childbirth, and while this study found no increased need for intrapartum interventions, increased preterm birth, and lower mean birthweights were shown in relation to specific ACE exposure. Therefore, exposure to early life adversity should be screened for in pregnancy to highlight a potential risk factor for poorer childbirth outcomes.

This chapter has shown limited and specific effects of early life adversity on physical aspects of childbirth; however, mothers' psychological experience of childbirth also warrants attention. The psychological experience of childbirth was found in this chapter to be greatly impacted by exposure to early life adversity. Further, women with probable PTSD and CPTSD experienced childbirth more negatively than women in the non-clinical group. Specifically, women with probable PTSD and CPTSD were shown to have lower scores relating to their sense of agency and participation during the childbirth experience, as well as significant reductions in their sense of safety and feelings of being

supported by professionals. These findings are consistent with the wider literature where mental health conditions have been shown to be associated with lower self-confidence, self-efficacy and self-belief (Byrd & McKinney, 2012; Grotan et al., 2019), and where the stigma relating to being under the care of a mental health team can further reinforce these negative self-perceptions (Jennings et al., 2015; Link et al., 2001; Oliveira et al., 2016; Verhaeghe et al., 2008). It is well documented that recipients of mental health services have a desire to have greater say in their care and treatment (Adams et al., 2007; Drake et al., 2022; O'Neal et al., 2008). However, it is frequently the case that patients feel passive in their decision-making ability when accessing healthcare services (Barry et al., 1995; Deegan, 2007; Drake et al., 2022; O'Neal et al., 2008), and that facilitating patient input is not always straight forward (Drake et al., 2022; Hamann et al., 2009; Seale et al., 2006). The findings reported in this chapter indicate that these reductions in a sense of agency and participation in decision making during labour and childbirth for women exposed to maltreatment-based ACEs during childhood and those presenting with PTSD and CPTSD during the perinatal period.

The wider PTSD literature can help us understand why PTSD and CPTSD are associated with a more negative childbirth experience. The PTSD symptom cluster of hyperarousal (Cloitre et al., 2013) is associated with perceiving events and situations as more threatening and these psychological changes are in turn associated with alterations in the biological stress response system cortisol levels (Bowers & Yehuda, 2016; Davis & Narayan, 2020; Moog et al., 2018; Schreier et al., 2015; Swales et al., 2018). The threats that childbirth carries in terms of the health of mother and child are understandably more challenging for women with a history of trauma exposure. As the PTSD symptom clusters are required for a CPTSD diagnosis, the hyperarousal cluster may explain the poorer perceived safety in women with probable CPTSD also. PTSD has been linked with reductions in self-confidence (Sirati Nir et al., 2020; Wahlbeck et al., 2018) and trust in others (Bell et al., 2019; Ullman et al., 2013), which is in line with the findings in the current study that mothers with probable PTSD report a reduced sense of agency and influence during childbirth.

Current DSO and CPTSD symptoms include the presence of emotion dysregulation, negative self-concept, and disturbances in relationships. Such symptoms have been linked with reduced experience of childbirth overall (Garthus-Niegel et al., 2013), as well as reducing feelings of security (Werner-Bierwisch et al., 2018), and are likely to impact mothers' perceptions of childbirth in the following ways. This can account for the predicted lower scores of perceived safety in women with current DSO and CPTSD symptoms. Emotion dysregulation has been shown to cause an increase in the stressfulness of events and create a more negative perception in retrospect (Brose et al., 2017; Denovan & Macaskill, 2017; Ewing et al., 2019; Herts et al., 2012; McLaughlin & Hatzenbuehler, 2009; Stutts et al., 2018). Symptoms of negative self-concept must be currently present as captured via the ITQ to reach the threshold of probable CPTSD (Cloitre et al., 2013), and can account for the poorer perception of women's own capacity within the perinatal period when current DSO and CPTSD symptoms are present.

Current trauma related stress disorder symptoms appear to be particularly influential in creating a more negative childbirth experience, as shown in this chapter, but it is important to establish if it is the current symptoms that result from adversity that can cause these changes in perception of childbirth, or whether the exposure to the initial adversity can also, independently, predict changes in childbirth experience. Childbirth experience was assessed within the models of regression used. Cumulative maltreatment ACEs were found to be associated with a less positive experience of childbirth. For each additional maltreatment ACE mothers had been exposed to, the mean experience of childbirth score reduced by a score of .06. Cumulative household dysfunction ACEs, however, did not predict any change in childbirth experience. This suggests that it is only maltreatment-based adversities that influence childbirth experience later in life, beyond any symptoms that arise as a result of such exposure. The role of individual ACEs was also assessed, and physical abuse was found to be significantly influential on overall childbirth experience. If physical abuse had been experienced by mothers during their childhood, they perceived the experience of childbirth score as .24 lower than in mothers who had not experienced physical abuse in childhood,

highlighting where within the maltreatment group the greatest risk lies. As discussed in previous chapters, women exposed to a threatening early environment, (measured in the present study by experiences of physical abuse) exhibit cognitive biases that facilitate the rapid identification of potential future threats (Ellis et al., 2022; Heleniak et al., 2016; Pollak et al., 2009; Weissman et al., 2019), with the threat identified in this case being childbirth. The additional deemed threat of childbirth may be what is leading to a more negative experience of the birth.

To deepen understanding of the aspects of childbirth that women presenting with childhood adversity exposure and trauma-related stress disorders during the perinatal period, the subscales of the Childbirth Experience Questionnaire were further analysed. Cumulative maltreatment ACEs were associated with mothers' reports of less agency and influence during the childbirth experience. Household dysfunction ACEs did not predict mothers' own capacity score. As before, individual ACEs were assessed, and exposure to childhood physical abuse predicted mothers' perceptions to the greatest extent with the presence of physical abuse in childhood reducing the own capacity score by .38. With such increased threat perception that occurs as a result of the maltreatment-based physical abuse (Ellis et al., 2022; Heleniak et al., 2016; Pollak et al., 2009; Weissman et al., 2019), mothers' own capacity and belief in their ability through childbirth is deemed poorer. Increased maltreatment-based adversity experiences are proposed to reduce self-efficacy in responding to future stressors (Bandura, 1977; Wilde & Hsu, 2019), highlighting how maltreatment-based adversity exposure, and resulting threat perception, reduces mothers' own capacity in childbirth. For the subscale of perceived safety, it was once again that cumulative maltreatment ACEs significantly predicted a change in mothers' perception of their perceived safety. Each increase in maltreatment ACE experienced resulted in a reduction of perceived safety score of .07. Again, cumulative household dysfunction ACEs did not predict perceived safety. When individual ACEs were explored again, physical abuse was associated with a change in childbirth experience, with mothers who experienced physical abuse in childhood having a reduction in perceived safety score of .40. Exposure to physical abuse has been shown to predict lower feelings of safety and security more

generally (Bartlett & Steber, 2019; Cantón-Cortés et al., 2019; Partridge & Affleck, 2017), and this chapter has highlighted that this trend continues into the perinatal period, and childbirth specifically. Parental imprisonment was also a significant predictor of perceived safety, with mothers who experienced parental imprisonment in childhood having a reduction in perceived safety score of .54, and further research into a larger sample of mothers with parental imprisonment should look to strengthen this finding.

In addition to current trauma related stress disorder symptoms, covariate predictors of educational attainment, ethnicity, living status and sexuality were also explored in terms of correlating with outcomes and being predictors in the model. Education was found to be a significant predictor of childbirth experience. The higher the education of the mother, the higher the mean childbirth experience score. Education has been associated with childbirth outcomes relating to delivery method and experience (Carquillat et al., 2016; Engler et al., 2021; Gyarmati et al., 2009; Gyarmati, 2010; Poka et al., 2020; Rydahl et al., 2019), often mediated by maternal age with higher education predicting entering parenthood at an older age, having more say in delivery method via the elective caesarean and in turn having a more positive childbirth experience. Each subscale was also assessed with the same predictors. For own capacity, education was again a significant factor, with increased education leading to increased perception of mother's own capacity during childbirth. Increased self-belief, confidence and efficacy have been persistently linked with increased educational attainment (Orth et al., 2012; Orth et al., 2018; Trzesniewski et al., 2006; Von Soest et al., 2016; Wagner et al., 2014), although the direction of effect is varied. These constructs could be explored as part of future research to consider whether heightened self-belief leads to higher educational attainment, and in turn, higher own capacity in childbirth, or alternatively if higher educational attainment leads to an increased own capacity score relating to childbirth. Increased education is suggested to increase trust in healthcare (Armstrong et al., 2007; Armstrong et al., 2013; Halbert et al., 2006; Nikodem et al., 2022), making it surprising that perception of professional support was not related to education in the present study.

Ethnicity was another covariate considered, and one shown to be a significant predictor of preterm birth. Women of non-white ethnicities are shown to have poorer childbirth outcomes (Callaghan, 2020; Hodnett, 2002; Howell et al., 2016; Howell et al., 2017; Howell et al., 2020; Janevic et al., 2018; Janevic et al., 2020; Jardine et al., 2021; Johnson et al., 2019; Wheeler et al., 2012), and in this chapter this was shown to manifest in terms of preterm birth, with women of Mixed ethnicities reporting preterm birth 30.0% of the time, compared to White women reporting it 7.8% of the time. Women of non-white ethnicity have been shown to trust healthcare professionals less in other aspects of health (Glazer et al., 2021; Lord et al., 2012; Ngo-Metzger et al., 2004; Wong et al., 2008), as well as in the perinatal period (Altman et al., 2019) due to communication with the healthcare providers and racial stereotypes held by the care team (Altman et al., 2019; Calabrese et al., 2014; Rosenthal & Lobel, 2016; Shavers et al., 2012). However, this chapter lacks diversity in the sample, and therefore the role of ethnicity in relation to childbirth experience was not able to be fully assessed. A more diverse sample would allow a more thorough exploration of this topic.

Poorer outcomes linked to physical aspects of childbirth, be it preterm birth, or birthweight were associated with early life adversity. Current trauma related stress disorder symptomology is predicted to be far less influential on physical birth outcomes. In addition to physical aspects of childbirth, mothers' perception of the experience of childbirth has been shown in this chapter to be greatly impacted by early life adversity exposure, and current trauma related stress disorder symptoms. Maltreatment-based early life adversity, namely physical abuse, was the greatest predictor of childbirth experience, with exposure having been shown to have changed experience of later life stressful events (Ellis et al., 2022; Heleniak et al., 2016; Pollak et al., 2009; Weissman et al., 2019), such as childbirth accounting for such poorer perceptions of the experience of childbirth, including feeling less confident in their own capacity and less safe during the birth. Maltreatment-based early life adversity, particularly physical abuse, and the disruption it creates to later life threat responses has a clear and significant effect on the way that mothers experience childbirth. Chapter 3 highlighted that women exposed to physical abuse were more likely to enter parenthood, and this

chapter extend upon this finding by showing an association that when women exposed to early life physical abuse do enter parenthood, they perceive the process of childbirth more negatively, with poorer perceptions of their own capacity and of their safety.

I hypothesised that sexual abuse would predict childbirth experience, as many aspects of perinatal care can carry triggers relating to the abuse (Carroll et al., 2020; Kuzma et al., 2020; Sobel et al., 2018; White, 2014), such as loss of control, pain, encounters with strangers and the crossing of body boundaries (Coles & Jones, 2009; Garratt & Kirkham, 2018; Montgomery et al., 2015). Such intrusive reminders can also lead to the avoidance of situations where these triggers may arise (Schwerdtfeger & Wampler, 2009; Seng et al., 2004). It was shown in Chapter 3 that sexual abuse was associated with a reduced age at first entry to parenthood, and an increase in the number of children had highlighting an effect of sexual abuse on parenting factors. However, sexual abuse was not found to predict any changes in childbirth experience. Sexual abuse is a form of the same maltreatment-based early life adversity as physical abuse, as per McLaughlin et al., (2016)'s model of early life adversity and, as such, the pathways by which the experience of childbirth may be affected would be the same. The findings from this study suggest that this pathway of disruption to a positive childbirth experience is more readily reached by physical abuse early in life.

5.4.1 Clinical implications

Exposure to early life maltreatment adversity predicts a poorer experience of childbirth, with cumulative maltreatment early life adversity carrying particularly strong risk. Specific forms of early life adversity, most prominently physical abuse, carry increased individual risk for negative childbirth experience, beyond the cumulative nature of maltreatment. Perinatal healthcare teams would be able to provide more personalised and protective care if they possess the knowledge of the early life adversity that mothers have experienced. Understanding the exposure mothers have been through will provide the knowledge to clinical professionals as to whether the mother is at a heightened risk

of experiencing childbirth, particularly relating to their own capacity and perceived safety, more negatively. Asking all women who enter the perinatal period to complete the ACE checklist would provide all the relevant information to perinatal care teams.

In addition to perinatal teams needing to be aware of the early life adversity exposure of mothers, a knowledge of current trauma related stress disorder symptoms is also vital. The presence of current PTSD, DSO, and CPTSD symptoms in the perinatal period predict a more negative overall childbirth than women with other mental health disorders in the clinical subsample, and other mothers in the non-clinical subsample. A poorer experience was also shown for each subscale of own capacity, professional support, perceived safety, and participation. In addition to exposure to early life adversity directly influencing childbirth outcomes, via resulting symptomology in the perinatal period can also significantly disrupt a positive childbirth experience for mothers. The following chapter will present a possible way for these current symptoms to be assessed in the perinatal period, but detection of such symptoms by perinatal teams would provide useful information for care.

Education and ethnicity are important factors to consider in relation to such perinatal care, as mothers of lower education and of non-white ethnicity are at increased likelihoods of experiencing aspects of childbirth more negatively, be it the perception of the birth, or physical aspects such as an increased likelihood of preterm birth. Research specifically into racial disparities in perinatal care provide recommendations on how to improve the experience of childbirth in non-white mothers (Altman et al., 2019; Calabrese et al., 2014; Callaghan, 2020; Hodnett, 2002; Howell et al., 2016; Howell et al., 2017; Howell et al., 2020; Janevic et al., 2018; Janevic et al., 2020; Jardine et al., 2021; Johnson et al., 2019; Rosenthal & Lobel, 2016; Shavers et al., 2012; Wheeler et al., 2012).

My findings highlight that there is not a one size fits all approach to perinatal care, as prior life experience, current mental health symptomology, current mental health care, and socio-

demographic characteristics such as education and ethnicity can create differing risks to the physical outcomes of childbirth, as well as mothers experience of the process. Additional support (Fair & Morrison, 2012; Ford & Ayers, 2011; Ghanbari-Homaie et al., 2021; Oladapo et al., 2018; Rouhe et al., 2015; Taheri et al., 2018) and education (Hassanzadeh et al., 2019; Onchonga et al., 2020; Toohill et al., 2014) have been found to improve the experience of childbirth, and therefore mothers who present with any of the at-risk experiences, symptoms, or characteristics should be provided with such additional aids.

5.4.2 Conclusion

Maltreatment-based early life adversity, current PTSD, DSO, and CPTSD symptoms, being less educated, and being of non-white ethnicity reduce the positive and physical experience of childbirth for mothers. These risk factors should be screened for in pregnancy so that support and education can be provided to mothers at heightened risk of a more complicated and more negative childbirth experience.

Chapter 6 - The International Trauma Interview in a Perinatal Population

6.1 Introduction

Post-Traumatic Stress Disorder (PTSD) and Complex PTSD were identified as being present within the MWMHLE study in Chapter 4 yet were frequently un-diagnosed by clinicians. The International Classification of Diseases, 11th Version (ICD-11) (World Health Organisation, 2018) proposes these two sibling diagnoses result from trauma exposure (Maercker et al., 2013). The two disorders have distinct but related conceptual frameworks that organise the symptom profiles (Cloitre et al., 2013). PTSD consists of three clusters of symptoms, each of which are required for a diagnosis: re-experiencing of the traumatic event in the present, avoidance of traumatic reminders, and a sense of current threat. For CPTSD, as well as the three clusters of symptoms of PTSD, three clusters of symptoms of Disturbances in Self-Organisation (DSO) are required for a diagnosis: affective dysregulation, negative self-concept, and disturbances in relationships.

In the previous two chapters, both PTSD and CPTSD were found to be frequently undetected by clinical services, with over 85% of participants with clinically significant PTSD symptoms and 97% with clinically significant CPTSD symptoms being undiagnosed. DSO symptoms, independent of PTSD symptoms, were also found to be present in the sample although detection could not be assessed due to there not being a corresponding ICD-11 diagnosis for the DSO symptom cluster alone. For the women who met criteria for PTSD, CPTSD, and DSO on the ITQ, many had received multiple co-morbid diagnoses from mental health services in the current perinatal period, and the overlap of symptoms may account for the misdiagnosis. For example, PTSD and generalised anxiety disorder (GAD) are frequently diagnosed as comorbid disorders (Barbano et al., 2019; Spinhoven et al., 2014), with overlap occurring relating to negative affect (Price et al., 2019) and perceived threat (Li et al., 2020). Like GAD, the negative affect associated with PTSD means that there is frequent comorbidity with depressive disorders (Barbano et al., 2019; Flory & Yehuda, 2022; Price et al., 2019).

Additionally, PTSD and OCD have been suggested to have overlapping symptomology and high comorbidity (Franklin & Raines, 2019; Van Kirk et al., 2018). The common comorbidity may result from an overlap of three specific symptoms: unwanted thoughts and memories; repetitive behaviours aimed at reducing distress; and avoidance of stimuli to control intrusive thoughts (Fletcher et al., 2018). As with PTSD, there is frequently a large overlap between CPTSD with GAD (Gilbar, 2020; Karatzias et al., 2019) and depression (Gilbar, 2020; Hyland et al., 2021; Karatzias et al., 2019), as well as OCD due to the same overlapping symptoms outlined by Franklin and Raines (2019) and Van Kirk et al., (2018). It has been discussed how the reason for the under detection of PTSD and CPTSD could be because the symptoms are attributed to comorbid diagnoses which has important implications for treatment (Lewis et al., 2018). Similarly, it may also be the case that clinicians misdiagnose or find difficulty in disentangling traumatic stress symptoms from the more salient symptoms of the primary mental disorder (Lewis et al., 2018). Such comorbid disorders are also often excluded in current guidelines for the treatment and management of traumatic stress disorders (Bisson et al., 2013), potentially highlighting a reluctance to diagnoses and treat, especially if there are worries it will complicate symptoms (Frueh et al., 2006). As such, it is not uncommon for symptoms of PTSD and CPTSD to be misdiagnosed, meaning that trauma-related stress disorders are often undetected and poorly treated.

There has been debate as to whether CPTSD and Borderline Personality Disorder (BPD) are distinct diagnoses, or whether they are one and the same due to stark similarities in DSO symptoms. CPTSD is argued to occur when PTSD and BPD are both present, and PTSD and BPD are often comorbid disorders. Pagura et al., (2010) found that 24% of individuals with lifetime PTSD also met criteria for BPD, 30% of individuals with BPD also met criteria for lifetime PTSD, and 2% had been diagnosed for both PTSD and BPD. However, there are distinct differences between ICD-11 CPTSD and DSM-V BPD (Cloitre et al., 2014). BPD does not require the presence of a history of trauma, whereas CPTSD does. BPD is characterized by a fear of abandonment and fluctuating sense of self, symptoms not required for a CPTSD diagnosis in ICD-11. CPSTD is characterized more by emotional

sensitivity and poor coping responses. In women seeking treatment for childhood abuse, distinct classes of symptoms were formed that are consistent with diagnostic criteria for PTSD, Complex PTSD, and BPD independent of one another (Cloitre et al., 2014; Hyland et al., 2019). Those with CPTSD symptoms were associated with greater exposure to multiple, interpersonal traumas earlier in life and exhibited higher functional impairment compared to those with PTSD and BPD symptom classes (Jowett et al., 2020). These findings, therefore, support the construct of a CPTSD diagnosis as a separate entity, although BPD features seem to overlap greatly with CPTSD symptoms in this highly traumatized clinical sample. As such, it is not uncommon for symptoms of CPTSD resulting from childhood maltreatment to be misdiagnosed. This means that CPTSD is often undetected and inappropriately treated. In Chapter 4, BPD was only found to be diagnosed by clinical services for N=2 women (3.6%) with current DSO symptoms, and for N=1 woman (2.6%) with CPTSD symptoms. This suggests that for women in the current sample, this misdiagnosis is not frequently occurring. Nevertheless, it is important to compare probable cases of PTSD, CPTSD and BPD on gold standard diagnostic interviews to inform differential diagnosis and our understanding of co-morbidity. This chapter offers an exploration of current BPD symptoms compared with women's current PTSD, DSO, and CPTSD symptoms.

CPTSD is more likely to occur as a result of trauma exposure which is inter-personal in nature, prolonged and/or repeated, or consists of multiple forms, and which often occurs under circumstances where escape from the trauma is difficult or impossible (Hyland et al., 2017). CPTSD is particularly likely to develop as a result of exposure to childhood maltreatment, physical and/or emotional ill-treatment, sexual abuse, neglect, negligence and commercial or other exploitation, which results in actual or potential harm (World Health Organisation, 2016). The findings of Chapter 4 revealed that maltreatment and HD ACEs predict PTSD, DSO, and CPTSD symptom clusters, and once other ACEs and confounding variable were controlled for, emotional abuse and parental imprisonment predicted perinatal CPTSD. Parental substance abuse was further a predictor of probable cases of PTSD during the perinatal period, and emotional neglect and parental mental

illness predicted clinically significant DSO symptoms during the perinatal period. The findings that interpersonal early life adversities predict perinatal CPTSD is in line with the definition of CPTSD by the WHO (World Health Organisation, 2016), and the Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014).

Given that early life adversity and probable caseness for PTSD, DSO, and CPTSD are associated with adverse perinatal outcomes, detection is essential to enable appropriate care and treatment. In the previous chapter, the ITQ was used to detect mothers' current PTSD and CPTSD symptoms. The ITQ is an 18-item self-report scale that is used to provide research diagnoses of PTSD and CPTSD (Cloitre, et al., 2018). The ITQ uses a 5-point Likert Scale to rate symptoms, anchored by 0 (Not at all) and 4 (Extremely). Six items relate to symptoms of PTSD and six items relate to symptoms of disturbances of self-organisation. The ITQ has been well validated in non-perinatal populations and has been shown to have excellent internal reliability, (Hyland et al., 2017). However, the ITQ is at risk of the biases associated with self-report measures, such as the risk of poor face validity, attributional biases, and/or an over-pronounced reporting of symptom severity (Chan, 2010; Sandvik et al., 1993; Spector, 1994; Williamson, 2007), and has not been investigated in relation to the diagnostic reference standard of a semi-structured diagnostic interview with a perinatal population.

To address any potential issues that may arise due to the self-report nature of the ITQ, and to strengthen the data collected on current trauma related stress disorders, the International Trauma Interview (ITI) was developed (Cloitre et al., 2018; Roberts et al., 2018). The ITI reflects the ITQ in terms of the questions asked and the scoring procedure for each symptom cluster. However, in the ITI the questions are asked and scored by a trained researcher with prompt questions to identify whether the symptom or problem is present, and scoring is based on clinical judgement. For some items the interviewer also needs to identify whether the problem is trauma related. The ITI has demonstrated good psychometric properties (Bondjers et al., 2019; Gelezelyte et al., 2022) with interrater agreement, latent structure, and internal reliability, as well as the evaluation of

convergent and discriminant validity being assessed in a Swedish (Bondjers et al., 2019), and a Lithuanian sample (Gelezelyte et al., 2022). Thus, the ITI has been well validated outside of the perinatal population (Bondjers et al., 2019; Gelezelyte et al., 2022), but it has had limited use in pregnancy or the postpartum period.

6.1.1 Aims

The key aim of this chapter is an exploratory investigation of the similarities in scoring between the ITI and the ITQ. This will build on the findings of Chapters 4 and 5 by examining the diagnostic accuracy of the International Trauma Questionnaire benchmarked against the 'gold standard', researcher administered, International Trauma Interview. Furthermore, this study aims to explore the presence of BPD symptoms and compare ITI symptom clusters with BPD symptom clusters to explore similarities, differences and comorbidity.

6.2 Methods

6.2.1 Sample

Participants were recruited initially into the Maternal Wellbeing, Mental Health and Life Experiences (MWMHLE) study as described in the methods sections of the previous two chapters. From the MWMHLE sample, participants for this chapter were invited to take part in the ITI study if they had reported exposure to a qualifying trauma as determined by the ICD (Roberts et al., 2018) and completed the ITQ in the MWMHLE study. N=31 participants reached the inclusion criteria.

6.2.2 Procedure

All participants who had completed the MWMHLE study, specifically the ITQ, and had identified experiencing an ICD-11 qualifying traumatic event were contacted via email and invited to take part in the ITI study. Mothers who positively responded to the invitation were screened against the inclusion criteria and a date for the interview was agreed. Participants were sent consent forms and an information pack to read over prior to the interview date. Additionally, the ITQ was sent to be recompleted at this stage. Once returned, due to Covid restrictions, the interview took place via Zoom video calling software. Current wellbeing was assessed at the beginning of the interview by the researcher discussing with the participant how their current mood was, and if the participant was currently feeling well within themselves, the ITI and BPD SCID-II interview was administered. All participants were fully debriefed following the interview.

The interviews combined take around 2 hours to complete. Following training from a Consultant Clinical Psychologist and trauma expert who has led on the development of the ITI, I was signed off as competent to deliver both interviews. The training involved observing and being observed during the delivery of the interviews as well as inter-rater reliability exercises to ensure consistency of scoring. Ongoing supervision meetings were held on a monthly basis with a Consultant Clinical Psychologist to discuss the interviews and any uncertainties with scoring. Observations of the interviews with participants by other trained interviewers occurred to ensure that scoring was reliable and consistent, and a random sample of interviews were recorded for the same reliability purposes. I completed the first N=26 interviews with participants recruited into this ITI study from the MWMHLE sample. The remaining N=5 interviews reported in this chapter were conducted by a trainee clinical psychologist who also went through the same training and sign off procedures. Inter-rater reliability was conducted whereby the trainee clinical psychologist recorded the N=5 (16% of the total sample) of their interviews and I scored these interviews whilst blind to the other interviewer's ratings.

6.2.3 Measures

Socio-demographic characteristics

Socio-demographic measures were collected initially with perinatal status defined as currently pregnant or within one-year postpartum. Ethnicity was captured and was conceptualised as white and non-white due to the small participant numbers of non-white ethnicity. Education was captured on an ordinal scale of; no qualifications, 1-4 GCSEs, 5+ GCSEs, Apprenticeship, 2+ A-Levels, Degree or above, or other qualifications. Sexuality was another characteristic conceptualised into two categories of heterosexual or not due to the small number of participants identifying as gay or lesbian, bisexual, or other/prefer not to say. The final measure captured was relationship status, defined as currently living with a partner or married as yes or no. These measures were identified in Chapter 1 as potential correlates of perinatal outcomes.

Trauma related stress disorder symptoms and diagnoses

Trauma related stress disorder symptoms were assessed with the International Trauma Interview (ITI) – see Appendix. The ITI is a semi-structured diagnostic clinical interview that assesses symptoms of Post-Traumatic Stress Disorder (PTSD) and Disturbances in Self-Organisation (DSO) to ascertain the presence of PTSD and Complex Post-Traumatic Stress Disorder (CPTSD) (Roberts et al., 2018). The first part of the ITI measures PTSD symptoms and is based on the gold standard DSM PTSD assessment, the Clinician Administered PTSD Scale for DSM-5 (CAPS-5) (Weathers et al., 2013). The ITI includes two items for each of the three PTSD symptom clusters: re-experiencing in the form of flashbacks or nightmares (Re), avoidance of internal or external reminders of the event (Av), and a sense of current threat expressed in hypervigilance or startle reactions (Th). Symptoms are assessed in relation to intensity and frequency within the past month on a five-point scale (0=not present, 4=extreme). This section of the ITI also assesses impairment in social and occupational functioning as a result of the PTSD symptoms in the form of two questions scored from 0, 'No adverse impact', to 4, 'Extreme impact, little or no functioning'.

The second part of the ITI assesses the DSO symptom clusters through persistent and pervasive reactions and changes that have occurred or worsened following exposure to a potentially traumatic event (Bondjers et al., 2019). Two items assess each of the three symptom clusters of DSO: affective dysregulation (AD) characterized by a hyper- or hypoactivation (exaggerate emotional reactions or a tendency towards emotional numbing or dissociation) when confronted with minor stressors; negative self-concept (NSC) (feeling like a failure and feeling worthless); and disturbances in relationships (DR) (feeling distant and cut-off and finding it hard to stay close to people). Each item is rated on a five-point scale (0=not present, 4=extreme). This section also includes two questions on social and occupational impairment in relation to the DSO symptoms, also scored from 0, 'No adverse impact', to 4, 'Extreme impact, little or no functioning'.

To determine the extent to which the symptoms are related to the identified traumatic event, respondents are asked if an endorsed problem began or got worse following trauma exposure, or if they think the problem is trauma related. Trauma-relatedness is classed as 'definite' (the symptoms can clearly be attributed to the index event), 'probable' (the symptom is likely, though not definitely related to the index even), and 'unlikely' (the symptom can be attributed to some other cause other than the index event). Severity scores for PTSD (0-24), DSO (0-24), and a combined CPTSD score (0-48) are generated along with cluster specific severity scores (each 0-8). For a PTSD diagnosis, at least one symptom must be present from each PTSD cluster with at least a moderate severity (i.e., severity score ≥ 2), and a functional disability on account of the symptoms. For a CPSTD diagnosis, one symptom from all clusters (PTSD and DSO) must be present with at least a moderate severity, as well as functional disability on account of both PTSD and DSO symptoms. Diagnostic algorithms corresponding to ICD-11 criteria are applied, resulting in either no diagnosis, a diagnosis of PTSD (if PTSD criteria but not DSO criteria is fulfilled), or a diagnosis of CPTSD (if criteria for both PTSD and DSO is fulfilled). Additionally, women with clinically significant DSO symptoms only were categorised into a fourth group. ITI symptoms were compared to the symptoms assessed on the ITQ. The ITQ, as outlined in previous chapters, has to have been completed within a month

either side of the ITI so that comparisons can be drawn. In this study, they were completed within a week of each other.

Borderline Personality Disorder

BPD symptoms were captured via the 9-item BPD module of the SCID-II (First et al., 2002). Each item is scored on a three-point scale (1=absent, 2=subthreshold, or 3=present). The items include abandonment, unstable relationships, identity, impulsivity, suicide, affect instability, emptiness, anger, and paranoia. Each BPD symptom was scored as present if it had occured for two years (Bernstein et al., 1996; Jovev et al., 2008; Steinberg et al., 1994). A score of three on at least five of the nine BPD items is required for a diagnosis of BPD (Jovev et al., 2008; Steinberg et al., 1994).

6.2.4 Statistical analysis

Descriptive statistics including education, living status, sexuality and pregnancy status of participants in the ITI sample are calculated and reported. The endorsement of current trauma related stress disorder symptoms on the ITQ and ITI were compared. K values were calculated to compare agreement on the ITQ and the ITI. Values from 0 to .20 indicate poor/slight agreement, .21 to .40 – fair agreement, .41 to .60 – moderate agreement, .61 to .80 – substantial agreement, and .81 to 1 – almost perfect or perfect agreement (Gelezelyte et al., 2022; Landis & Koch, 1977). To assess the degree to which the ITI and the ITQ provided consistency in their observed PTSD and DSO subscale scores across subjects, intraclass correlation coefficients (ICC) are calculated based on a single rater, and 2-way random-effects model. Guidelines classify ICC of ≤.50 as poor, .50 – .75 as moderate, .75 – .90 as good, and .90 to 1 as excellent (Gelezelyte et al., 2022; Koo & Li, 2016).

An exploratory investigation into the frequency of BPD symptom frequency by diagnostic groups (e.g., PTSD, CPTSD, DSO, and no diagnosis) on the ITI was conducted. Kappa values are

calculated to compare the ITI diagnostic groups with BPD caseness on the SCID-II. Furthermore, participants in the four ITI groups were compared on their endorsement of the nine BPD symptoms.

6.3 Results

6.3.1 Socio-demographic characteristics

The characteristics of the N=31 women who took part in the current study are reported in Table 6.1. The sample was majority White, educated to degree level, and living with a partner. Just under a third of the sample were pregnant at the time of the assessment. Similarly, just under a third of the sample identified as not heterosexual.

Table 6.1. Socio-demographic characteristics of the subsample of the MWMHLE study who completed the ITI

	Socio-demographic characteristics	ITI sample (N=31)	PTSD (N=6)	DSO (N=4)	CPTSD (N=4)	No trauma related stress disorder (N=17)
Perinatal status	Pregnant	9 (29.0%)	1 (16.7%)	1 (25.0%)	1 (25.0%)	6 (35.3%)
	Postpartum	22 (71.0%)	5 (83.3%)	3 (75.0%)	3 (75.0%)	11 (64.7%)
Education	5+ GCSEs	2 (6.5%)	0	0	0	2 (11.8%)
	Apprenticeship	1 (3.2%)	1 (16.7%)	0	0	0
	2+ A-Levels	4 (12.9%)	1 (16.7%)	0	3 (75.0%)	0
	Degree or above	24 (77.4%)	4 (66.7%)	4 (100%)	1 (25.0%)	15 (88.2%)
Married or living with partner	Yes	30 (96.8%)	5 (83.3%)	4 (100%)	4 (100%)	17 (100%)
	No	1 (3.2%)	1 (16.7%)	0	0	0
Ethnicity	White	30 (96.8%)	6 (100%)	4 (100%)	4 (100%)	16 (94.1%)

	Mixed	1 (3.2%)	0	0	0	0
Sexuality	Heterosexual	22 (71.0%)	3 (50.0%)	3 (75.0%)	3 (75.0%)	13 (76.5%)
	Not heterosexual	9 (29.0%)	3 (50.0%)	1 (25.0%)	1 (25.0%)	4 (23.5%)

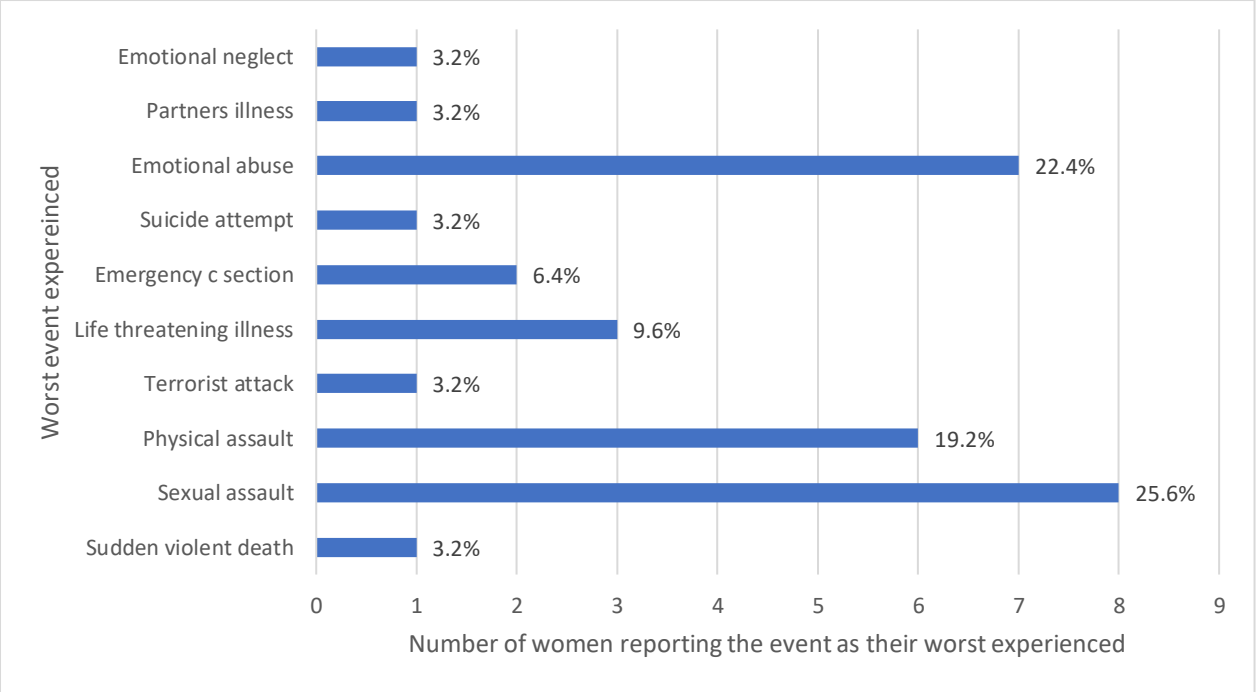
6.3.2 Inter-rater reliability

The inter-rater reliabilities of each aspect of the ITI was assessed between myself and the trainee clinical psychologist who aided in conducting the ITIs. Agreement on whether women reached the threshold for each symptom item and cluster was generally good with agreement reached between researchers on 152 of the 185 items assessed (82.2%) across the 5 participants. Kappa scores and percentage agreement for each cluster were as follows; re-experiencing=.615 (80%), avoidance=.545 (80%), hyperarousal=.615 (80%), affect dysregulation=.615 (80%), negative self-concept=.615 (80%), and disturbances in relationships=1.00 (100%). A total diagnostic difference occurred on N=2 occasions, with resulting PTSD agreement occurring on 60% of occasions, and DSO and CPTSD 100% of the time. The decision was taken to keep the diagnoses in analyses of the original rater who interviewed the participant.

6.3.3 Trauma exposure

The worst trauma experienced by each participant was enquired about on both the ITQ and the ITI. Each participant reported the same worst trauma on both the ITQ and the ITI (100% agreement). Sexual assault, physical assault and emotional abuse were the most commonly reported traumatic events, with 68% of the sample reporting one of these traumatic events as their worst exposure. Exposure to a life-threatening illness or having an emergency caesarean section were the next most commonly reported worst traumatic event (16%). Only one participant reported each of the following traumatic events as their worst exposure: terrorist attack, suicide of someone close, sudden violent death, and life-threatening illness of partner (Figure 6.1).

Figure 6.1. The worst events experienced by women in the ITI sample



6.3.4 ITI and ITQ comparison

Researcher rated symptoms and diagnoses of PTSD, CPTSD and DSO on the ITI were compared to self-reported scores on the ITQ, as shown in Table 6.2. On the ITQ, 4 of 31 women (12.9%) met criteria for probable PTSD, 7 of 31 women (22.6%) met criteria for probable CPTSD, and 2 of 31 women (6.5%) met criteria for clinically significant DSO symptoms only. In contrast on the ITI, 6 of 31 women (19.4%) met criteria for PTSD, 4 of 31 women (12.9%) met criteria for CPTSD, and 4 of the 31 women (12.9%) met criteria for clinically significant DSO symptoms. These comparisons are shown in Table 6.2.

Table 6.2. A comparison between participants' self-reported probable caseness for a trauma related stress disorder on the ITQ with researcher ratings on the ITI

Current trauma related stress disorder symptoms		ITI			
		PTSD (N=6)	DSO (N=4)	CPTSD (N=4)	No symptoms (N=17)
ITQ	PTSD	3 (50.0%)	0	0	1 (5.9%)
	DSO	0	1 (25.0%)	0	1 (5.9%)
	CPTSD	2 (33.3%)	2 (50.0%)	2 (50.0%)	1 (5.9%)
	No symptoms	1 (16.7%)	1 (25.0%)	2 (50.0%)	14 (82.4%)

Across all participants who completed both the ITQ and the ITI, 20 of 31 women (64.5%) were assigned to the same diagnostic group on both the questionnaire and the interview. Three women screened positively for trauma related stress disorder symptoms (N=1 probable PTSD, N=1 probable CPTSD, and N=1 clinically significant DSO symptoms) on the ITQ but did not reach criteria for any diagnoses on the ITI. Contrastingly, 4 out of 14 women (28.6%) were identified as non-cases on the ITQ but reached criteria for trauma related stress disorder symptoms on the ITI (N=1 probable PTSD, N=2 probable CPTSD, and N=1 clinically significant DSO symptoms). On the ITQ, 1 of 4 women (25.0%) met criteria for probable case of PTSD but did not reach ICD-11 for corresponding PTSD on the ITI. Starkly, 5 of 7 women (71.4%) met criteria for probable caseness of CPTSD on the ITQ but did not reach ICD-11 criteria for CPTSD on the ITI. Yet, despite these differences, of the 13 women who reached the threshold for probable PTSD, probable CPTSD, or clinically significant DSO symptoms on the ITQ, 10 (76.9%) reached the cluster threshold of a diagnosis of one of probable PTSD, probable CPTSD, or clinically significant DSO symptoms on the ITI. This suggests that detection of probable caseness is relatively accurate, but it is the specificity of diagnosis that is lacking.

The data can be analysed further by exploring each symptom cluster for PTSD and DSO to determine where differences in outcomes occur. These comparisons can be seen in Table 6.3.

Table 6.3. A comparison of participants' self-report PTSD and DSO symptom clusters on the ITQ with researcher rated ITI scores

Symptom cluster	ITQ % endorsing	ITI % endorsing	ITI participants (N=31)		
			K	P	Interclass correlation coefficient (CI 95%)
Re-experiencing	45.2%	38.7%	.472	.008*	.651 (.283 - .831)
Sense of threat	80.6%	61.3%	.101	.527	.143 (-.736 - .585)
Avoidance	74.2%	48.4%	.492	.001*	.639 (.257 - .825)
Affect dysregulation	71.0%	54.8%	.529	.002*	.691 (.365 - .851)
Negative self-concept	54.8%	45.2%	.680	≤.001*	.814 (.617 - .910)
Disturbed relationships	54.8%	38.7%	.179	.293	.296 (-.448 - .659)

The specificity of each symptom that the ITQ and ITI measure varied by symptom cluster. Substantial agreement was found for negative self-concept only, with moderate agreement shown for re-experiencing, avoidance, and the affect dysregulation symptom clusters. Poor agreement was shown for persistent sense of threat, and disturbances in relationships (Table 6.3).

Interclass correlation coefficient provide further insight into the degree that the ITI and the ITQ provided consistency in their observed PTSD and DSO subscale scores. Again, only the negative self-concept symptom cluster achieved good consistency. Re-experiencing, avoidance, and affect dysregulation achieved moderate consistency. Sense of threat and disturbed relationships showed poor consistency.

6.3.5 Borderline Personality Disorder

Based on the SCID-II diagnostic interview, N=9 women (29.0%) in the ITI sample fulfilled the diagnostic criteria for Borderline Personality Disorder (BPD). A comparison between ITI diagnoses and BPD diagnoses is shown in Table 6.4.

Table 6.4. BPD diagnoses benchmarked against the ITI diagnostic groups

ITI symptom group	BPD symptom threshold (N=9)
PTSD	3 (33.3%)
DSO	2 (22.2%)
CPTSD	2 (22.2%)
No diagnosis	2 (22.2%)

The frequency of each symptom of BPD was assessed by ITI diagnosis (see Table 6.5).

Table 6.5. The frequency of BPD symptoms by ITI diagnostic groups

	PTSD (N=6)	DSO (N=4)	CPTSD (N=4)	Clinical other (N=17)
Abandonment	50.0%	75.0%	100%	35.3%
Unstable relations	16.7%	25.0%	25.0%	11.8%
Identity	33.3%	25.0%	25.0%	11.8%
Impulsivity	0	0	50.0%	11.8%
Suicide	66.7%	50.0%	50.0%	41.2%
Affect Instability	50.0%	75.0%	25.0%	11.8%
Emptiness	33.3%	25.0%	75.0%	17.6%
Anger	33.3%	50.0%	50.0%	17.6%
Paranoia	33.3%	50.0%	100%	11.8%

6.4 Discussion

The aim of this chapter was to provide an assessment of the International Trauma Interview in the context of mothers' mental health during the perinatal period by comparing PTSD, CPTSD and DSO symptom clusters and diagnoses on the ITI with those reported on the ITQ and BPD section of the SCID-II. A full validation of the measure was not possible due to recruitment being disrupted by the COVID-19 pandemic which led to a smaller than projected sample size. Women recruited into this current study were required to have been exposed to a traumatic event in line with the ICD-11 criteria for PTSD and CPTSD (Roberts et al., 2018). In this trauma exposed sample of perinatal women, 19.4% met diagnostic criteria on the ITI for PTSD, and 12.9% for CPTSD. Additionally, 12.9% of women were assessed as presenting with clinically significant DSO symptoms without meeting criteria for PTSD. One possible explanation for this is that the ICD-11 criteria for PTSD and CPTSD have been refined since the ITI was developed, something that is expected to be reflected in an updated version of ITI in 2023. Specifically, the symptom of a diminished startle response is added to the PTSD symptom cluster. It is possible that women who met the criteria for clinically significant DSO presented with this symptom, which would in turn mean that they may reach the CPTSD threshold. Initially ICD-11 only included an increased startle response in the diagnostic criteria (Roberts et al., 2018).

In studies with general population samples, the prevalence rates of ICD-11 PTSD and CPTSD vary from 1.5% to 9.0% for PTSD, and from 0.5% to 7.7% for CPTSD (Ben-Ezra et al., 2018; Cloitre et al., 2019; Gelezelyte et al., 2022; Hyland et al., 2021; Maercker et al., 2018). In clinical samples, the rates are higher and CPTSD is often a more common disorder than PTSD (Hyland et al., 2017; Vallières et al., 2018). For example, in this trauma exposed sample within this chapter, probable PTSD was identified in 19.4% of women, and probable CPTSD in 12.9%, and in Chapter 4, probable PTSD was identified in 3.8% of women under clinical services, and probable CPTSD in 15.0%. The sample within this chapter showed rates higher than previously found in general population studies, and more in line with the CPTSD rates found in clinical services in Chapter 4. A small, trauma exposed sample with over 50% of women being under specialist mental health care may account for the high frequency in this chapter.

Researcher rated symptoms and diagnoses on the ITI were compared to participant self-reports of the same symptoms on the ITQ. The majority of participants reported consistent symptom profiles on the ITQ and the ITI (64.5%). However, 14 of these 20 women were non-symptomatic participants, making it hard to draw conclusions about the ITQ and ITI's convergence when symptoms are present. Of symptomatic participants identified on the ITI, only 42.9% matched their symptoms on the ITQ to the ITI. Overall, scores on the ITQ and ITI converged to a fair to moderate degree. Nonetheless, disparities in scoring still arose between the ITQ and ITI. Notably, 17.6% of women reported false positives of symptoms on the ITQ compared with the ITI and 28.6% reported false negatives. Yet, in most instances (66.7%) of differing diagnoses on the ITI and ITQ, the ITQ was still detecting the presence of trauma related stress disorder symptoms, just different clusters compared to the ITI. This suggests that detection of probable caseness is relatively accurate, but it is the specificity of diagnosis that is lacking.

Borderline Personality Disorder, as discussed in section 6.1, is often suggested to overlap in symptoms and presentations with CPTSD. The BPD SCID-II diagnostic threshold was reached by nine

of the thirty-one trauma exposed women in the sample, with 55.6% of the women reaching the threshold for BPD also reaching symptom threshold for PTSD, or CPTSD. This highlights a high crossover between the diagnoses of BPD and trauma related stress symptoms. Many symptoms of BPD were more likely to be present in women with PTSD, DSO, and CPTSD symptoms than in women with no current trauma related stress disorder symptom clusters. Consideration should be given to the fact that scoring positive on the ITI and the BPD SCID-II often occur simultaneously with symptoms reaching threshold in unison, and the active choice of measure used may determine whether a diagnosis of BPD or PTSD, DSO, or CPTSD is derived. A more in-depth analysis of a larger sample of participants with both trauma related stress disorder symptoms and BPD symptoms would offer a greater insight into latent structure underlying this shared symptom profile.

The primary reason a full validation of the ITI was not possible was due to the size of the sample of the study. Only N=31 women were recruited, primarily due to COVID-19 disrupting recruitment. All women were interviewed remotely via Zoom to account for the pandemic; however, recruitment pathways were interrupted by COVID-19 restrictions making it slower and more challenging to recruit participants into the study. As a comparison with ITI validation studies, Gelezelyte et al., (2022) recruited N=103 (PTSD=19; CPTSD=22) participants, and Bondjers et al., (2019) recruited N=184 (PTSD=29; CPTSD=11), highlighting the comparatively small sample size of the current study.

The sample recruited into this study had limitations in allowing for a thorough analysis of the ITI. Firstly, small numbers meant comparisons between women with no current trauma related stress disorder symptoms, women with current PTSD symptoms, and women with current CPTSD symptoms were hard to draw. Additionally, women who did not reach the diagnostic threshold for a current trauma related stress disorder were over-represented in the current study. This may be due to participants who were currently well with no symptoms being more willing to discuss their experiences than participants currently experiencing trauma related stress disorder symptoms. As

such, the low numbers of participants taking part in the current study with current PTSD and DSO symptoms prevented a thorough analysis of the diagnostic specificity of the ITI.

The ITI (Bondjers et al., 2019; Gelezeylte et al., 2022) and the ITQ (Ho et al., 2019; Karatzias et al., 2016; Kazlauskas et al., 2018; Redican et al., 2021) have shown a similar acceptable theoretically consistent model fit for the detection of distinct PTSD and DSO symptom clusters. This allows for the accurate identification of current PTSD and CPTSD symptoms. Whilst this study was unable to run a full validation of the ITI, and some discrepancies between self-reported scores on the ITQ and researcher administered scores on the ITI were observed, given the depth and strength of validation studies of the ITQ and ITI in non-perinatal populations, there can remain an assumption in the accuracy of these two measures.

Nevertheless, a thorough validation of the ITI in the perinatal period should be conducted as soon as possible. The previous chapter identified that current trauma related stress disorder symptoms of PTSD, DSO and CPTSD have a negative impact on the subjective experience of childbirth. Specifically, women with PTSD and CPTSD perceived childbirth more negatively, reporting reduced professional support, lower perceptions of own capacity, and reductions in perceived safety and participation. It is therefore important to accurately identify women with PTSD, CPTSD and DSO in pregnancy to help them prepare for childbirth. Increasing women's sense of agency and control through effective birth planning and inter-agency liaison could be a helpful intervention. An essential aspect of this process is to sensitively inquire about women's trauma history and how it could impact on childbirth, incorporating women's preferences and choices into the birth plan. The quick and accurate screening of the ITQ for current trauma related stress disorder symptoms at first contact with perinatal services could raise professional awareness of an increased likelihood of a more negative birth experience and should therefore be used routinely as part of assessments in the perinatal period for women who are trauma exposed. Where responses are positive, further clinical assessment to investigate for possible PTSD, DSO, and CPTSD diagnosis is then required.

Chapter 7 - General Discussion

7.1 Aims of thesis

Early life adversity has frequently been linked to more negative later life outcomes, including poorer mental (Carbone et al., 2019; Chase et al., 2019; Damian et al., 2021; Dobson et al., 2020; Khan et al., 2015; Lee et al., 2020; McLaughlin et al., 2012; Nemeroff, 2016; Roper et al., 2015; Skehan et al., 2012; Xie et al., 2022) and physical health (Clemens et al., 2018; Felitti et al., 2019; Kempke et al., 2013; Maschi et al., 2013), as well as a range of adverse socio-demographic outcomes including poorer educational attainment (Houtepen et al., 2020; ONS, 2020), lower socio-economic status (Klest, 2012; Steele et al., 2016), poor employment outcomes (ONS, 2020) and lower social support (Romano et al., 2015). The Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014) proposed that maltreatment- based adversities (neglect; both emotional and physical, and abuse; physical, emotional, and sexual) carry the greatest risk for adverse later life outcomes. One later life timepoint particularly vulnerable to disruption is the perinatal period. The perinatal period can be a time of heightened stress and vulnerability for many women (Mulder et al., 2002) particularly for women with pre-existing factors for mental health conditions. However, research into the effects of early life adversity on the perinatal period is often narrow in focus (e.g., limited to depressive disorders) and inconsistent (e.g., in the measurement of early life adversity). The aim of the research contained in this thesis was to examine the impact of early life adversity on mothers' mental health and childbirth related outcomes during the perinatal period.

Most research on perinatal mental health is often limited to maternal depression. This thesis examined additional mental health disorders, including traumatic stress, bipolar, anxiety and psychotic disorders. In particular, the frequency and impact of PTSD and CPTSD symptoms during the perinatal period were explored, given that these are trauma related stress disorders that in non-perinatal samples are associated with childhood exposure to early life adversity (Cloitre et al., 2016;

Roberts et al., 2018). The frequency of both PTSD and CPTSD symptom threshold being reached during the perinatal period were estimated together with an exploration of whether these conditions had been diagnosed. Alternative clinician administered diagnoses and treatments for women with probable PTSD and CPTSD were examined.

Finally, this thesis aimed to explore how childbirth outcomes for both mother and child were impacted by exposure to early life adversity and current trauma related stress disorder symptoms. Childbirth was explored in terms of physical outcomes for the infant, such as birthweight and preterm birth, and for the mother, such as the number of intrapartum interventions required. Additionally, as both early life adversity (Glaser et al., 2006; Haim-Nachum & Levy-Gigi, 2021; Purcell et al., 2021) and current trauma related stress disorder symptoms (Bowers & Yehuda, 2016; Davis & Narayan, 2020; Tsur & Abu-Raiya, 2020) have been associated with poorer coping to stressful events, mothers' perceptions of the childbirth experience were also assessed. Additionally, a comparison of the way in which current trauma related stress disorder symptoms were captured via the self-report ITQ and clinical administered ITI was assessed.

7.2 Summary of findings

Chapter 2 provided a systematic review of literature on the role of early life adversity in the perinatal period. Maternal childhood maltreatment, hypothesized to be the most disruptive form of early life adversity, was shown to be consistently associated with alterations in infant's emotional processing, parental child abuse potential, maternal emotional availability, maternal depression, impulsiveness and risk taking, suicidal ideation, and maternal emotion regulation difficulties throughout pregnancy and the postpartum period. However, many other perinatal outcomes, including childbirth outcomes, fear of childbirth, parenting anxiety, and parental sense of competence and parenting attitudes were inconsistent in their relationship to early life adversity. Few studies investigated perinatal outcomes by adversity sub-type, but across those that did,

exposure to emotional and sexual abuse during childhood were the most consistent predictors of adverse perinatal outcomes. This highlights a role of maltreatment-based early life adversity on poor perinatal outcomes. The need for more in-depth consistent analyses of the association between exposure to early life adversity and perinatal outcomes was therefore evident, including the necessity to examine early life adversity by the established subtypes.

Chapter 3 explored the relationship between early life adversity and childbearing outcomes. Cumulative maltreatment ACEs were associated with women having more children and entering parenthood younger. Cumulative household dysfunction adversities were associated with women entering the perinatal period younger. The pattern of findings for maltreatment-based adversity was nuanced. Exposure to physical abuse was associated with an increased likelihood of having children, whilst exposure to emotional abuse was associated with a reduced likelihood. Exposure to sexual abuse was associated with a significant reduction in the age at which entry to parenthood occurred and an increased likelihood of having more children. Of the household dysfunction adversities, parental divorce was associated with a decreased likelihood of entering parenthood but also with a reduced age at entry to parenthood. Having an abused mother was further associated with a younger age at entry to parenthood. To my knowledge, this is the first study to explore the role of cumulative and individual ACEs on childbearing outcomes, including entry to parenthood, age at first entry to parenthood, and number of births.

Chapter 3 further explored the association between exposure to early life adversity and maternal mental health outcomes across the perinatal period. Most of the prior research that has explored the effects of ACEs on perinatal mental health has been limited to depression. Chapter 3 extended the existing evidence base by examining the impact of ACE exposure on episodes of bipolar, psychotic, anxiety and post-traumatic stress disorders in addition to depressive disorders. Again, maltreatment ACEs were associated with perinatal episodes of mental health disorders. Emotional neglect was associated with an increased likelihood of an episode of depressive disorders

during the perinatal period, sexual abuse with an increased likelihood of an episode of perinatal anxiety disorders, and physical abuse with an increased likelihood of perinatal bipolar episodes. Associations between early life adversity subtypes of maltreatment -based adversity and poorer perinatal outcomes are therefore evident from the systematic review in Chapter 2, and the findings of Chapter 3.

For Chapters 4 and 5, a new study was developed to recruit women currently in the perinatal period. In Chapter 4, this sample was used to assess the frequency of early life adversity exposure and the symptoms of trauma related stress disorders of PTSD and CPTSD. Both maltreatment ACEs and HD ACEs were associated with current PTSD, DSO, and CPTSD symptoms, and specific maltreatment-based adversities were associated with current perinatal DSO and CPTSD symptoms. Probable caseness for PTSD was reached for N=15 (2.4%) women, probable caseness for CPTSD for N=37 (5.9%) women, and clinically significant DSO symptoms for N=61 (9.7%) women. To my knowledge, this is the first study to estimate the frequency of CPTSD and clinically significant DSO symptoms in a perinatal population. Chapter 4 further explored whether these disorders had been detected by mental health services as well as the psychological and psychotropic treatments that women were offered. PTSD was frequently under detected with 13 of the 15 women who presented with probable PTSD having not received this diagnosis by a mental health professional during the current perinatal period. Even more stark was that 36 of the 37 women (97.3%) with probable CPTSD had not received this diagnosis from a mental health professional, despite the majority of these women being under the care of mental health services during the current perinatal period. There is no diagnosis for clinically significant DSO symptoms in current diagnostic classifications to compare detection rates against. Finally, the majority of women with probable PTSD and CPTSD were not accessing evidence-based treatments for these mental health conditions.

Chapter 5 assessed the relationship between exposure to early life adversity, trauma related stress disorders during the perinatal period, and specific childbirth outcomes. Both physical

childbirth outcomes including birthweight, preterm birth, and the need for intrapartum interventions were assessed alongside mothers' perceptions of the childbirth experience. Specific individual ACEs predicted poorer physical childbirth outcomes. Whereas maltreatment ACEs predicted a more negative perception of the overall childbirth experience, including reductions in feelings of safety, agency and participation, and elevated reports of feeling unsupported by professionals during labour. PTSD, DSO and CPTSD clusters were found not to be associated with the physical childbirth outcomes measured in Chapter 5. However, women with probable PTSD and CPTSD did report a more negative perception of the childbirth, including more negative perceptions of own capacity, professional support, perceived safety and participation.

Finally, Chapter 6 aimed to strengthen the data collected in the online maternal wellbeing study by comparing participant' self-reported trauma related stress disorder symptoms with researcher rated symptoms following a standardised clinical interview. The International Trauma Interview was completed with 31 women and compared to the self-reported current trauma related stress disorder symptoms assessed on the International Trauma Questionnaire. Sixty-five percent of participants were perfectly matched on their ITI and ITQ scores, although the majority of these women did not reach diagnostic threshold on either instrument. The ITQ was found to be good at detecting cases on the ITI, but specificity of diagnoses was lacking. Inter-rater reliability on the ITI observed there to be fair to moderate agreement. However, low participant numbers in the ITI study make it difficult to draw firm conclusions. Given extensive prior validation of the ITQ and ITI, it is likely that both measures are reliable in capturing current trauma related stress disorder symptoms. The potential overlap between CPTSD and BPD symptoms was addressed by the comparison of the ITI with a diagnostic interview of BPD (the SCID-II), and a crossover in symptoms and diagnoses suggests similarities but important differences between disorders.

Overall, through varied research methodologies, this thesis has explored the association between exposure to early life adversity, current trauma related stress disorders, and adverse

pregnancy, childbirth and postnatal outcomes. Maltreatment-based early life adversity was associated with the greatest impact on perinatal outcomes, including childbearing decisions, perinatal mental health, physical childbirth outcomes, and mothers' perceptions of the childbirth experience. PTSD and CPTSD were frequently undetected in the perinatal period, despite the majority of women with these conditions being under the care of mental health services. Mothers' childhood experiences and mental health must be a key consideration in the perinatal period.

7.3 Clinical implications and recommendations

The overarching clinical implication of my research emphasises the need for the impact of exposure to early life adversity to be considered across the perinatal period, particularly during childbirth. Additionally, better identification of current trauma related stress disorders is required. The presence of both current symptoms of PTSD and CPTSD and the impact of early life adversity should be considered in perinatal care plans.

7.3.1 Screening in the perinatal period

Early life adversity is associated with poorer perinatal outcomes. The need to identify women with such adversity exposure is important to allow for preventative and reactive measures to be put in place in both pregnancy and the postpartum. Cumulative maltreatment early life adversities, and physical and sexual abuse specifically, were associated with women having an increased number of children. The result of this is that such adversity exposure increases the frequency with which women encounter perinatal healthcare teams and increases the frequency of the poorer perinatal outcomes that are documented in this thesis. One such poorer perinatal outcome identified in this thesis was perinatal episodes of mental ill-health. Emotional neglect was associated with an increased likelihood of an episode of depressive disorders during the perinatal

period, sexual abuse with an increased likelihood of an episode of perinatal anxiety disorders, and physical abuse with an increased likelihood of perinatal bipolar episodes. Awareness in healthcare teams of the potential adverse impact of early life adversity exposure is important as identification could help prevent episodes of mental ill-health and reduce the burden on healthcare services. Maltreatment-based early life adversity was disruptive to both physical and psychological childbirth related outcomes. Again, early identification and prevention can reduce the burden on the mother, infant, family, and wider healthcare services.

Early life adversity can be captured in multiple ways. Many measures have been developed that include the Life Events Checklist (LEC) (Gray et al., 2004), the Childhood Trauma Questionnaire (CTQ) (Bernstein et al., 1998), the Trauma History Questionnaire (THQ) (Hooper et al., 2011), and the Adverse Childhood Events Checklist (Felitti et al., 1998). Each measure differs in the specific aspects of adversity captured, for example, the CTQ captures both the nature of traumatic experiences in childhood and the extent to which the participant found the event traumatic. The CTQ does not however capture the duration and specific timing of the maltreatment. Other methods, such as the THQ, whilst capturing these aspects, fails to identify the severity of the specific traumatic experience. The LEC compares adversity exposure in childhood and adulthood, whereas the ACE solely captures exposure. Chapter 2 highlighted the inconsistency in the literature in terms of the measures that are used to capture exposure to early life adversity. The heterogeneity in measurement has implications for comparisons between study findings.

Whilst in the review of Chapter 2 the CTQ was the most frequently used measure of early life adversity, in the wider literature the ACE checklist is most prominently used, including other cohort studies (Houtepen et al., 2018; Russell et al., 2019; Soares et al., 2018), and wider UK research into early life adversity (Baldwin et al., 2021; Selous et al., 2020; Straatmann et al., 2020). Whilst the ACE checklist doesn't capture aspects of adversity such as specific timing or the extent to which the participant found the event to be traumatic, it does offer several advantages. Its simplicity to answer

makes it quick and accessible to all. Additionally, the adversities enquired about can be split clearly and distinctly into maltreatment ACEs and household dysfunction ACEs. It was discussed in Chapter 1 that many individuals who access mental health services are never asked about their early life adversity (Read et al., 2018). It is recommended, therefore, that all women are asked to complete the ACE checklist at first contact with perinatal healthcare services. This would enable exposure to maltreatment and household dysfunction be known by the healthcare services with appropriate and proportionate prevention and intervention put in place. It is noteworthy that screening raises important ethical and service level implications for health and social care workers conducting assessments of early life adversity exposure, such as if a mother were to report maltreatment that was perpetrated by someone still present in her life, or whether following detection, there were no universally available services to meet the identified need. Further guidance on screening and assessments of adversity can be explored from the Center for Substance Abuse Treatment (2014), and procedures used from screening for domestic violence during pregnancy (Saunders, 2000) should be considered.

As well as early life adversity exposure, clinically significant trauma related stress disorder symptoms were independently found to carry risk for poorer perinatal outcomes. Specifically, a more negative perception of childbirth when probable caseness for PTSD and CPTSD was met. This finding underscores the need for current trauma related stress disorder symptoms to be screened for in pregnancy so that steps can be implemented to improve the psychological aspects of the childbirth experience. The ITQ (Cloitre et al., 2018) offers a well validated measure of current PTSD and CPTSD symptoms that has been used in the current study with pregnant and postnatal women under the care of mental health services during the perinatal period. The findings reported in Chapter 4 underscore the importance of perinatal mental health services screening for probable cases of PTSD and CPTSD given the under-detection rates. Chapter 6 highlighted that in the perinatal period there may be some differences in specificity between symptoms self-reported on the ITQ and

symptoms identified on the ITI by trained researchers. However, small participant numbers reported in Chapter 6 mean that the ITI study is under powered to draw conclusions.

If current PTSD, DSO, and CPTSD symptoms are detected, then potential treatments and the improvements that these can bring can be provided. Cognitive Behavioural Therapy (CBT), Exposure Therapy (ET) and Eye Movement Desensitization and Reprocessing (EMDR) have been shown to be effective in treating PTSD and DSO symptom clusters (Karatzias et al., 2019; Lewis et al., 2020). CBT has been shown to be successful in the treatment of depressive and anxiety related symptoms in the perinatal period (Sockol, 2015; Green et al., 2020), especially when focussing on three domains of perinatal-specific themes: self, motherhood, and interpersonal (O'Mahen et al., 2012). EMDR (Cortizo, 2020; Chiorino et al., 2020; Baas et al., 2017) has also be used in the perinatal period.

Recent adaptations to CBT (Bisson et al., 2013) into a guided self-help intervention that can be delivered remotely, and in-person has provided promising grounds for a wider reach of treatment options (Simon et al., 2021). Internet based self-help has been associated with reduced PTSD symptom severity compared to delayed treatment for mild to moderate PTSD following exposure to a single traumatic event (Bisson et al., 2022; Lewis et al., 2017; Nollett et al., 2018) and should be considered a first-line treatment for people with this condition (Bisson et al., 2022). NHS patients with PTSD have been found to be open to internet-based approaches, particularly guided self-help interventions (Simon et al., 2021). Previous research has found that women at high risk of severe perinatal mental illness consult the internet for information relating to pregnancy and recovery (Heron et al. 2012; Dolman et al. 2016; Thomas, 2021). Guided self-help for bipolar and postpartum psychosis has shown promise for better maternal preparedness for pregnancy, childbirth, and motherhood (Thomas, 2021). Trauma focused CBT, and EMDR are successful treatments for PTSD and to a less well evidenced extent, CPTSD (Karatzias et al., 2019; Lewis et al., 2020). This emerging evidence for internet based guided self-help interventions for PTSD offers promise for perinatal

women exposed to early life adversity and/or presenting with PTSD, CPTSD, or clinically significant DSO symptoms during the perinatal period.

7.3.2 Post birth psychological care

Until a time when accurate identification of individual ACE exposure, and current trauma related stress disorder symptoms occurs, and appropriate and effective preventative measures are put in place, childbirth is a time of increased risk for women exposed to maltreatment-based early life adversity. When childbirth is experienced negatively, women are at increased risk of experiencing postnatal depression (Bell & Andersson, 2016; Gürber et al., 2017; Tani & Castagna, 2017). If the risk factors of maltreatment ACEs and/or trauma related stress disorders are detected, or a negative childbirth experience occurs, then early intervention and prevention measures should be put in place for the mother's mental health. Preventative measures for postnatal depression have been shown to be effective, including couples-based interventions (Fisher et al., 2010; Khanlari et al., 2019), telephone-based peer support (Dennis et al., 2009), and internet-delivered interventions (Andersson et al., 2014; Loughnan et al., 2019). CBT and anti-depressant medication have been shown to be effective treatments for postnatal depression (Huang et al., 2018; Lupattelli et al., 2018). Therefore, effective postnatal care has been identified for women who experience birth negatively with the aim of reducing the likelihood of postnatal depression occurring.

7.3.3. Ethnic differences

Ethnicity was a significant predictor of several childbirth physical and psychological outcomes across the studies included in this thesis. Prior research has shown an association between ethnicity and delivery complications, with women of Black and Hispanic ethnicity being

associated with increased odds of delivery complications when early life adversity was experienced than women of White ethnicity (Cicolla et al., 2021). My research showed that women of Mixed ethnicity were 3 times more likely to have a preterm birth than women who identified as White. Whilst findings presented in Chapter 5 did not show an association between ethnicity and the perception of childbirth by mothers, poorer childbirth outcomes have been frequently associated with ethnicity in the wider literature (Callaghan, 2020; Hodnett, 2002; Howell et al., 2016; Howell et al., 2017; Howell et al., 2020; Janevic et al., 2018; Janevic et al., 2020; Jardine et al., 2021; Johnson et al., 2019; Wheeler et al., 2012), with non-white ethnicity mothers predicted to have poorer childbirth outcomes.

The approach of clinical support in the perinatal period should therefore consider differences in perinatal outcomes by ethnicity. The potential for poorer physical outcomes needs to be considered at the time of childbirth itself, however, across all appointments and meetings, considerations relating to a trusting relationship built upon effective communication should be at the forefront of prenatal and postnatal care. Increased training on the differing needs of perinatal women based on their ethnicity may help to address this issue (Edge, 2010). Further research needs to consider the differences between ethnicities beyond White and 'other', as differences are likely to occur between people from different ethnicities.

7.4 Research implications and recommendations for researchers

7.4.1 Assessing early life adversity

There has been an ongoing discourse in the literature relating to how to categorise and analyse the ACE checklist. Many studies of early life adversity have used the number of ACEs experienced as a continuous, cumulative variable (Dube et al., 2009; Iob et al., 2020; Liming et al., 2021; Merians et al., 2019; Nurius et al., 2012). The cumulative-risk approach, developed from the

use of ACEs as a measure of early adversity (Evans et al., 2013; Felitti et al., 1998) assumes that all forms of early life adversity carry the same risk, and their accumulation has an additive effect on later life outcomes (Ellis et al., 2022; Smith & Pollak, 2021). As well as cumulative ACEs, a categorical measure of ACEs of having experienced four or more ACEs compared with three or fewer has also been widely used (Hardcastle et al., 2018; Koball et al., 2021; Sonu et al., 2019; Waehrer et al., 2020). Again, the assumption of equal risk of ACEs is present (Ellise et al., 2022; Smith & Pollak, 2021). However, the view that no form of exposure to early life adversity carriers more risk than any other is suggested to be too simplistic (Welsh Government, 2021). Factor analysis has confirmed the two distinct groups of ACEs, maltreatment (abuse and neglect ACEs) and household dysfunction (HD ACEs), that conceptually exist within the ACEs scale (Mersky et al., 2017). Theoretically driven models of adversity have shown that the risk carried by maltreatment ACEs is greater than that carried by HD ACEs, (Lacey and Minnis, 2020), findings further supported by the corpus of research contained in this thesis. Throughout this thesis, maltreatment-based early life adversity was consistently associated with poorer perinatal outcomes, impacting childbearing, mental health, and childbirth related outcomes.

The findings reported in this thesis suggest that different ACEs carry different risks, and the cumulative-risk approach is too reductive to illuminate the ways in which early life adversity impacts perinatal outcomes. At the most basic level, ACEs should be separated by maltreatment and household dysfunction. However, this separation still appears too simplistic with individual early life adversities carrying differing risks to each other. Where possible, individual ACEs should be analysed, as throughout this thesis, different individual ACEs were suggested to carry increased risks for different and specific perinatal outcomes.

7.4.2 Perinatal validation of the ITQ and ITI

In Chapter 6, the aim was to assess the use of the ITQ and the ITI in the perinatal period, but a full validation of the measures was not possible due to the impact of the COVID-19 pandemic and

resulting time constraints. The ITQ and ITI has been well validated, including showing that the ITQ and ITI possess excellent internal reliability, (Bondjers et al., 2019; Gelezeylte et al., 2022; Hyland et al., 2017). Both the ITI (Bondjers et al., 2019; Gelezeylte et al., 2022) and the ITQ (Ho et al., 2019; Karatzias et al., 2016; Kazlauskas et al., 2018; Redican et al., 2021) have shown a similar acceptable theoretically consistent model fit for the detection of distinct PTSD and DSO symptom clusters, and fair to moderate inter-rated agreement was demonstrated in this thesis. These validation studies suggest that both the brief self-report ITQ, and the longer, more in-depth ITI offer accurate insights into current trauma related stress disorder symptoms. However, given the discrepancies between participant self-reported ITQ scores, and research administered ITI scores found in Chapter 6, a full validation of the measures in the perinatal period should occur as soon as possible. Given the clinical implications of current trauma related stress disorder symptoms in the perinatal period that have been discussed in Chapter 5 and in section 7.3.1, the need for accurate identification of these symptoms in the perinatal period is a priority. Hence, an urgency exists for the accurate validation of the ITQ and the ITI in the perinatal period.

7.4.3 Internet based guided self-help treatments

As outlined in section 7.3.1, internet-based guided self-help interventions have been associated with improved PTSD, depression, and anxiety symptoms in a non-perinatal sample (Bisson et al., 2022; Lewis et al., 2017; Nollett et al., 2018; Simon et al., 2021). Additionally, such interventions have been found to be effective treatments for different disorders, such as bipolar and postpartum psychosis, during the perinatal period (Thomas, 2021). Further research should explore the effectiveness of internet based guided self-help measures on the DSO symptoms of CPTSD in addition to PTSD symptom clusters to determine the effectiveness of such measures for CPTSD as well as PTSD. Furthermore, if the perinatal recommendations of guided self-help interventions outlined by Thomas (2021) can be researched in the context of the internet-based measures of

Bisson et al., (2022), then there is the potential for effective internet-based guided self-help intervention for PTSD and CPTSD that have a wide reach and a long term reduction of the burden on healthcare resources.

7.5 Strengths and limitations

7.5.1 Strengths

One of the key strengths of this thesis was the design and delivery of a UK, perinatal specific cohort. A relatively large sample size allowed for the exploration of the role of early life experiences on perinatal outcomes and perinatal mental health. The relatively high number of participants also has statistical advantages, in that it increases statistical power and decreases the probability of a Type II error (Field, 2013). To my knowledge, this thesis is the first to provide a frequency rate of CPTSD and DSO symptoms in the perinatal period. Additionally, the thesis strengthens the current literature on the frequency of PTSD symptoms during the perinatal period, as well as exposure rates of early life adversity in a UK perinatal cohort. Not only were current symptoms of these disorders explored, but whether these symptoms had been diagnosed by a mental health professional was also assessed. When PTSD and CPTSD were undiagnosed by mental health services during the current perinatal period, women either had not been given a diagnosis or had been diagnoses with a depressive and/or anxiety disorder.

When exploring perinatal mental health, much of the previous research has focussed solely on depression, as shown in Chapter 2. This thesis extended the literature by examining the role of early life adversity on perinatal mental health including but beyond just depressive disorders. Primarily, PTSD and CPTSD were explored in terms of the perinatal frequency of these conditions in relation to early life adversity. Additionally, episodes of bipolar, anxiety, and psychotic disorders during the perinatal period were also explored in relation to early life adversity exposure.

Throughout the thesis, when early life adversity was assessed with ACEs, analysis was conducted on the ACEs with an evidence-based separation. As discussed in section 7.4.1, analysing ACEs as a cumulative total, or by categorical 4+, the assumption that all ACEs carry the same risk is too simplistic (Lacey & Minnis, 2020; Mersky et al., 2017; Welsh Government, 2021). In line with the recommendations of theoretically driven models of adversity having shown that the risk carried by maltreatment ACEs is greater than that carried by household dysfunction ACEs, Lacey and Minnis, (2020), analyses of ACEs was initially run by maltreatment and by household dysfunction ACEs separately. The Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014) further supported this separation, and proposed that individual ACEs should be investigated. As such, individual ACEs were explored with consideration given to these groupings as to assess the differing risk that each ACE carries during the perinatal period.

A final strength of the thesis was that interviews were used to further support the self-reported data collected online. By using researcher administered interviews in Chapter 6, self-report scores of participants can be compared with the scores given by researchers. Whilst the small number of participations prevented a statistically powered test of the original research questions, differences in scoring between researchers and participants were identified. This study highlights the need for further research into the use of the ITI during the perinatal period.

7.5.2 Limitations

Specific limitations have been outlined within the discussion section of each chapter. Overarching limitations across chapters will now be discussed.

The sample used in Chapter 3 differs from the sample used in Chapters 4, 5, and 6. One limitation that is pertinent to both samples is the ethnicity of participants. In Chapter 3, the sample is 96.3% of White ethnicity. In Chapter 4, 95.5% of the sample is of White ethnicity, and the

subsamples used in Chapters 5 and 6 are 95.5% and 91.4% of White ethnicity respectively. The reason this is a limitation is that it is unrepresentative of the current UK population. The current rate of White ethnicity in the whole UK population is 82.9% (ONS, 2022). Therefore, the views of non-white perinatal women are not being captured at a rate representative of the wider UK population. This may be due to non-white women finding it harder to access specialist mental health care (Cook et al., 2017; Cook et al., 2013; Sentell et al., 2007), and as such not being approached for the study via our NHS recruitment channels. Additionally, individuals of Asian and Black ethnicities are less likely to participate in research (Ashford et al., 2020; Milani et la., 2021; Woodall et al., 2010), although it is suggested that this is due to being less likely to be asked to participate, rather than an unwillingness once asked (Garza et al., 2017). Poorer childbirth outcomes are frequently associated with ethnicity (Callaghan, 2020; Hodnett, 2002; Howell et al., 2016; Howell et al., 2017; Howell et al., 2020; Janevic et al., 2018; Janevic et al., 2020; Jardine et al., 2021; Johnson et al., 2019; Wheeler et al., 2012), with mothers of non-white ethnicity found to have poorer childbirth outcomes. Greater participant numbers and a more representative sample with regards to ethnicity would allow for these differences to be explored more thoroughly and more accurately.

Like the issues that arise in the sample relating to ethnicity, the samples used in this thesis are not representative of the wider UK population in relation to education. In the UK, 34.4% of the population hold a degree level educational attainment (or equivalent) or above (NOMIS, 2021), which is considerably lower than the 76.6% present in sample used for Chapter 4, and of the 78.1% and 85.7% of the respective subsamples used in Chapters 5 and 6. Educational attainment and adversity are strongly associated in the literature with greater the levels of adversity associated with lower educational attainment (Houtepen et al., 2020). One in four young adults who experienced early life adversity are not in education, employment, or training (NEET) at age 18, (ONS, 2020). This has been theorised to be caused by the disruption of key developmental processes, such as the formation of attachments, emotion regulation, and sense of agency (Romano et al., 2015), although poverty and a lack of opportunity have also been highlighted (Anda et al., 2010; Child Trends, 2013;

Choi et al., 2019; Crouch et al., 2020). Lower educational attainment is linked with a reduced likelihood to participate in research (Ashford et al., 2020). Therefore, it is possible that an association between early life adversity, lower educational attainment, and a reduced willingness to participate in research means that the samples used in this thesis could be under-representative of women with elevated levels of early life adversity exposure.

Most of the data used in this thesis derives from self-report. All measures included in the thesis were validated measures that had been used extensively in the literature. However, self-report measures have been shown to carry risk of poor face validity, biases in reporting, or over-pronunciation of symptom severity (Chan, 2010; Sandvik et al., 1993; Spector, 1994; Williamson, 2007). Biases can occur through participant's linguistic skills, cognitive ability, affect, or the tendency to respond in a socially desirable manner (Corcoran & Fischer, 2013). Retrospective reporting may further reduce the quality of data through a lack of recall of events and attributional biases (Gerdner & Allgulander, 2009; Mizuki & Fujiwara, 2020). Mothers in the perinatal period tend to avoid recounting their adversity experiences as a protective factor (Millar et al., 2021), which may mean that self-reported adversity exposure captured in the current perinatal period is not always accurate. The current research aimed to strengthen the methodology by completing a validation of the ITI. However, due to this not being possible, many of the issues around the use of self-report measures remain.

The limitation of all the measures used can be particularly pertinent for ACEs. ACEs by their nature occur in childhood (Felitti et al., 1998), and adults may present with infantile amnesia, a struggle to retrieve episodic memory from their early years (Pillemer & White, 1989; Ruben et al., 2016; Usher & Neisser, 1993). Agreement between retrospective and prospective reporting of ACEs is low (Baldwin et al., 2019; Patten et al., 2015) to moderate (Reuben et al., 2016) but with greater agreement relating to HD ACEs, and lower agreement relating to maltreatment ACEs (Reuben et al., 2016). Rather than suggesting that one reporter's information is invalid, this finding is interpreted to

reflect that different reporters have access to complementary sources of information. As such, obtaining prospective ACE reporting, such as social services and healthcare professionals records, may better complete the picture of early life adversity exposure. Additionally, as previously discussed, the ACEs checklist differs from other measures, such as the CTQ, in the fact that it does not assess the extent to which individuals found the experience traumatic. Only a moderate correlation between subjective and objective measures of early life adversity has been shown (Francis et al., 2023). Therefore, a differentiation between the subjective experience of the adversity, and the objective occurrence of experiencing the adversity may be important in their effect on relevant outcomes (Francis et al., 2023). Subjective appraisals of adversity can be targeted via therapeutic approaches to prevent resulting psychopathology, whereas objective experiences cannot be to the same extent.

A final limitation of the thesis was the unforeseeable limits posed on the research conducted through Chapters 4-6 due to the COVID-19 pandemic (2020-2022). Originally, an in-depth, in-person longitudinal study was planned, following women throughout the perinatal period. Ethics had been submitted to begin this study in March 2020, but due to the first COVID-19 lockdown on 23rd March 2020 and the social distancing protocols that followed, a decision was made to move the study to an online format. Using an online format was not without its benefits: for example, a wider range and number of participants could be reached, with limitations such as location removed as a barrier to participation. The online format also increased accessibility, meaning that women who may not have been comfortable being seen in-person also had the opportunity to participate. Furthermore, the time taken to complete the online study was less and could be paused and picked up, making it easier for participants to fit the study around their own time. However, the limitations that arose as a result of moving the study online meant that fewer researcher administered measures were used, and instead self-report questionnaires, and the issues mentioned above that arise from these, were used. Additionally, the dropout rates of participants between timepoints were high, and whilst an in-

person study may not have maintained all participants, in-person research studies have been found to have lower dropout rates than online research (Borrella et al., 2022; Torous et al., 2020).

7.6 Future directions

Early life adversity and current trauma related stress disorder symptoms were found to be disruptive of the perinatal period. This study has identified changes in childbearing behaviours, perinatal mental health, and childbirth outcomes. However, many other aspects of the perinatal period are yet to be explored in relation to early life adversity exposure and current trauma related stress disorder symptoms. Pre and postnatal bonding and mother-infant attachment should be explored in relation to these experiences and mental health conditions, along with social support, current mood and wellbeing, and further infant developmental outcomes such as sleep and emotion regulation. Exploring these outcomes may offer a more detailed insight into how the process of maternal programming is being disrupted for mothers with early life adversity exposure, and the further consequences that this has for mother and infant. Additionally, changes in current trauma related stress disorder symptoms can be analysed across the perinatal period to explore any factors that influence symptom severity.

The role of later life adversity can also be considered in relation to the difference in effect that experiencing trauma in adulthood can have on the perinatal period. The decision in this thesis to explore early life adversity is evidence based, as whilst adversity experienced at any time can alter neural plasticity, experience-dependent neural plasticity changes that result in later life changes are particularly prominent if adversity occurs in childhood or adolescence (Ellis et al., 2022; Fu & Zuo, 2011; Kolb & Gibb, 2014). As such the role of later life adversity, and the difference in perinatal outcomes that occur as a result should be explored further.

A more representative recruitment process should also be considered to better capture the socio-demographic difference in perinatal outcomes that arise from early life adversity exposure. Considerations of ethnicity, education, living status, and sexuality were all hypothesised to influence perinatal outcomes, and were found to be predictors at various stages of the thesis. However, the samples used in this thesis did not reflect the current UK rates of ethnicity, and educational attainment particularly. A more varied and representative sample is recommended to fully understand the differing roles socio-demographic factors play in the perinatal period.

7.7 Conclusion

This thesis presents novel insight into the perinatal period, with unique considerations given to the role of early life adversity and current trauma related stress disorders symptoms. Research into perinatal outcomes that result from early life adversity have previously been limited and inconsistent, mainly focusing on perinatal depressive symptoms. This thesis adopted the separation of ACEs as proposed by Mersky et al., (2017), and Lacey and Minnis (2020), as well as the Dimensional Model of Adversity and Psychopathology (McLaughlin et al., 2014), to assess early life adversity. Maltreatment early life adversity was found to carry the greatest risk throughout the perinatal period, with increased risk of poorer perinatal outcomes in differing ways. Entering parenthood, the number of children, the age at which parenthood was entered, the likelihood of perinatal episodes of mental ill-health (including and beyond depressive disorders), physical childbirth outcomes, and the psychological experience of childbirth were all influenced by maltreatment early life adversity. In addition to early life adversity carrying risk throughout the perinatal period, adversity increases the likelihood of current trauma related stress disorder symptoms arising, and these symptoms themselves carry risk for more negative perceptions of childbirth. Perinatal healthcare professionals should screen for early life adversity exposure and current trauma related stress disorders to improve detection and implement proportionate and effective prevention and intervention.

8. References

Abajobir, A. A., Kisely, S., Williams, G., Strathearn, L., & Najman, J. M. (2018). Risky sexual behaviors and pregnancy outcomes in young adulthood following substantiated childhood maltreatment: Findings from a prospective birth cohort study. *The Journal of Sex Research*, *55*(1), 106-119.

Abbaspoor, Z., Moghaddam-Banaem, L., Ronaghi, S., & Dencker, A. (2019). Translation and cultural adaptation of the childbirth experience questionnaire (CEQ) in Iran. *Iranian journal of nursing and midwifery research*, 24(4), 296.

Achenbach, T. M., & Edelbrock, C. (1991). Child behavior checklist. *Burlington (Vt),* 7, 371-392.

Adams, J. A., Starling, S. P., Frasier, L. D., Palusci, V. J., Shapiro, R. A., Finkel, M. A., & Botash, A. S. (2012). Diagnostic accuracy in child sexual abuse medical evaluation: role of experience, training, and expert case review. *Child abuse & neglect*, *36*(5), 383-392.

Adams, J. R., Drake, R. E., & Wolford, G. L. (2007). Shared decision-making preferences of people with severe mental illness. *Psychiatric Services*, 58(9), 1219-1221.

Adams, S. S., Eberhard-Gran, M., & Eskild, A. (2012). Fear of childbirth and duration of labour: a study of 2206 women with intended vaginal delivery. *BJOG: An International Journal of Obstetrics & Gynaecology*, *119*(10), 1238-1246.

Adams, S. S., Eberhard-Gran, M., & Eskild, A. (2012). Fear of childbirth and duration of labour: a study of 2206 women with intended vaginal delivery. *BJOG: An International Journal of Obstetrics & Gynaecology*, *119*(10), 1238-1246.

Agrati, D., Browne, D., Jonas, W., Meaney, M., Atkinson, L., Steiner, M., Fleming, A. S., & MAVAN Research Team. (2015). Maternal anxiety from pregnancy to 2 years postpartum: transactional patterns of maternal early adversity and child temperament. *Archives of Women's Mental Health*, *18*(5), 693-705.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. N. (2015). Patterns of attachment: A psychological study of the strange situation. *Psychology press.*

Akin, A., & Çetin, B. (2007). The Depression Anxiety and Stress Scale (DASS): The study of validity and reliability. *Kuram ve Uygulamada Egitim Bilimleri*, 7(1), 260.

Alcorn, K. L., O'Donovan, A., Patrick, J. C., Creedy, D., & Devilly, G. J. (2010). A prospective longitudinal study of the prevalence of post-traumatic stress disorder resulting from childbirth events. *Psychological medicine,* 40(11), 1849-1859.

Alexander, S. C., Fortenberry, J. D., Pollak, K. I., Bravender, T., Østbye, T., & Shields, C. G. (2014). Physicians use of inclusive sexual orientation language during teenage annual visits. *LGBT health,* 1(4), 283-291.

Altemeier, W. A., O'Connor, S., Sherrod, K. B., Tucker, D., & Vietze, P. (1986). Outcome of abuse during childhood among pregnant low income women. *Child abuse & neglect*, *10*(3), 319-330.

Altemeier, W. A., O'Connor, S., Sherrod, K. B., Tucker, D., & Vietze, P. (1986). Outcome of abuse during childhood among pregnant low-income women. *Child Abuse & neglect*, *10*(3), 319-330.

Altman, M. R., Oseguera, T., McLemore, M. R., Kantrowitz-Gordon, I., Franck, L. S., & Lyndon, A. (2019). Information and power: Women of color's experiences interacting with health care providers in pregnancy and birth. *Social science & medicine*, 238, 112491.

Anda, R. F., Butchart, A., Felitti, V. J., & Brown, D. W. (2010). Building a framework for global surveillance of the public health implications of adverse childhood experiences. *American journal of preventive medicine,* 39(1), 93-98.

Andersson, G., Cuijpers, P., Carlbring, P., Riper, H., & Hedman, E. (2014). Guided Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: a systematic review and meta-analysis. *World psychiatry*, 13(3), 288-295.

Andrews, B., Qian, M., & Valentine, J. D. (2002). Predicting depressive symptoms with a new measure of shame: The Experience of Shame Scale. *British Journal of Clinical Psychology*, 41(1), 29-42.

Ångerud, K., Annerbäck, E. M., Tydén, T., Boddeti, S., & Kristiansson, P. (2018). Adverse childhood experiences and depressive symptomatology among pregnant women. *Acta obstetricia et gynecologica Scandinavica*, *97*(6), 701-708.

Aran, P., Lewis, A. J., Watson, S. J., Nguyen, T., & Galbally, M. (2021). Emotional availability in women with bipolar disorder and major depression: A longitudinal pregnancy cohort study. *Australian & New Zealand Journal of Psychiatry*, *55*(11), 1079-1088.

Araya, R., Rojas, G., Fritsch, R., Gaete, J., Rojas, M., Simon, G., & Peters, T. J. (2003). Treating depression in primary care in low-income women in Santiago, Chile: a randomised controlled trial. *The Lancet*, *361*(9362), 995-1000.

Armstrong K., Ravenell K. L., McMurphy S., & Putt M. (2007). Racial/ethnic differences in physician distrust in the United States. *Am J Public Health*; 97(7):1283–9.

Armstrong, K., Putt, M., Halbert, C. H., Grande, D., Schwartz, J. S., Liao, K., Marcus, N., Demeter, M. B., & Shea, J. A. (2013). Prior experiences of racial discrimination and racial differences in health care system distrust. *Med Care*, 51(2), 144–150.

Ashford, M. T., Eichenbaum, J., Williams, T., Camacho, M. R., Fockler, J., Ulbricht, A., Flenniken, D., Truran, D., Mackin, R. S., Weiner, W., & Nosheny, R. L. (2020). Effects of sex, race, ethnicity, and education on online aging research participation. *Alzheimer's & Dementia: Translational Research & Clinical Interventions*, 6(1), e12028.

Attarha, M., Keshavarz, Z., Bakhtiari, M., & Jamilian, M. (2016). The outcome of midwife-mother relationship in delivery room: a qualitative content analysis. *Health,* 8(04), 336.

Austin, A. E., Shanahan, M. E., & Zvara, B. J. (2018). Association of childhood abuse and prescription opioid use in early adulthood. *Addictive Behaviors*, *76*, 265-269.

Ayers, S., Bond, R., Bertullies, S., & Wijma, K. (2016). The aetiology of post-traumatic stress following childbirth: a meta-analysis and theoretical framework. *Psychological medicine*, 46(6), 1121-1134.

Ayers, S., & Delicate, A. (2016). Recognising and acting on perinatal mental health. *NCT Perspective*, *32*.

Baas, M. A. M., Stramrood, C. A. I., Dijksman, L. M., de Jongh, A., & Van Pampus, M. G. (2017). The OptiMUM-study: EMDR therapy in pregnant women with posttraumatic stress disorder after previous childbirth and pregnant women with fear of childbirth: design of a multicentre randomized controlled trial. *European journal of psychotraumatology*, *8*(1), 1293315.

Bachem, R., Levin, Y., Zerach, G., Cloitre, M., & Solomon, Z. (2021). The interpersonal implications of PTSD and complex PTSD: The role of disturbances in self-organization. *Journal of Affective Disorders*, *290*, 149-156.

Bagner, D. M., Rodríguez, G. M., Blake, C. A., Linares, D., & Carter, A. S. (2012). Assessment of behavioral and emotional problems in infancy: A systematic review. *Clinical Child and Family Psychology Review*, *15*(2), 113-128.

Bahji, A., Forsyth, A., Groll, D., & Hawken, E. R. (2020). Efficacy of 3, 4-methylenedioxymethamphetamine (MDMA)-assisted psychotherapy for posttraumatic stress

disorder: a systematic review and meta-analysis. *Progress in Neuro-Psychopharmacology and Biological Psychiatry,* 96, 109735.

Baibazarova, E., van de Beek, C., Cohen-Kettenis, P. T., Buitelaar, J., Shelton, K. H., & van Goozen, S. H. (2013). Influence of prenatal maternal stress, maternal plasma cortisol and cortisol in the amniotic fluid on birth outcomes and child temperament at 3 months. *Psychoneuroendocrinology*, *38*(6), 907-915.

Baibazarova, E., van de Beek, C., Cohen-Kettenis, P. T., Buitelaar, J., Shelton, K. H., & van Goozen, S. H. (2013). Influence of prenatal maternal stress, maternal plasma cortisol and cortisol in the amniotic fluid on birth outcomes and child temperament at 3 months. *Psychoneuroendocrinology*, *38*(6), 907-915.

Bailey, T. D., & Brown, L. S. (2020). Complex trauma: Missed and misdiagnosis in forensic evaluations. *Psychological Injury and Law*, *13*(2), 109-123.

Bałajewicz-Nowak, M., Furgała, A., Pityński, K. P., Thor, P. J., Huras, H., & Rytlewski, K. (2016). The dynamics of autonomic nervous system activity and hemodynamic changes in pregnant women. *Neuro-endocrinology Letters*, *37*(1).

Baldwin, J. R., Caspi, A., Meehan, A. J., Ambler, A., Arseneault, L., Fisher, H. L., Harrington, H., Matthews, T., Odgers, C. L., Poulton, R., Ramrakha, S., Moffitt, T. E., & Danese, A. (2021). Population vs individual prediction of poor health from results of adverse childhood experiences screening. *JAMA pediatrics*, 175(4), 385-393.

Baldwin, J. R., Reuben, A., Newbury, J. B., & Danese, A. (2019). Agreement between prospective and retrospective measures of childhood maltreatment: a systematic review and meta-analysis. *JAMA psychiatry*, 76(6), 584-593.

Bandoli, G., Coles, C. D., Kable, J. A., Wertelecki, W., Yevtushok, L., Zymak-Zakutnya, N., Wells, Al., Granovska, I. V., Pashtepa, A. O., Chambers, C. D., & CIFASD. (2019). Patterns of prenatal alcohol use that predict infant growth and development. *Pediatrics*, 143(2).

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191.

Bannink, R., Pearce, A., & Hope, S. (2016). Family income and young adolescents' perceived social position: associations with self-esteem and life satisfaction in the UK Millennium Cohort Study. *Archives of disease in childhood*, *101*(10), 917-921.

Baptie, G., Andrade, J., Bacon, A. M., & Norman, A. (2020). Birth trauma: the mediating effects of perceived support. British Journal of Midwifery, 28(10), 724-730.

Baptie, G., Andrade, J., Bacon, A., & Norman, A. (2020). Trauma after childbirth: The mediating effects of perceived support.

Barbano, A. C., van der Mei, W. F., deRoon-Cassini, T. A., Grauer, E., Lowe, S. R., Matsuoka, Y. J., O'Donnell, M., Olff, M., Qi, W., Ratanatharathorn, A., Schnyder, u., Seedat, S., Kessler, R. C., Koenen, K. C., Shalev, A. Y., & International Consortium to Prevent PTSD. (2019). Differentiating PTSD from anxiety and depression: Lessons from the ICD-11 PTSD diagnostic criteria. *Depression and anxiety*, *36*(6), 490-498.

Barratt, E. S. (1959). Anxiety and impulsiveness related to psychomotor efficiency. *Perceptual and Motor Skills*, 9, 191–198

Barrios, Y. V., Gelaye, B., Zhong, Q., Nicolaidis, C., Rondon, M. B., Garcia, P. J., Mascaro Sanchez, P. A., Sanchez, S. E., & Williams, M. A. (2015). Association of childhood physical and sexual abuse with intimate partner violence, poor general health, and depressive symptoms among pregnant women. *PloS One*, *10*(1), e0116609.

Barry, M. J., Fowler, F. J., Mulley, A. G., Henderson, J. V., & Wennberg, J. E. (1995). Patient reactions to a program designed to facilitate patient participation in treatment decisions for benign prostatic hyperplagia. *Medical care.*

Bartlett, J. D., & Steber, K. (2019). How to implement trauma-informed care to build resilience to childhood trauma. T*rauma,* 9(10).

Basharpoor, S., & Taherifard, M. (2019). Predicting the pregnancy anxiety in pregnant women basing on cognitive biases and emotion regulation strategies. *Iranian Journal of Psychiatric Nursing*, *7*(2), 23-31.

Bauer, A., Parsonage, M., Knapp, M., Iemmi, V., & Adelaja, B. (2014). Costs of perinatal mental health problems. *LSE Personal Social Services Research Unit.*

Baxter, S. K. (2022). Complex Posttraumatic Stress Disorder: A More Severe Posttraumatic Stress Disorder? A Training for Mental Health Professionals.

Beck, C. T., & Gable, R. K. (2000). Postpartum Depression Screening Scale: development and psychometric testing. *Nursing research*, 49(5), 272-282.

Beck, J. G., McNiff, J., Clapp, J. D., Olsen, S. A., Avery, M. L., & Hagewood, J. H. (2011). Exploring negative emotion in women experiencing intimate partner violence: Shame, guilt, and PTSD. *Behavior therapy*, *42*(4), 740-750.

Beck, A. T., Steer, R. A., & Brown, G. (1996). Beck depression inventory–II. *Psychological assessment*.

Beeber, L. S., Schwartz, T. A., Holditch-Davis, D., Canuso, R., Lewis, V., & Hall, H. W. (2013). Parenting enhancement, interpersonal psychotherapy to reduce depression in low-income mothers of infants and toddlers: A randomized trial. *Nursing research*, *62*(2), 82.

Beilharz, J. E., Paterson, M., Fatt, S., Wilson, C., Burton, A., Cvejic, E., Lloyd, A., & Vollmer-Conna, U. (2020). The impact of childhood trauma on psychosocial functioning and physical health in a non-clinical community sample of young adults. *Australian & New Zealand Journal of Psychiatry*, *54*(2), 185-194.

Bell, A. F., & Andersson, E. (2016). The birth experience and women's postnatal depression: A systematic review. *Midwifery,* 39, 112-123.

Bell, V., Robinson, B., Katona, C., Fett, A. K., & Shergill, S. (2019). When trust is lost: the impact of interpersonal trauma on social interactions. *Psychological medicine*, *49*(6), 1041-1046

Belli, H., Ural, C., Akbudak, M., & Sagaltıcı, E. (2019). Levels of childhood traumatic experiences and dissociative symptoms in extremely obese patients with and without binge eating disorder. *Nordic journal of psychiatry*, *73*(8), 527-531.

Belo, P., Navarro-Pardo, E., Pocinho, R., Carrana, P., & Margarido, C. (2020). Relationship between mental health and the education level in elderly people: mediation of leisure attitude. *Frontiers in psychology*, *11*, 573.

Benedict, M. I., Paine, L. L., Paine, L. A., Brandt, D., & Stallings, R. (1999). The association of childhood sexual abuse with depressive symptoms during pregnancy, and selected pregnancy outcomes. *Child Abuse & Neglect*, *23*(7), 659-670.

Ben-Ezra, M., Karatzias, T., Hyland, P., Brewin, C. R., Cloitre, M., Bisson, J. I., Roberts, N. P., Lueger-Schuster, B., & Shevlin, M. (2018). Posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD) as per ICD-11 proposals: A population study in Israel. *Depression and anxiety,* 35(3), 264-274.

Beresford, S., Loucks, N., & Raikes, B. (2020). The health impact on children affected by parental imprisonment. *BMJ paediatrics open*, *4*(1).

Berman, I. S., McLaughlin, K. A., Tottenham, N., Godfrey, K., Seeman, T., Loucks, E., Suomi, S., Danese, A., & Sheridan, M. A. (2022). Measuring early life adversity: a dimensional approach. *Development and psychopathology*, 34(2), 499-511.

Bernstein, D. P., Cohen, P., Velez, C. N., Schwab-Stone, M., Siever, L. J., & Shinsato, L. (1993). Prevalence and stability of the DSM-III—R personality disorders in a community-based survey of adolescents. *The American journal of psychiatry.*

Bernstein, D. P., Fink, L., Handelsman, L., & Foote, J. (1998). Childhood trauma questionnaire. *Assessment of family violence: A handbook for researchers and practitioners.*

Bert, S. C., Guner, B. M., Lanzi, R. G., & Centres for Prevention of Child Neglect. (2009). The influence of maternal history of abuse on parenting knowledge and behavior. *Family Relations*, *58*(2), 176-187.

Bifulco, A., Bernazzani, O., Moran, P. M., & Jacobs, C. (2005) Childhood Experience of Care and Abuse Questionnaire. *British Journal of Clinical Psychology.*

Bigras, N., Godbout, N., Hébert, M., Runtz, M., & Daspe, M. È. (2015). Identity and relatedness as mediators between child emotional abuse and adult couple adjustment in women. *Child Abuse & Neglect*, *50*, 85-93.

Bilszta, J. L., Buist, A. E., Wang, F., & Zulkefli, N. R. (2012). Use of video feedback intervention in an inpatient perinatal psychiatric setting to improve maternal parenting. *Archives of women's mental health*, *15*(4), 249-257.

Biringen, Z., Robinson, J. L., & Emde, R. N. (1993). The Emotional Availability Scales. *Unpublished manuscript*, University of Colorado, Health Science Center, Denver, CO, USA.

Bisson, J. I., Ariti, C., Cullen, K., Kitchiner, N., Lewis, C., Roberts, N. P., Simon, N., Smallman, K., Addison, K., Bell, V., Brookes-Howell, L., Cosgrove, S., Ehlers, A., Fitzsimmons, D., Foscarini-Craggs, P., Harris, S. R. S., Kelson, M., Lovell, K., McKenna, M., McNamara, R., Nollett, C., Pickles, T., & Williams-Thomas, R. (2022). Guided, internet based, cognitive behavioural therapy for post-traumatic stress disorder: pragmatic, multicentre, randomised controlled non-inferiority trial (RAPID). *BMJ*, 377.

Bisson, J. I., Baker, A., Dekker, W., & Hoskins, M. D. (2020). Evidence-based prescribing for post-traumatic stress disorder. *The British Journal of Psychiatry*, 216(3), 125-126.

Bisson, J. I., Roberts, N. P., Andrew, M., Cooper, R., & Lewis, C. (2013). Psychological therapies for chronic post-traumatic stress disorder (PTSD) in adults. *Cochrane database of systematic reviews*, (12).

Bisson, J.I., Berliner, L., Cloitre, M., Forbes, D., Jensen, T. K., Lewis, C., Monson, C. M., Olff, M., Pilling, S., Riggs, D. S., Roberts, N. P., & Shapiro, F., (2019). The International Society for Traumatic Stress Studies new guidelines for the prevention and treatment of PTSD: methodology and development process. *Journal of Trauma Stress*; 32: 475–83.

Black, S. E., Devereux, P. J., & Salvanes, K. G. (2007). From the cradle to the labor market? The effect of birth weight on adult outcomes. *The Quarterly Journal of Economics*, *122*(1), 409-439.

Bleiberg, K. L., & Markowitz, J. C. (2019). Interpersonal psychotherapy for PTSD: Treating trauma without exposure. *Journal of psychotherapy integration*, *29*(1), 15.

Bondjers, K., Hyland, P., Roberts, N. P., Bisson, J. I., Willebrand, M., & Arnberg, F. K. (2019). Validation of a clinician-administered diagnostic measure of ICD-11 PTSD and Complex PTSD: The International Trauma Interview in a Swedish sample. *European Journal of Psychotraumatology,* 10(1), 1665617.

Borrella, I., Caballero-Caballero, S., & Ponce-Cueto, E. (2022). Taking action to reduce dropout in MOOCs: Tested interventions. *Computers & Education*, 179, 104412.

Bosch, J., Mackintosh, M. A., Wells, S. Y., Wickramasinghe, I., Glassman, L. H., & Morland, L. A. (2020). PTSD treatment response and quality of life in women with childhood trauma histories. *Psychological Trauma: Theory, Research, Practice, and Policy*, *12*(1), 55.

Bowers, M. E., & Yehuda, R. (2016). Intergenerational transmission of stress in humans. *Neuropsychopharmacology,* 41(1), 232-244.

Bowman, K. G., Ryberg, J. W., & Becker, H. (2009). Examining the relationship between a childhood history of sexual abuse and later dissociation, breast-feeding practices, and parenting anxiety. *Journal of Interpersonal Violence*, *24*(8), 1304-1317.

Brady, G., Brown, G., Letherby, G., Bayley, J., & Wallace, L. M. (2008). Young women's experience of termination and miscarriage: a qualitative study. *Human Fertility*, *11*(3), 186-190.

Brake, E., Berle, D., Reilly, N. M., & Austin, M. P. (2020). The relationship between emotion dysregulation and postnatal attachment in women admitted to a mother baby unit. *Australian Journal of Psychology*.

Brand, S. R., Brennan, P. A., Newport, D. J., Smith, A. K., Weiss, T. E., & Stowe, Z. N. (2010). The impact of maternal childhood abuse on maternal and infant HPA axis function in the postpartum period. *Psychoneuroendocrinology, 35*(5), 686-693. doi: 10.1016/j.psyneuen.2009.10.009

Brazelton, T. B. (1978). The Brazelton Neonatal Behavior Assessment Scale: introduction. *Monographs of the Society for research in Child Development*, 43(5-6), 1-13.

Bremner, J. D., Bolus, R., & Mayer, E. A. (2007). Psychometric properties of the early trauma inventory–self report. *The Journal of nervous and mental disease*, 195(3), 211-218.

Brewin, C. R. (2020). Complex post-traumatic stress disorder: a new diagnosis in ICD-11. *BJPsych Advances*, *26*(3), 145-152.

Brindle, R. C., Cribbet, M. R., Samuelsson, L. B., Gao, C., Frank, E., Krafty, R. T., Thayer, J. F., Buysse, D. J., & Hall, M. H. (2018). The relationship between childhood trauma and poor sleep health in adulthood. *Psychosomatic medicine*, *80*(2), 200.

Brockington, I. F., Fraser, C., & Wilson, D. (2006). The postpartum bonding questionnaire: a validation. *Archives of women's mental health*, 9, 233-242.

Brose, A., Wichers, M., & Kuppens, P. (2017). Daily stressful experiences precede but do not succeed depressive symptoms: results from a longitudinal experience sampling study. *Journal of Social and Clinical Psychology,* 36(3), 196–220.

Brown, S. M., Rienks, S., McCrae, J. S., & Watamura, S. E. (2019). The co-occurrence of adverse childhood experiences among children investigated for child maltreatment: A latent class analysis. *Child abuse & neglect*, 87, 18-27.

Brown, S. J., Yelland, J. S., Sutherland, G. A., Baghurst, P. A., & Robinson, J. S. (2011). Stressful life events, social health issues and low birthweight in an Australian population-based birth cohort: Challenges and opportunities in antenatal care. *BMC Public Health*, 11(1), 196

Brunner R, Resch F, Parzer P, Koch E: Heidelberger Dissoziations-Inventar (HDI). Frankfurt am Main, Swets Test Services, 1999.

Bryant, R. A., Tran, J., Williamson, T., & Korgaonkar, M. S. (2022). Neural processes during response inhibition in complex posttraumatic stress disorder. *Depression and anxiety*, *39*(4), 307-314.

Bublitz, M. H., & Stroud, L. R. (2012). Childhood sexual abuse is associated with cortisol awakening response over pregnancy: preliminary findings. *Psychoneuroendocrinology*, *37*(9), 1425-1430.

Bublitz, M. H., & Stroud, L. R. (2013). Maternal history of child abuse moderates the association between daily stress and diurnal cortisol in pregnancy: A pilot study. *Stress, 16*(6), 706–710.

Bublitz, M. H., Bourjeily, G., D'Angelo, C., & Stroud, L. R. (2018). Maternal sleep quality and diurnal cortisol regulation over pregnancy. *Behavioral sleep medicine*, *16*(3), 282-293.

Bublitz, M. H., Ward, L. G., Simoes, M., Stroud, L. R., Salameh, M., & Bourjeily, G. (2020). Maternal history of adverse childhood experiences and ambulatory blood pressure in pregnancy. *Psychosomatic Medicine*, 82(8), 757-763.

Bungener, S. L., Post, L., Berends, I., Steensma, T. D., de Vries, A. L., & Popma, A. (2022). Talking About Sexuality With Youth: A Taboo in Psychiatry?. *The Journal of Sexual Medicine,* 19(3), 421-429.

Busby, D. M., Walker, E. C., & Holman, T. B. (2011). The association of childhood trauma with perceptions of self and the partner in adult romantic relationships. *Personal Relationships*, *18*(4), 547-561.

Buss, C., Entringer, S., Reyes, J. F., Chicz-DeMet, A., Sandman, C. A., Waffarn, F., & Wadhwa, P. D. (2009). The maternal cortisol awakening response in human pregnancy is associated with the length of gestation. *American journal of obstetrics and gynecology*, *201*(4), 398-e1.

Byrd, D. R., and McKinney, K. J. (2012). Individual, interpersonal, and institutional level factors associated with the mental health of college students. *J. Am. Coll. Health* 60, 185–193.

Byrne, J., Smart, C., & Watson, G. (2017). "I Felt Like I Was Being Abused All Over Again": How Survivors of Child Sexual Abuse Make Sense of the Perinatal Period Through Their Narratives. *Journal of child sexual abuse*, *26*(4), 465-486.

Byrne, S. P., Mayo, A., O'Hair, C., Zankman, M., Austin, G. M., Thompson-Booth, C., McCrory, E. J., Mayes, L. C., & Rutherford, H. J. (2019). Facial emotion recognition during pregnancy: Examining the effects of facial age and affect. *Infant Behavior and Development*, *54*, 108-113.

Calabrese, S.K., Earnshaw, V.A., Underhill, K., Hansen, N.B., Dovidio, J.F., 2014. The impact of patient race on clinical decisions related to prescribing HIV pre-exposure prophylaxis (PrEP): assumptions about sexual risk compensation and implications for access. *AIDS Behav*. 18 (2), 226–240.

Callaghan, W. M. (2020). Maternal mortality: addressing disparities and measuring what we value. *Obstetrics & Gynecology,* 135(2), 274-275.

Cantón-Cortés, D., Cortés, M. R., & Cantón, J. (2019). Pathways from childhood sexual abuse to trait anxiety. *Child abuse & neglect*, 97, 104148.

Çapik, A., & Durmaz, H. (2018). Fear of childbirth, postpartum depression, and birth-related variables as predictors of posttraumatic stress disorder after childbirth. *Worldviews on Evidence-Based Nursing,* 15(6), 455-463.

Carbone, E. A., Pugliese, V., Bruni, A., Aloi, M., Calabrò, G., Jaén-Moreno, M. J., Segura-Garcia, C., & De Fazio, P. (2019). Adverse childhood experiences and clinical severity in bipolar disorder and schizophrenia: A transdiagnostic two-step cluster analysis. *Journal of affective disorders*, *259*, 104-111.

Carbone, J. T., Holzer, K. J., & Vaughn, M. G. (2019). Posttraumatic Stress Disorder Among Low-Income Adolescents Experiencing Family–Neighborhood Income Disparities. *Journal of Traumatic Stress*, *32*(6), 899-907.

Carliner, H., Keyes, K. M., McLaughlin, K. A., Meyers, J. L., Dunn, E. C., & Martins, S. S. (2016). Childhood trauma and illicit drug use in adolescence: A population-based national comorbidity survey replication–adolescent supplement study. *Journal of the American Academy of Child & Adolescent Psychiatry*, *55*(8), 701-708.

Carmassi, C., Bertelloni, C. A., Cordone, A., Cappelli, A., Massimetti, E., Dell'Oste, V., & Dell'Osso, L. (2020). Exploring mood symptoms overlap in PTSD diagnosis: ICD-11 and DSM-5 criteria compared in a sample of subjects with Bipolar Disorder. *Journal of Affective Disorders*, *276*, 205-211.

Carpenter, L. L., Carvalho, J. P., Tyrka, A. R., Wier, L. M., Mello, A. F., Mello, M. F., Anderson, G. M., Wilkinson, C. W., & Price, L. H. (2007). Decreased adrenocorticotropic hormone and cortisol responses to stress in healthy adults reporting significant childhood maltreatment. *Biological Psychiatry*, *62*(10), 1080-1087.

Carquillat, Pierre, Michel Boulvain, and Marie-Julia Guittier. 2016. How does delivery method influence factors that contribute to women's childbirth experiences? *Midwifery* 43: 21–28

Carroll, N. M., Banks, A., & Elmore, J. G. (2020). Health care for female trauma survivors (with posttraumatic stress disorder or similarly severe symptoms).

Cavazos-Rehg, P. A., Krauss, M. J., Spitznagel, E. L., Bommarito, K., Madden, T., Olsen, M. A., Subramanian, H., Peipert, J. F., & Bierut, L. J. (2015). Maternal age and risk of labor and delivery complications. *Maternal and child health journal*, *19*(6), 1202-1211.

Center for Substance Abuse Treatment. (2014). Trauma-informed care in behavioral health services.

Chan, D. (2010). So why ask me? Are self-report data really that bad?. *In Statistical and methodological myths and urban legends* (pp. 329-356). Routledge.

Chan, K. L., & Chen, M. (2019). Effects of social media and mobile health apps on pregnancy care: meta-analysis. *JMIR mHealth and uHealth*, *7*(1), e11836.

Chapman, D. P., Whitfield, C. L., Felitti, V. J., Dube, S. R., Edwards, V. J., & Anda, R. F. (2004). Adverse childhood experiences and the risk of depressive disorders in adulthood. *Journal of Affective Disorders, 82*, 217–225.

Charrois, E. M., Mughal, M. K., Arshad, M., Wajid, A., Bright, K. S., Giallo, R., & Kingston, D. (2022). Patterns and predictors of depressive and anxiety symptoms in mothers affected by previous prenatal loss in the ALSPAC birth cohort. *Journal of Affective Disorders*, 307, 244-253.

Chase, K. A., Melbourne, J. K., Rosen, C., McCarthy-Jones, S., Jones, N., Feiner, B. M., & Sharma, R. P. (2019). Traumagenics: At the intersect of childhood trauma, immunity and psychosis. *Psychiatry research*, *273*, 369-377.

Chegeni, M., Haghdoost, A., Shahrbabaki, M. E., Shahrbabaki, P. M., & Nakhaee, N. (2020). Validity and reliability of the Persian version of the adverse childhood experiences abuse short form. *Journal of education and health promotion*, 9.

Chen, H., Cohen, P., & Chen, S. (2010). How big is a big odds ratio? Interpreting the magnitudes of odds ratios in epidemiological studies. *Communications in Statistics—simulation and Computation®*, *39*(4), 860-864.

Chen, Y., Hodgson, S., Gulliver, J., Granell, R., Henderson, A. J., Cai, Y., & Hansell, A. L. (2021). Trimester effects of source-specific PM10 on birth weight outcomes in the Avon Longitudinal Study of Parents and Children (ALSPAC). *Environmental Health*, 20(1), 1-12.

Cheng, Z., Mendolia, S., Paloyo, A. R., Savage, D. A., & Tani, M. (2021). Working parents, financial insecurity, and childcare: mental health in the time of COVID-19 in the UK. *Review of Economics of the Household*, *19*(1), 123-144.

Cherak, S. J., Giesbrecht, G. F., Metcalfe, A., Ronksley, P. E., & Malebranche, M. E. (2018). The effect of gestational period on the association between maternal prenatal salivary cortisol and birth weight: A systematic review and meta-analysis. *Psychoneuroendocrinology,* 94, 49-62.

Child maltreatment. (2016, September 30). Retrieved March 20, 2019, from https://www.who.int/news-room/fact-sheets/detail/child-maltreatment

Childhood trauma recovery. Available online at: https://childhoodtraumarecovery.com/. (Accessed on June 05, 2022).

Chiorino, V., Cattaneo, M. C., Macchi, E. A., Salerno, R., Roveraro, S., Bertolucci, G. G., Mosca, F., Fumagalli, M., Cortinovis, I., Carletto, S., & Fernandez, I. (2020). The EMDR Recent Birth Trauma Protocol: a pilot randomised clinical trial after traumatic childbirth. *Psychology & health*, *35*(7), 795-810.

Choi, J. K., Wang, D., & Jackson, A. P. (2019). Adverse experiences in early childhood and their longitudinal impact on later behavioral problems of children living in poverty. *Child abuse & neglect*, *98*, 104181.

Choi, K. W., Houts, R., Arseneault, L., Pariante, C., Sikkema, K. J., & Moffitt, T. E. (2019). Maternal depression in the intergenerational transmission of childhood maltreatment and its sequelae: Testing postpartum effects in a longitudinal birth cohort. *Development and psychopathology*, 31(1), 143-156.

Choi, K. W., Sikkema, K. J., Vythilingum, B., Geerts, L., Faure, S. C., Watt, M. H., Roos, A., & Stein, D. J. (2017). Maternal childhood trauma, postpartum depression, and infant outcomes: Avoidant affective processing as a potential mechanism. *Journal of Affective Disorders*, *211*, 107-115.

Christiaens, I., Hegadoren, K., & Olson, D. M. (2015). Adverse childhood experiences are associated with spontaneous preterm birth: a case–control study. *BMC Medicine*, *13*(1), 124.

Chung, H. W., Kim, E. M., & Lee, J. E. (2018). Comprehensive understanding of risk and protective factors related to adolescent pregnancy in low-and middle-income countries: A systematic review. *Journal of adolescence*, *69*, 180-188.

Ciciolla, L., Shreffler, K. M., & Tiemeyer, S. (2021). Maternal childhood adversity as a risk for perinatal complications and NICU hospitalization. *Journal of pediatric psychology,* 46(7), 801-813.

Cigoli, V., Gilli, G., & Saita, E. (2006). Relational factors in psychopathological responses to childbirth. *Journal of Psychosomatic Obstetrics & Gynecology*, 27(2), 91-97.

Cirino, N. H., & Knapp, J. M. (2019). Perinatal posttraumatic stress disorder: a review of risk factors, diagnosis, and treatment. *Obstetrical & Gynecological Survey*, *74*(6), 369-376.

Clark, D. A., Klump, K. L., & Burt, S. A. (2018). Parent depressive symptomatology moderates the etiology of externalizing behavior in childhood: An examination of gene-environment interaction effects. *Developmental psychology*, 54(7), 1277.

Clark, D., & Royer, H. (2013). The effect of education on adult mortality and health: Evidence from Britain. *American Economic Review*, *103*(6), 2087-2120.

Clemens, V., Huber-Lang, M., Plener, P. L., Brähler, E., Brown, R. C., & Fegert, J. M. (2018). Association of child maltreatment subtypes and long-term physical health in a German representative sample. *European journal of psychotraumatology*, *9*(1), 1510278.

Clement, S., Wilson, J., & Sikorski, J. (1999). The development of an intrapartum intervention score based on women's experiences. *Journal of reproductive and infant psychology*, 17(1), 53-62.

Cloitre, M., Garvert, D. W., Brewin, C. R., Bryant, R. A., & Maercker, A. (2013). Evidence for proposed ICD-11 PTSD and complex PTSD: A latent profile analysis. *European journal of psychotraumatology*, *4*(1), 20706.

Cloitre, M., Garvert, D. W., Weiss, B., Carlson, E. B., & Bryant, R. A. (2014). Distinguishing PTSD, complex PTSD, and borderline personality disorder: A latent class analysis. *European Journal of Psychotraumatology*, 5(1), 25097.

Cloitre, M., Hyland, P., Bisson, J. I., Brewin, C. R., Roberts, N. P., Karatzias, T., & Shevlin, M. (2019). ICD11 posttraumatic stress disorder and complex posttraumatic stress disorder in the United States: A population-based study. *Journal of Traumatic Stress*, 32(6), 833–842.

Cloitre, M., Hyland, P., Bisson, J. I., Brewin, C. R., Roberts, N. P., Karatzias, T., & Shevlin, M. (2019). ICD-11 posttraumatic stress disorder and complex posttraumatic stress disorder in the United States: A population-based study. *Journal of Traumatic Stress,* 32(6), 833-842.

Cloitre, M., Khan, C., Mackintosh, M. A., Garvert, D. W., Henn-Haase, C. M., Falvey, E. C., & Saito, J. (2019). Emotion regulation mediates the relationship between ACES and physical and mental health. *Psychological Trauma: Theory, Research, Practice, and Policy*, *11*(1), 82.

Cloitre, M., Shevlin, M., Brewin, C. R., Bisson, J. I., Roberts, N. P., Maercker, A., Karatzias, T., & Hyland, P. (2018). The International Trauma Questionnaire: Development of a self-report measure of ICD-11 PTSD and complex PTSD. *Acta Psychiatrica Scandinavica,* 138(6), 536-546.

Cohen, J. (2013). Statistical power analysis for the behavioral sciences. *Routledge.*

Cohen, J. R., Menon, S. V., Shorey, R. C., Le, V. D., & Temple, J. R. (2017). The distal consequences of physical and emotional neglect in emerging adults: A person-centered, multi-wave, longitudinal study. *Child Abuse & Neglect*, *63*, 151-161.

Coles, J., & Jones, K. (2009). "Universal precautions": Perinatal touch and examination after childhood sexual abuse. *Birth,* 36(3), 230-236.

Colich, N. L., Rosen, M. L., Williams, E. S., & McLaughlin, K. A. (2020). Biological aging in childhood and adolescence following experiences of threat and deprivation: A systematic review and meta-analysis. *Psychological bulletin*, *146*(9), 721.

Conti, G. et al (2017) The economic cost of child maltreatment in the UK: a preliminary study. London: *NSPCC*

Conti, G., Pizzo, E., Morris, S., & Melnychuk, M. (2021). The economic costs of child maltreatment in UK. *Health economics*, *30*(12), 3087-3105.

Contractor, A. A., Greene, T., Dolan, M., & Elhai, J. D. (2018). Relations between PTSD and depression symptom clusters in samples differentiated by PTSD diagnostic status. *Journal of Anxiety Disorders*, *59*, 17-26.

Cook, N., Ayers, S., & Horsch, A. (2018). Maternal posttraumatic stress disorder during the perinatal period and child outcomes: A systematic review. *Journal of affective disorders*, 225, 18-31.

Cook, B. L., Barry, C. L., & Busch, S. H. (2013). Racial/ethnic disparity trends in children's mental health care access and expenditures from 2002 to 2007. *Health services research*, 48(1), 129-149.

Cook, B. L., Trinh, N. H., Li, Z., Hou, S. S. Y., & Progovac, A. M. (2017). Trends in racial-ethnic disparities in access to mental health care, 2004–2012. *Psychiatric Services*, 68(1), 9-16.

Cook, S. M., & Cameron, S. T. (2020). Social issues of teenage pregnancy. *Obstetrics, Gynaecology & Reproductive Medicine*.

Corcoran, K., & Fischer, J. (Eds.). (2013). Measures for clinical practice and research, Volume 2: Adults*. Oxford University Press*.

Cortizo, R. (2020). Prenatal and Perinatal EMDR Therapy: Early Family Intervention. *Journal of EMDR Practice and Research*.

Cougle, J. R., Resnick, H., & Kilpatrick, D. G. (2009). PTSD, depression, and their comorbidity in relation to suicidality: cross-sectional and prospective analyses of a national probability sample of women. *Depression and Anxiety*, *26*(12), 1151-1157.

Cox, E. Q., Sowa, N. A., Meltzer-Brody, S. E., & Gaynes, B. N. (2016). The perinatal depression treatment cascade: baby steps toward improving outcomes. *The Journal of clinical psychiatry*, *77*(9), 1189-1200.

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *The British journal of psychiatry*, 150(6), 782-786.

Crouch, E., Jones, J., Strompolis, M., & Merrick, M. (2020). Examining the association between ACEs, childhood poverty and neglect, and physical and mental health: Data from two state samples. *Children and Youth Services Review*, 116, 105155.

Crouch, E., Radcliff, E., Strompolis, M., & Wilson, A. (2018). Adverse childhood experiences (ACEs) and alcohol abuse among South Carolina adults. *Substance use & misuse*, *53*(7), 1212-1220.

Crouch, E., Radcliff, E., Strompolis, M., & Wilson, A. (2018). Examining the association between adverse childhood experiences and smoking-exacerbated illnesses. *Public Health*, *157*, 62-68.

Cui, M., Fincham, F. D., & Durtschi, J. A. (2011). The effect of parental divorce on young adults' romantic relationship dissolution: What makes a difference? *Personal Relationships,* 18(3), 410–426.

Cunradi, C. B., Caetano, R., Alter, H. J., & Ponicki, W. R. (2020). Adverse childhood experiences are associated with at-risk drinking, cannabis and illicit drug use in females but not males: an Emergency Department study. *The American journal of drug and alcohol abuse*, *46*(6), 739-748.

Currie, J., & Spatz Widom, C. (2010). Long-term consequences of child abuse and neglect on adult economic well-being. *Child maltreatment*, *15*(2), 111-120.

Dachew, B. A., Scott, J. G., Mamun, A., Fetene, D. M., & Alati, R. (2021). Maternal hypertensive disorders during pregnancy and the trajectories of offspring emotional and behavioral problems: the ALSPAC birth cohort study. *Annals of Epidemiology*, 53, 63-68.

Damian, A. J., Oo, M., Bryant, D., & Gallo, J. J. (2021). Evaluating the association of adverse childhood experiences, mood and anxiety disorders, and suicidal ideation among behavioral health patients at a large federally qualified health center. *PLoS one*, *16*(7), e0254385.

Danese, A., & Tan, M. (2014). Childhood maltreatment and obesity: systematic review and meta-analysis. *Molecular Psychiatry*, *19*(5), 544.

D'Anna-Hernandez, K. L., Ross, R. G., Natvig, C. L., & Laudenslager, M. L. (2011). Hair cortisol levels as a retrospective marker of hypothalamic–pituitary axis activity throughout pregnancy: comparison to salivary cortisol. *Physiology & behavior*, *104*(2), 348-353.

Daruy-Filho, L., Brietzke, E., Lafer, B., & Grassi-Oliveira, R. J. A. P. S. (2011). Childhood maltreatment and clinical outcomes of bipolar disorder. *Acta Psychiatrica Scandinavica*, *124*(6), 427-434.

Davies, N. M., Dickson, M., Davey Smith, G., Van Den Berg, G. J., & Windmeijer, F. (2018). The causal effects of education on health outcomes in the UK Biobank. *Nature human behaviour*, *2*(2), 117-125.

Davis, E. P., & Narayan, A. J. (2020). Pregnancy as a period of risk, adaptation, and resilience for mothers and infants. *Development and psychopathology*, 32(5), 1625-1639.

De Bellis, M. D., & Zisk, A. (2014). The biological effects of childhood trauma. *Child and Adolescent Psychiatric Clinics*, *23*(2), 185-222.

De Carli, P., Costantini, I., Sessa, P., Visentin, S., Pearson, R. M., & Simonelli, A. (2019). The expectant social mind: A systematic review of face processing during pregnancy and the effect of depression and anxiety. *Neuroscience & Biobehavioral Reviews*, *102*, 153-171.

De la Pena-Arteaga, V., Nogueira, S. O., Lynskey, M., & Hines, L. A. (2021). The relationship between childhood physical and sexual abuse and adolescent cannabis use: a systematic review. *Frontiers in psychiatry*, *12*, 631245.

De Schepper, S., Vercauteren, T., Tersago, J., Jacquemyn, Y., Raes, F., & Franck, E. (2016). Post-Traumatic Stress Disorder after childbirth and the influence of maternity team care during labour and birth: A cohort study. *Midwifery*, 32, 87-92.

De Venter, M., Smets, J., Raes, F., Wouters, K., Franck, E., Hanssens, M., Jacquemyn, Y., Sabbe, B. G. C., & Van Den Eede, F. (2016). Impact of childhood trauma on postpartum depression: a prospective study. *Archives of Women's Mental Health*, *19*(2), 337-342.

Deal, L. W., & Holt, V. L. (1998). Young maternal age and depressive symptoms: results from the 1988 National Maternal and Infant Health Survey. *American Journal of Public Health*, *88*(2), 266-270.

Dean, D. C., Planalp, E. M., Wooten, W., Kecskemeti, S. R., Adluru, N., Schmidt, C. K., Frye, C., Birn, R. M., Burghy, C. A., Schmidy, N. L., Styner, M. A., Short, S. J., Kalin, N. H., Goldsmith H. H.,

Alexander, A. L., & Davidson, R. J. (2018). Association of prenatal maternal depression and anxiety symptoms with infant white matter microstructure. *JAMA pediatrics*, *172*(10), 973-981.

Dean, K., Green, M. J., Laurens, K. R., Kariuki, M., Tzoumakis, S., Sprague, T., Lenroot, R., & Carr, V. J. (2018). The impact of parental mental illness across the full diagnostic spectrum on externalising and internalising vulnerabilities in young offspring. *Psychological Medicine*, 48(13), 2257-2263.

Deave, T., Ginja, S., Goodenough, T., Bailey, E., Piwek, L., Coad, J., Day, C., Nightingale, S., Kendall, S., & Lingam, R. (2019). The Bumps and BaBies Longitudinal Study (BaBBLeS): a multi-site cohort study of first-time mothers to evaluate the effectiveness of the Baby Buddy app. *Mhealth,* 5.

Deegan, P. E. (2007). The lived experience of using psychiatric medication in the recovery process and a shared decision-making program to support it. *Psychiatric rehabilitation journal*, 31(1), 62.

Degiannis, E., & Tsepelaki, A. (2021). Trauma Management in Children. In *Emergency Medicine, Trauma and Disaster Management* (pp. 383-390). Springer, Cham.

Delgado, M. R., Olsson, A., & Phelps, E. A. (2006). Extending animal models of fear conditioning to humans. *Biological psychology*, *73*(1), 39-48.

Dencker, A., Taft, C., Bergqvist, L., Lilja, H., & Berg, M. (2010). Childbirth experience questionnaire (CEQ): development and evaluation of a multidimensional instrument. *BMC pregnancy and childbirth,* 10(1), 1-8.

Dennis, C. L., Hodnett, E., Kenton, L., Weston, J., Zupancic, J., Stewart, D. E., & Kiss, A. (2009). Effect of peer support on prevention of postnatal depression among high risk women: multisite randomised controlled trial. *Bmj*, 338.

Denovan, A., & Macaskill, A. (2017). Stress and subjective well-being among first year UK undergraduate students. *Journal of Happiness Studies*, 18(2), 505–525.

Diego, M. A., Jones, N. A., Field, T., Hernandez-Reif, M., Schanberg, S., Kuhn, C., & Gonzalez-Garcia, A. (2006). Maternal psychological distress, prenatal cortisol, and fetal weight. *Psychosomatic medicine*, *68*(5), 747-753.

Diestel, A. J., Price, M., Hidalgo, J. E., Contractor, A. A., & Grasso, D. J. (2022). Linkages between childhood maltreatment, intimate partner violence, and posttraumatic stress disorder symptoms in pregnant Hispanic women: a network analysis. *Child maltreatment*, 10775595221092948.

Dillon, D. G., Holmes, A. J., Birk, J. L., Brooks, N., Lyons-Ruth, K., & Pizzagalli, D. A. (2009). Childhood adversity is associated with left basal ganglia dysfunction during reward anticipation in adulthood. *Biological psychiatry*, *66*(3), 206-213.

Dobson, K. S., Allan, L., Mar, G., & Pusch, D. (2020). The Long Shadow of Adverse Childhood Experiences (ACEs): 1. Mental Health Outcomes in a Community Sample. *American Journal of Preventive Medicine and Public Health*, *6*(5), 119-128.

Dohrenwend, B. S., Krasnoff, L., Askenasy, A. R., & Dohrenwend, B. P. (1982). The psychiatric epidemiology research interview life events scale. *Handbook of stress: Theoretical and clinical aspects*, 332-363.

Dong, M., Anda, R. F., Felitti, V. J., Dube, S. R., Williamson, D. F., Thompson, T. J., Loo, C. M., & Giles, W. H. (2004). The interrelatedness of multiple forms of childhood abuse, neglect, and household dysfunction. *Child abuse & neglect*, *28*(7), 771-784.

Drake, R. E., Cimpean, D., & Torrey, W. C. (2022). Shared decision making in mental health: prospects for personalized medicine. *Dialogues in clinical neuroscience.*

Drapkin, M. L., Yusko, D., Yasinski, C., Oslin, D., Hembree, E. A., & Foa, E. B. (2011). Baseline functioning among individuals with posttraumatic stress disorder and alcohol dependence. *Journal of substance abuse treatment*, *41*(2), 186-192.

Draucker, C. B., & Mazurczyk, J. (2013). Relationships between childhood sexual abuse and substance use and sexual risk behaviors during adolescence: An integrative review. *Nursing Outlook*, *61*(5), 291-310.

Drevin, J., Stern, J., Annerback, E. M., Peterson, M., Butler, S., Tyden, T., Berglund, A., Larsson, M., Kristiansson, P. (2015). Adverse childhood experiences influence development of pain during pregnancy. *Acta Obstet Gynecol Scand, 94*(8), 840-846.

Drewett, R., Blair, P., Emmett, P., Emond, A., & ALSPAC Study Team. (2004). Failure to thrive in the term and preterm infants of mothers depressed in the postnatal period: a population-based birth cohort study. *Journal of Child Psychology and Psychiatry*, 45(2), 359-366.

Dualibe, A. L., & Osório, F. L. (2017). Bipolar disorder and early emotional trauma: a critical literature review on indicators of prevalence rates and clinical outcomes. *Harvard review of psychiatry*, *25*(5), 198-208.

Duarte, D., Belzeaux, R., Etain, B., Greenway, K. T., Rancourt, E., Correa, H., Turecki, G., & Richard-Devantoy, S. (2020). Childhood-maltreatment subtypes in bipolar patients with suicidal behavior: systematic review and meta-analysis. *Brazilian Journal of Psychiatry*, *42*, 558-567.

Dube, S. R., Fairweather, D., Pearson, W. S., Felitti, V. J., Anda, R. F., & Croft, J. B. (2009). Cumulative childhood stress and autoimmune diseases in adults. *Psychosomatic medicine*, 71(2), 243.

Dube, S. R., Felitti, V. J., Dong, M., Chapman, D. P., Giles, 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), 564-572.

Dubowitz, H., Thompson, R., Arria, A. M., English, D., Metzger, R., & Kotch, J. B. (2016). Characteristics of child maltreatment and adolescent marijuana use: A prospective study. *Child maltreatment*, *21*(1), 16-25.

Durkan, M., Field, F., Lamb, N., Loughton, T., (2015). The 1001 critical days: The importance of the conception to age two period. *A Cross-Party Manifesto Prepared by Four Members of the UK Parliament.* https://www.nspcc.org.uk/globalassets/documents/news/critical-days-manifesto.pdf

Eckenrode, J., Smith, E. G., McCarthy, M. E., & Dineen, M. (2014). Income inequality and child maltreatment in the United States. *Pediatrics*, *133*(3), 454-461.

Edelson, J. L. (1999). Children's witnessing of adult domestic violence. *Journal of Interpersonal Violence*, 14, 839–870.

Edge, D. (2010). Falling through the net—Black and minority ethnic women and perinatal mental healthcare: health professionals' views. *General hospital psychiatry*, 32(1), 17-25.

Elliott, R., McKinnon, A., Dixon, C., Boyle, A., Murphy, F., Dahm, T., Travers-Hill, E., Mul, C., Archibald, S. J., Smith, P., Dalgleish, T., Meiser-Stedman, R., & Hitchcock, C. (2021). Prevalence and predictive value of ICD-11 post-traumatic stress disorder and Complex PTSD diagnoses in children and adolescents exposed to a single-event trauma. *Journal of Child Psychology and Psychiatry*, 62(3), 270-276.

Ellis, B. J., Sheridan, M. A., Belsky, J., & McLaughlin, K. A. (2022). Why and how does early adversity influence development? Toward an integrated model of dimensions of environmental experience. *Development and Psychopathology*, *34*(2), 447-471.

England-Mason, G., Khoury, J., Atkinson, L., Hall, G. B., & Gonzalez, A. (2018). Attentional avoidance of emotional stimuli in postpartum women with childhood history of maltreatment and difficulties with emotion regulation. *Emotion*, *18*(3), 424.

England-Mason, G., Kimber, M., Khoury, J., Atkinson, L., MacMillan, H., & Gonzalez, A. (2017). Difficulties with emotion regulation moderate the association between childhood history of maltreatment and cortisol reactivity to psychosocial challenge in postpartum women. *Hormones and Behavior*, *95*, 44-56.

Engler, Á., Aczél, P., Dusa, Á. R., Markos, V., & Várfalvi, M. (2021). Appraisals of Childbirth Experience in Hungary. *Social Sciences*, 10(8), 302.

Ertan, D., Hingray, C., Burlacu, E., Sterlé, A., & El-Hage, W. (2021). Post-traumatic stress disorder following childbirth. *BMC psychiatry*, 21(1), 1-9.

Etain, B., Lajnef, M., Brichant-Petitjean, C., Geoffroy, P. A., Henry, C., Gard, S., Kahn, J. P., Leboyer, M., Young, A. H., & Bellivier, F. (2017). Childhood trauma and mixed episodes are associated with poor response to lithium in bipolar disorders. *Acta Psychiatrica Scandinavica*, *135*(4), 319-327.

Etain, B., Lajnef, M., Henry, C., Aubin, V., Azorin, J. M., Bellivier, F., Bougerol, T., Courtet, P., Gard, S., Kahn, J. P., Passerieux, C., Leboyer, M., & Passerieux, C. (2017). Childhood trauma, dimensions of psychopathology and the clinical expression of bipolar disorders: a pathway analysis. *Journal of Psychiatric Research*, 95, 37-45.

Evans, G. W., Li, D., & Whipple, S. S. (2013). Cumulative risk and child development. *Psychological bulletin*, *139*(6), 1342.

Ewing, L., Hamza, C. A., & Willoughby, T. (2019). Stressful experiences, emotion dysregulation, and non-suicidal self-injury among university students. *Journal of youth and adolescence,* 48(7), 1379-1389.

Facer-Irwin, E., Karatzias, T., Bird, A., Blackwood, N., & MacManus, D. (2021). PTSD and complex PTSD in sentenced male prisoners in the UK: Prevalence, trauma antecedents, and psychiatric comorbidities. *Psychological Medicine*, 1-11.

Fair, C. D., & Morrison, T. E. (2012). The relationship between prenatal control, expectations, experienced control, and birth satisfaction among primiparous women. *Midwifery,* 28(1), 39-44.

Farré-Sender, B., Torres, A., Gelabert, E., Andrés, S., Roca, A., Lasheras, G., Valdes, M., & Garcia-Esteve, L. (2018). Mother–infant bonding in the postpartum period: assessment of the impact of pre-delivery factors in a clinical sample. *Archives of Women's Mental Health*, *21*(3), 287-297.

Fava, N. M., Simon, V. A., Smith, E., Khan, M., Kovacevic, M., Rosenblum, K. L., Menke, R., & Muzik, M. (2016). Perceptions of general and parenting-specific posttraumatic change among postpartum mothers with histories of childhood maltreatment. *Child Abuse & Neglect*, *56*, 20-29.

Fear NT, Bridges S, Hatch SL, Hawkins V, Wessely S. Posttraumatic stress disorder. In Mental Health and Wellbeing in England: Adult Psychiatric Morbidity Survey 2014 (eds S McManus, P Bebbington, R Jenkins, T Brugha). Leeds NHS Digital, 2016

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., & Marks, J. S. (1998). Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse Childhood Experiences (ACE) Study. *American journal of preventive medicine*, *14*(4), 245-258.

Felitti, V. J., Anda, R. F., Nordenberg, D., Williamson, D. F., Spitz, A. M., Edwards, V., Koss, M. P., & Marks, J. S. (2019). Reprint of: relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the adverse childhood experiences (ACE) study. *American journal of preventive medicine*, *56*(6), 774-786.

Field, A. (2013). Discovering statistics using IBM SPSS statistics: *sage.*

Finy, M. S., & Christian, L. M. (2018). Pathways linking childhood abuse history and current socioeconomic status to inflammation during pregnancy. *Brain, Behavior, and Immunity*, *74*, 231-240.

First, M. B., Gaebel, W., Maj, M., Stein, D. J., Kogan, C. S., Saunders, J. B., Poznyak, V. B., Gureje, O., Lewis-Fernandez, R., Maercker, A., Brewin, C. R., Cloitre, M., Claudino, A., Pike, K. M., Baird, G., Skuse, D., Krueger, R. B., Briken, P., Burke, J. D., Lochman, J. E., Evans, S. C., Woods, D. W., & Reed, G. M. (2021). An organization-and category-level comparison of diagnostic requirements for mental disorders in ICD-11 and DSM-5. *World Psychiatry*, 20(1), 34-51.

First, M. B., & Gibbon, M. (2004). The structured clinical interview for DSM-IV axis I disorders (SCID-I) and the structured clinical interview for DSM-IV axis II disorders (SCID-II).

First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B., & Benjamin, L. S. (1997). Structured clinical interview for DSM-IV® axis ii personality disorders SCID-II. *American Psychiatric Pub.*

Fisher, J. R., Wynter, K. H., & Rowe, H. J. (2010). Innovative psycho-educational program to prevent common postpartum mental disorders in primiparous women: a before and after controlled study. *BMC public health*, 10(1), 1-15.

Fitzgerald, M., & Ledermann, T. (2020). Longitudinal Effects of Adolescent Abuse on Relationship Quality and Posttraumatic Stress Symptoms in Mother–Adolescent Dyads. *Journal of Marital and Family Therapy*, *46*(2), 352-365.

Fletcher, L. (2018). *Anxiety And Depression: How to Overcome Intrusive Thoughts With Simple Practices*. McGill University Press; London [Ont.]: Queen's University Press.

Flory, J. D., & Yehuda, R. (2022). Comorbidity between post-traumatic stress disorder and major depressive disorder: alternative explanations and treatment considerations. *Dialogues in clinical neuroscience*.

Ford, E., & Ayers, S. (2011). Support during birth interacts with prior trauma and birth intervention to predict postnatal post-traumatic stress symptoms. *Psychology & health,* 26(12), 1553-1570.

Ford, E., Ayers, S., & Wright, D. B. (2009). Measurement of maternal perceptions of support and control in birth (SCIB). *Journal of women's health*, 18(2), 245-252.

Ford, J. D., & Courtois, C. A. (2021). Complex PTSD and borderline personality disorder. *Borderline personality disorder and emotion dysregulation*, *8*(1), 1-21.

Fortin-Langelier, E., Daigneault, I., Achim, J., Vézina-Gagnon, P., Guérin, V., & Frappier, J. Y. (2019). A matched cohort study of the association between childhood sexual abuse and teenage pregnancy. *Journal of Adolescent Health*, *65*(3), 384-389.

Francis, E. R., Tsaligopoulou, A., Stock, S. E., Pingault, J. B., & Baldwin, J. R. (2023). Subjective and objective experiences of childhood adversity: a meta-analysis of their agreement and relationships with psychopathology. *Journal of Child Psychology and Psychiatry*.

Franklin, C. L., & Raines, A. M. (2019). The overlap between OCD and PTSD: examining self-reported symptom differentiation. *Psychiatry research*, *280*, 112508.

Fraser, A., Macdonald-Wallis, C., Tilling, K., Boyd, A., Golding, J., Davey Smith, G., Henderson, J., Macleod, J., Molloy, L., Ness, A., Ring, S., Nelson, S, M., & Lawlor, D. A. (2013). Cohort profile: the Avon Longitudinal Study of Parents and Children: ALSPAC mothers cohort. *International journal of epidemiology*, 42(1), 97-110.

Frazier, T., Hogue, C. J. R., Bonney, E. A., Yount, K. M., & Pearce, B. D. (2018). Weathering the storm; a review of pre-pregnancy stress and risk of spontaneous abortion. *Psychoneuroendocrinology*, *92*, 142-154.

Frazier, T., Hogue, C. J., & Yount, K. M. (2018). The Development of the Healthy Pregnancy Stress Scale, and Validation in a Sample of Low-Income African American Women. *Maternal and Child Health Journal*, *22*(2), 247-254.

Freudenberg, N., & Ruglis, J. (2007). Peer reviewed: Reframing school dropout as a public health issue. *Preventing chronic disease*, *4*(4).

Friedman, M., Rholes, W. S., Simpson, J., Bond, M., DIAZ-LOVING, R. O. L. O. N. D. O., & Chan, C. (2010). Attachment avoidance and the cultural fit hypothesis: A cross-cultural investigation. *Personal Relationships*, *17*(1), 107-126.

Frueh, B. C., Cusack, K. J., Grubaugh, A. L., Sauvageot, J. A., & Wells, C. (2006). Clinicians' perspectives on cognitive-behavioral treatment for PTSD among persons with severe mental illness. *Psychiatric Services*, *57*(7), 1027-1031.

Fu, M., & Zuo, Y. (2011). Experience-dependent structural plasticity in the cortex. *Trends in neurosciences*, *34*(4), 177-187.

Fuchs, A., Möhler, E., Resch, F., & Kaess, M. (2015). Impact of a maternal history of childhood abuse on the development of mother–infant interaction during the first year of life. *Child Abuse & Neglect*, *48*, 179-189.

Fuller-Thomson, E., Baird, S. L., Dhrodia, R., & Brennenstuhl, S. (2016). The association between adverse childhood experiences (ACEs) and suicide attempts in a population-based study. *Child: care, health and development*, 42(5), 725-734.

Galatzer-Levy, I. R., Nickerson, A., Litz, B. T., & Marmar, C. R. (2013). Patterns of lifetime PTSD comorbidity: A latent class analysis. *Depression and Anxiety*, *30*(5), 489-496.

Garratt, L., & Kirkham, M. (2018). Survivors of childhood sexual abuse and midwifery practice: CSA, birth and powerlessness. *Routledge.*

Gartstein, M. A., & Rothbart, M. K. (2003). Studying infant temperament via the revised infant behavior questionnaire. *Infant behavior and development*, 26(1), 64-86.

Garthus-Niegel, S., Horsch, A., von Soest, T., Haga, S. M., Drozd, F., Ayers, S., & Eberhard-Gran, M. (2020). Posttraumatic stress symptoms following childbirth: associations with prenatal attachment in subsequent pregnancies. *Archives of women's mental health*, 23(4), 547-555.

Garthus-Niegel, S., von Soest, T., Vollrath, M. E., & Eberhard-Gran, M. (2013). The impact of subjective birth experiences on post-traumatic stress symptoms: a longitudinal study. *Archives of women's mental health,* 16(1), 1-10.

Garza, M. A., Quinn, S. C., Li, Y., Assini-Meytin, L., Casper, E. T., Fryer, C. S., Butler, J., Brown, N. A., Kim, K. H., & Thomas, S. B. (2017). The influence of race and ethnicity on becoming a human subject: factors associated with participation in research. *Contemporary clinical trials communications*, 7, 57-63.

Gaston, L. (2015). Limitations of trauma-focused therapies for treating PTSD: A perspective. *Quebec, Canada: Traumatys. Retrieved from www. traumatys. com*.

Gelaye, B., Rondon, M. B., Araya, R., & Williams, M. A. (2016). Epidemiology of maternal depression, risk factors, and child outcomes in low-income and middle-income countries. *The Lancet Psychiatry*, *3*(10), 973-982.

Gelezelyte, O., Roberts, N. P., Kvedaraite, M., Bisson, J. I., Brewin, C. R., Cloitre, M., Kairyte, A., Karatzias, T., Shelvin, M., & Kazlauskas, E. (2022). Validation of the International Trauma Interview (ITI) for the Clinical Assessment of ICD-11 Posttraumatic Stress Disorder (PTSD) and Complex PTSD (CPTSD) in a Lithuanian Sample. *European journal of psychotraumatology*, 13(1), 2037905.

Gerber, M. R. (2019). Trauma-informed adult primary care. In *Trauma-Informed Healthcare Approaches* (pp. 125-143). Springer, Cham.

Gerdner, A., & Allgulander, C. (2009). Psychometric properties of the swedish version of the childhood trauma Questionnaire—Short form (CTQ-SF). *Nordic journal of psychiatry*, 63(2), 160-170.

Ghanbari-Homaie, S., Meedya, S., Mohammad-Alizadeh-Charandabi, S., Jafarabadi, M. A., Mohammadi, E., & Mirghafourvand, M. (2021). Recommendations for improving primiparous women's childbirth experience: results from a multiphase study in Iran. *Reproductive health,* 18(1), 1-13.

Gilbar, O. (2020). Examining the boundaries between ICD-11 PTSD/CPTSD and depression and anxiety symptoms: A network analysis perspective. *Journal of Affective Disorders*, *262*, 429-439.

Girme, Y. U., Jones, R. E., Fleck, C., Simpson, J. A., & Overall, N. C. (2021). Infants' attachment insecurity predicts attachment-relevant emotion regulation strategies in adulthood. *Emotion*, *21*(2), 260.

Giurgescu, C., Penckofer, S., Maurer, M. C., & Bryant, F. B. (2006). Impact of uncertainty, social support, and prenatal coping on the psychological well-being of high-risk pregnant women. *Nursing research*, *55*(5), 356-365.

Glaser, J. P., Van Os, J., Portegijs, P. J., & Myin-Germeys, I. (2006). Childhood trauma and emotional reactivity to daily life stress in adult frequent attenders of general practitioners. *Journal of psychosomatic research*, *61*(2), 229-236.

Glazer, K. B., Sofaer, S., Balbierz, A., Wang, E., & Howell, E. A. (2021). Perinatal care experiences among racially and ethnically diverse mothers whose infants required a NICU stay. *Journal of Perinatology*, 41(3), 413-421.

Gokhale, P., Young, M. R., Williams, M. N., Reid, S. N., Tom, L. S., O'Brian, C. A., & Simon, M. A. (2020). Refining trauma-informed perinatal care for urban prenatal care patients with multiple lifetime traumatic exposures: A qualitative study. *Journal of Midwifery & Women's Health*, *65*(2), 224-230.

Goldenberg, R. L., Culhane, J. F., Iams, J. D., & Romero, R. (2008). Epidemiology and causes of preterm birth. *The lancet*, 371(9606), 75-84.

Goldsmith, R. E., Freyd, J. J., & DePrince, A. P. (2012). Betrayal trauma: Associations with psychological and physical symptoms in young adults. *Journal of Interpersonal Violence*, 27, 547–567.

Goodman, J. H. (2019). Perinatal depression and infant mental health. *Archives of psychiatric nursing*, *33*(3), 217-224.

Gordon, A. C., Lehane, D., Burr, J., & Mitchell, C. (2019). Influence of past trauma and health interactions on homeless women's views of perinatal care: a qualitative study. *British Journal of General Practice*, *69*(688), e760-e767.

Gratz, K. L., & Roemer, L. (2004). Multidimensional assessment of emotion regulation and dysregulation: Development, factor structure, and initial validation of the difficulties in emotion regulation scale. *Journal of psychopathology and behavioral assessment*, 26, 41-54.

Gray, M. J., Litz, B. T., Hsu, J. L., & Lombardo, T. W. (2004). Psychometric properties of the life events checklist. *Assessment*, 11(4), 330-341.

Green, S. M., Donegan, E., McCabe, R. E., Streiner, D. L., Agako, A., & Frey, B. N. (2020). Cognitive behavioral therapy for perinatal anxiety: A randomized controlled trial. *Australian & New Zealand Journal of Psychiatry*, *54*(4), 423-432.

Gribble, K. D., Bewley, S., Bartick, M. C., Mathisen, R., Walker, S., Gamble, J., Bergman, N. J., Gupta, A., Hocking, J. J., & Dahlen, H. G. (2022). Effective communication about pregnancy, birth, lactation, breastfeeding and newborn care: the importance of sexed language. *Frontiers in global women's health*, 3.

Grigoriadis, S., VonderPorten, E. H., Mamisashvili, L., Tomlinson, G., Dennis, C. L., Koren, G., Steiner, M., Mousmanis, P., Cheung, A., Radford, K., Martinovic, J., & Ross, L. E., (2013). The impact of maternal depression during pregnancy on perinatal outcomes: a systematic review and meta-analysis. *The Journal of clinical psychiatry*.

Grolleman, J. F., Gravesteijn, C., & Hoffenaar, P. J. (2022). Trajectories of Change in Parental Self-Esteem and Emotion Regulation from Pregnancy until 4 Years Postpartum. *Journal of Child and Family Studies*, 1-14.

Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348–362.

Grøtan, K., Sund, E. R., & Bjerkeset, O. (2019). Mental health, academic self-efficacy and study progress among college students–The SHoT study, Norway. *Frontiers in psychology*, *10*, 45.

Gruhn, M. A., & Compas, B. E. (2020). Effects of maltreatment on coping and emotion regulation in childhood and adolescence: A meta-analytic review. *Child abuse & neglect*, *103*, 104446.

Gualtieri, G., Ferretti, F., Masti, A., Pozza, A., & Coluccia, A. (2020). Post-traumatic Stress Disorder in Prisoners' Offspring: A Systematic Review and Meta-analysis. *Clinical Practice and Epidemiology in Mental Health: CP & EMH*, *16*, 36.

Gunduz, A., Yasar, A. B., Gundogmus, I., Savran, C., & Konuk, E. (2018). Adverse childhood events Turkish form: validity and reliability study/cocukluk cagi olumsuz yasantilar olcegi turkce formunun gecerlilik ve guvenilirlik calismasi. *Anadolu Psikiyatri Dergisi*, 19(S1), 68-76.

Guo, T., Xiang, Y. T., Xiao, L., Hu, T. Q., Chiu, H. F. K., Ungvari, G. S., Correll, C. U., Lai K. Y. C., Feng, L., Geng, Y., Feng, Y., & Wang, G., (2015). Measurement based care versus standard care for major depression: a randomized controlled trial with blind raters. *American Journal of Psychiatry*; 172: 1004–13

Gürber, S., Baumeler, L., Grob, A., Surbek, D., & Stadlmayr, W. (2017). Antenatal depressive symptoms and subjective birth experience in association with postpartum depressive symptoms and

acute stress reaction in mothers and fathers: A longitudinal path analysis. *European journal of obstetrics & gynecology and reproductive biology,* 215, 68-74.

Guyer, A. E., Kaufman, J., Hodgdon, H. B., Masten, C. L., Jazbec, S., Pine, D. S., & Ernst, M. (2006). Behavioral alterations in reward system function: the role of childhood maltreatment and psychopathology. *Journal of the American Academy of Child & Adolescent Psychiatry*, *45*(9), 1059-1067.

Guyon-Harris, K. L., Madigan, S., Bronfman, E., Romero, G., & Huth-Bocks, A. C. (2020). Prenatal identification of risk for later disrupted parenting behavior using latent profiles of childhood maltreatment. *Journal of Interpersonal Violence*.

Gyarmati, Béla, Péter Nagy, and János Tiba. 2009. A császármetszések gyakoriságának változása és néhány feltételezett ok elemzése az Uzsoki utcai kórházban 1999. január 1. és 2009. június 30. között [The causes of increasing CS rate in Uzsoki Central Hospital, Budapest: Findings for the period between 1 January 1999 and 30 June 2009]. *Magyar N˝oorvosok Lapja* 72: 269–72.

Gyarmati, Béla. 2010. A császármetszés növekv˝o arányának orvosi és társadalmi okai. PhD-értekezés [Medical and Social Reasons for Increasing CS Rates]. Ph.D. dissertation, *Pécsi Tudományegyetem Egészségtudományi Kar Egészség-tudományi Doktori Iskola, Pécs, Hungary*.

Haim-Nachum, S., & Levy-Gigi, E. (2021). The tension between cognitive and regulatory flexibility and their associations with current and lifetime PTSD symptoms. *Frontiers in psychology*, *12*, 615289.

Hakanen, H., Flykt, M., Sinervä, E., Nolvi, S., Kataja, E. L., Pelto, J., Karlsson, H., Karlssob, L., & Korja, R. (2019). How maternal pre-and postnatal symptoms of depression and anxiety affect early mother-infant interaction? *Journal of affective disorders*, *257*, 83-90.

Halbert C. H., Armstrong K., Gandy O. H. Jr, Shaker L. (2006). Racial differences in trust in health care providers. *Arch Intern Med*; 166(8):896–901.

Hale, D. R., Bevilacqua, L., & Viner, R. M. (2015). Adolescent health and adult education and employment: a systematic review. *Pediatrics*, *136*(1), 128-140.

Hamann, J., Mendel, R., & Cohen, R. (2009). Self-reported use of shared decision making among psychiatrists in the treatment of schizophrenia. Influence of patient characteristics and decision topics. *Psychiatr Serv,* 60, 1107-1112.

Hamblen, J. L., Norman, S. B., Sonis, J., Phelps, A., Bisson, J., Nunes, V., Megnin-Viggards, O., Forbes, D., Riggs, D. S., Schnurr, P. P., (2019). A guide to guidelines for the treatment of posttraumatic stress disorder in adults: an update. *Psychotherapy*; 56: 359–73.

Hamilton, B. E., Martin, J. A., & Osterman, M. J. (2021). Births: provisional data for 2020.

Hardcastle, K., Bellis, M. A., Ford, K., Hughes, K., Garner, J., & Rodriguez, G. R. (2018). Measuring the relationships between adverse childhood experiences and educational and employment success in England and Wales: findings from a retrospective study. *Public health*, *165*, 106-116.

Harding, D. J. (2003). Counterfactual models of neighborhood effects: The effect of neighborhood poverty on dropping out and teenage pregnancy. *American journal of Sociology*, *109*(3), 676-719.

Hardner, K., Wolf, M. R., & Rinfrette, E. S. (2018). Examining the relationship between higher educational attainment, trauma symptoms, and internalizing behaviors in child sexual abuse survivors. *Child abuse & neglect*, *86*, 375-383.

Hardt, J., & Rutter, M. (2004). Validity of adult retrospective reports of adverse childhood experiences: review of the evidence. *Journal of child psychology and psychiatry*, *45*(2), 260-273.

Haskett, M. E., Ahern, L. S., Ward, C. S., & Allaire, J. C. (2006). Factor structure and validity of the parenting stress index-short form. *Journal of Clinical Child & Adolescent Psychology*, 35(2), 302-312.

Hassanzadeh, R., Abbas-Alizadeh, F., Meedya, S., Mohammad-Alizadeh-Charandabi, S., & Mirghafourvand, M. (2019). Assessment of childbirth preparation classes: a parallel convergent mixed study. *Reproductive health,* 16(1), 1-7.

Hayatbakhsh, M. R., Najman, J. M., Bor, W., O'Callaghan, M. J., & Williams, G. M. (2009). Multiple risk factor model predicting cannabis use and use disorders: a longitudinal study. *The American journal of drug and alcohol abuse*, *35*(6), 399-407.

Hayre, R. S., Goulter, N., & Moretti, M. M. (2019). Maltreatment, attachment, and substance use in adolescence: direct and indirect pathways. *Addictive behaviors*, *90*, 196-203.

Hazell Raine, K., Nath, S., Howard, L. M., Cockshaw, W., Boyce, P., Sawyer, E., & Thorpe, K. (2020). Associations between prenatal maternal mental health indices and mother–infant relationship quality 6 to 18 months' postpartum: A systematic review. *Infant mental health journal*, *41*(1), 24-39.

Hébert, M., Langevin, R., & Oussaïd, E. (2018). Cumulative childhood trauma, emotion regulation, dissociation, and behavior problems in school-aged sexual abuse victims. *Journal of affective disorders*, *225*, 306-312.

Heim, E., Karatzias, T., & Maercker, A. (2022). Cultural concepts of distress and complex PTSD: Future directions for research and treatment. *Clinical Psychology Review*, *93*, 102143.

Heimstad, R., Dahloe, R., Laache, I., Skogvoll, E., & Schei, B. (2006). Fear of childbirth and history of abuse: implications for pregnancy and delivery. *Acta obstetricia et gynecologica Scandinavica*, 85(4), 435-440.

Heleniak, C., Jenness, J. L., Vander Stoep, A., McCauley, E., & McLaughlin, K. A. (2016). Childhood maltreatment exposure and disruptions in emotion regulation: A transdiagnostic pathway to adolescent internalizing and externalizing psychopathology. *Cognitive therapy and research*, *40*(3), 394-415.

Heritage, C. (1998). Working with childhood sexual abuse survivors during pregnancy, labor, and birth. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 27(6), 671-677.

Herts, K. L., McLaughlin, K. A., & Hatzenbuehler, M. L. (2012). Emotion dysregulation as a mechanism linking stress exposure to adolescent aggressive behaviour. *Journal of Abnormal Child Psychology,* 40(7), 1111–1122.

Hildingsson, I., Karlström, A., & Larsson, B. (2021). Childbirth experience in women participating in a continuity of midwifery care project. *Women and Birth*, 34(3), e255-e261.

Ho, G. W., Karatzias, T., Cloitre, M., Chan, A. C., Bressington, D., Chien, W. T., Hyland, P., & Shevlin, M. (2019). Translation and validation of the Chinese ICD-11 international trauma questionnaire (ITQ) for the assessment of posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD). *European Journal of Psychotraumatology,* 10(1), 1608718.

Hodnett, E. D. (2002). Pain and women's satisfaction with the experience of childbirth: a systematic review. *American journal of obstetrics and gynecology*, 186(5), S160-S172.

Hoffman, C., Dunn, D. M., & Njoroge, W. F. (2017). Impact of postpartum mental illness upon infant development. *Current Psychiatry Reports*, 19(12), 100.

Hofmarcher, T. (2021). The effect of education on poverty: A European perspective. *Economics of Education Review*, *83*, 102124.

Högberg, B., Voßemer, J., Gebel, M., & Strandh, M. (2019). Unemployment, well-being, and the moderating role of education policies: A multilevel study. *International Journal of Comparative Sociology*, *60*(4), 269-291.

Hogg, S. (2013). Prevention in mind. *All babies count: spotlight on perinatal mental health. London: NSPCC, Cruelty to Children Must Stop*.

Hooper, L. M., Stockton, P., Krupnick, J. L., & Green, B. L. (2011). Development, use, and psychometric properties of the Trauma History Questionnaire. *Journal of Loss and Trauma*, 16(3), 258-283.

Hopkins, T., & Hellberg, S. N. (2021). Trauma and PTSD in the Perinatal Period. In *Women's Mood Disorders* (pp. 191-229). Springer, Cham.

Horner, S., Zhang, A., & Furlong, M. (2018). The Impact of higher education on unemployment.

Hoskins, M. D., Sinnerton, R., Nakamura, A., Underwood, J. F., Slater, A., Lewis, C., Roberts, N. P., Bisson, J. I., Lee, M., & Clarke, L. (2021). Pharmacological-assisted Psychotherapy for Post Traumatic Stress Disorder: a systematic review and meta-analysis. *European Journal of Psychotraumatology,* 12(1), 1853379.

Hosmer Jr, D. W., Lemeshow, S., & Sturdivant, R. X. (2013). *Applied logistic regression* (Vol. 398). John Wiley & Sons.

Houtepen, L. C., Heron, J., Suderman, M. J., Fraser, A., Chittleborough, C. R., & Howe, L. D. (2020). Associations of adverse childhood experiences with educational attainment and adolescent health and the role of family and socioeconomic factors: a prospective cohort study in the UK. *PLoS medicine*, *17*(3), e1003031.

Houtepen, L. C., Heron, J., Suderman, M. J., Tilling, K., & Howe, L. D. (2018). Adverse childhood experiences in the children of the Avon Longitudinal Study of Parents and Children (ALSPAC). *Wellcome open research*, 3.

Howard, L. M., & Khalifeh, H. (2020). Perinatal mental health: a review of progress and challenges. *World Psychiatry*, *19*(3), 313-327.

Howard, L. M., Molyneaux, E., Dennis, C. L., Rochat, T., Stein, A., & Milgrom, J. (2014). Non-psychotic mental disorders in the perinatal period. *The Lancet*, *384*(9956), 1775-1788.

Howard, L. M., Oram, S., Galley, H., Trevillion, K., & Feder, G. (2013). Domestic violence and perinatal mental disorders: a systematic review and meta-analysis. *PLoS medicine*, *10*(5), e1001452.

Howell, E. A., Egorova, N. N., Balbierz, A., Zeitlin, J., & Hebert, P. L. (2016). Site of delivery contribution to black-white severe maternal morbidity disparity. *American journal of obstetrics and gynecology,* 215(2), 143-152.

Howell, E. A., Egorova, N. N., Janevic, T., Balbierz, M. A., Zeitlin, J., & Hebert, P. L. (2017). Severe maternal morbidity among Hispanic women in New York City: investigation of health disparities. *Obstetrics and gynecology,* 129(2), 285.

Howell, E. A., Egorova, N. N., Janevic, T., Brodman, M., Balbierz, A., Zeitlin, J., & Hebert, P. L. (2020). Race and ethnicity, medical insurance, and within-hospital severe maternal morbidity disparities. *Obstetrics and gynecology,* 135(2), 285.

Huang, L., Zhao, Y., Qiang, C., & Fan, B. (2018). Is cognitive behavioral therapy a better choice for women with postnatal depression? A systematic review and meta-analysis. *PLoS One*, 13(10), e0205243.

Hudak, N. C., & Carmack, H. J. (2018). Waiting for the doctor to ask: influencers of lesbian, gay, and bisexual identity disclosure to healthcare providers. *Qualitative Research in Medicine and Healthcare,* 2(1).

Huizink, A. C., Delforterie, M. J., Scheinin, N. M., Tolvanen, M., Karlsson, L., & Karlsson, H. (2016). Adaption of pregnancy anxiety questionnaire–revised for all pregnant women regardless of parity: PRAQ-R2. *Archives of women's mental health*, 19, 125-132.

Humphreys, K. L., LeMoult, J., Wear, J. G., Piersiak, H. A., Lee, A., & Gotlib, I. H. (2020). Child maltreatment and depression: A meta-analysis of studies using the Childhood Trauma Questionnaire. *Child abuse & neglect*, *102*, 104361.

Hunter, A. L., Minnis, H., & Wilson, P. (2011). Altered stress responses in children exposed to early adversity: a systematic review of salivary cortisol studies. *Stress*, 14(6), 614-626.

Hyland, P., Karatzias, T., Shevlin, M., & Cloitre, M. (2019). Examining the discriminant validity of complex posttraumatic stress disorder and borderline personality disorder symptoms: Results from a United Kingdom population sample. *Journal of Traumatic Stress*, 32(6), 855-863.

Hyland, P., Murphy, J., Shevlin, M., Vallières, F., McElroy, E., Elklit, A., Christofersen, M., & Cloitre, M. (2017). Variation in post-traumatic response: The role of trauma type in predicting ICD-11 PTSD and CPTSD symptoms. *Social Psychiatry and Psychiatric Epidemiology*, 52(6), 727-736.

Hyland, P., Shevlin, M., Brewin, C. R., Cloitre, M., Downes, A. J., Jumbe, S., Karatzias, T, Bisson J. I., & Roberts, N. P. (2017). Validation of post-traumatic stress disorder (PTSD) and complex PTSD using the International Trauma Questionnaire. *Acta Psychiatrica Scandinavica*, 136(3), 313-322.

Hyland, P., Shevlin, M., Brewin, C. R., Cloitre, M., Downes, A. J., Jumbe, S., Karatzias, T., Bisson J. I., & Roberts, N. P. (2017). Validation of post-traumatic stress disorder (PTSD) and complex PTSD using the International Trauma Questionnaire. *Acta Psychiatrica Scandinavica*, 136(3), 313–322.

Hyland, P., Vallières, F., Cloitre, M., Ben-Ezra, M., Karatzias, T., Olff, M., Murphy, J., & Shevlin, M. (2021). Trauma, PTSD, and complex PTSD in the Republic of Ireland: prevalence, service use, comorbidity, and risk factors. *Social Psychiatry and Psychiatric Epidemiology*, *56*(4), 649-658.

ICD-11 release (2018, June 18). Retrieved October 20, 2020 from https://www.who.int/news/item/17-06-2018-who-releases-new-international-classification-of-diseases-(icd-11)

Ikin, J. F., Creamer, M. C., Sim, M. R., & McKenzie, D. P. (2010). Comorbidity of PTSD and depression in Korean War veterans: Prevalence, predictors, and impairment. *Journal of affective disorders*, *125*(1-3), 279-286.

Imperatori, C., Innamorati, M., Lamis, D. A., Farina, B., Pompili, M., Contardi, A., & Fabbricatore, M. (2016). Childhood trauma in obese and overweight women with food addiction and clinical-level of binge eating. *Child abuse & neglect*, *58*, 180-190.

Inanir, S., Cakmak, B., Nacar, M. C., Guler, A. E., & Inanir, A. (2015). Body Image perception and self-esteem during pregnancy.

Infant, Newborn. (2018, November). Retrieved December 17, 2019, from https://www.who.int/infant-newborn/en/

Iob, E., Lacey, R., & Steptoe, A. (2020). The long-term association of adverse childhood experiences with C-reactive protein and hair cortisol: cumulative risk versus dimensions of adversity. *Brain, behavior, and immunity*, 87, 318-328.

Iobst, S. E., Bingham, D., Storr, C. L., Zhu, S., & Johantgen, M. (2020). Associations among intrapartum interventions and cesarean birth in low-risk nulliparous women with spontaneous onset of labor. *Journal of Midwifery & Women's Health*, 65(1), 142-148.

Jacobs, M. B., Boynton-Jarrett, R. D., & Harville, E. W. (2015). Adverse childhood event experiences, fertility difficulties and menstrual cycle characteristics. *Journal of Psychosomatic Obstetrics & Gynecology*, *36*(2), 46-57.

Janevic, T., Egorova, N. N., Zeitlin, J., Balbierz, A., Hebert, P. L., & Howell, E. A. (2018). Examining trends in obstetric quality measures for monitoring health care disparities. *Medical care,* 56(6), 470.

Janevic, T., Piverger, N., Afzal, O., & Howell, E. A. (2020). "Just because you have ears doesn't mean you can hear"—Perception of racial-ethnic discrimination during childbirth. *Ethnicity & Disease,* 30(4), 533.

Jardine, J., Walker, K., Gurol-Urganci, I., Webster, K., Muller, P., Hawdon, J., Khalil, A., Harris, T., van der Meulen, J., & Team, P. A. P. (2021). Adverse pregnancy outcomes attributable to socioeconomic and ethnic inequalities in England: a national cohort study. *The Lancet*, *398*(10314), 1905-1912.

Jennings, K. S., Cheung, J. H., Britt, T. W., Goguen, K. N., Jeffirs, S. M., Peasley, A. L., & Lee, A. C. (2015). How are perceived stigma, self-stigma, and self-reliance related to treatment-seeking? A three-path model. *Psychiatric Rehabilitation Journal,* 38(2), 109.

Johnson, C. D., Jones, S., & Paranjothy, S. (2017). Reducing low birth weight: prioritizing action to address modifiable risk factors. *Journal of Public Health*, *39*(1), 122-131.

Johnson, J. D., Asiodu, I. V., McKenzie, C. P., Tucker, C., Tully, K. P., Bryant, K., Verbiest, S., & Stuebe, A. M. (2019). Racial and ethnic inequities in postpartum pain evaluation and management. *Obstetrics & Gynecology*, 134(6), 1155-1162.

Joint Formulary Committee (2019). BNF: British National Formulary No. 78: September 2019–March 2020. Royal Pharmaceutical Society.

Jones, I., Chandra, P. S., Dazzan, P., & Howard, L. M. (2014). Bipolar disorder, affective psychosis, and schizophrenia in pregnancy and the post-partum period. *The Lancet*, *384*(9956), 1789-1799.

Jones, S., Cymru, M., & O'Leary, S. (2018). From bumps to babies: perinatal mental health care in Wales.

Jones, T. M., Nurius, P., Song, C., & Fleming, C. M. (2018). Modeling life course pathways from adverse childhood experiences to adult mental health. *Child abuse & neglect*, 80, 32-40.

Jovev, M., Djaja, D., McDougall, E., Yuen, H. P., Rawlings, D., & Jackson, H. J. (2008). Screening for borderline personality disorder in outpatient youth. *Journal of personality disorders*, 22(4), 353.

Jowett, S., Karatzias, T., Shevlin, M., & Albert, I. (2020). Differentiating symptom profiles of ICD-11 PTSD, complex PTSD, and borderline personality disorder: A latent class analysis in a multiply traumatized sample. *Personality Disorders: theory, research, and treatment*, *11*(1), 36.

Ju, S., & Lee, Y. (2018). Developmental trajectories and longitudinal mediation effects of self-esteem, peer attachment, child maltreatment and depression on early adolescents. *Child abuse & neglect*, *76*, 353-363.

Julian, P. T., Higgins, S. G., & Green, S. (2011). Cochrane handbook for systematic reviews of interventions. *The Cochrane Collaboration*.

Juul, S. H., Hendrix, C., Robinson, B., Stowe, Z. N., Newport, D. J., Brennan, P. A., & Johnson, K. C. (2016). Maternal early-life trauma and affective parenting style: the mediating role of HPA-axis function. *Archives of Women's Mental Health*, *19*(1), 17-23.

Kara, P., Nazik, E., Nazik, H., & Özer, D. (2021). Post-Traumatic Stress Disorder and Affecting Factors in Pregnant Women in the COVID-19 Pandemic. *Psychiatria Danubina*, *33*(2), 231-239.

Karatekin, C. (2018). Adverse childhood experiences (ACEs), stress and mental health in college students. *Stress and Health*, *34*(1), 36-45.

Karatzias, T., Hyland, P., Bradley, A., Cloitre, M., Roberts, N. P., Bisson, J. I., & Shevlin, M. (2019). Risk factors and comorbidity of ICD-11 PTSD and complex PTSD: Findings from a trauma-exposed population based sample of adults in the United Kingdom. *Depression and anxiety*, *36*(9), 887-894.

Karatzias, T., Murphy, P., Cloitre, M., Bisson, J., Roberts, N., Shevlin, M., Hyland, P., Maercker, A., Ben-Ezra, M., Coventry, P., Bradley, A., Hutton, P., & Mason-Roberts, S. (2019). Psychological interventions for ICD-11 complex PTSD symptoms: Systematic review and meta-analysis. *Psychological medicine*, 49(11), 1761-1775.

Karatzias, T., Shevlin, M., Ford, J. D., Fyvie, C., Grandison, G., Hyland, P., & Cloitre, M. (2021). Childhood trauma, attachment orientation, and complex PTSD (CPTSD) symptoms in a clinical sample: Implications for treatment. *Development and Psychopathology*, 1-6.

Karatzias, T., Shevlin, M., Fyvie, C., Hyland, P., Efthymiadou, E., Wilson, D., Roberts, N., Bisson, J. I., Brewin, C. R., & Cloitre, M. (2017). Evidence of distinct profiles of posttraumatic stress

disorder (PTSD) and complex posttraumatic stress disorder (CPTSD) based on the new ICD-11 trauma questionnaire (ICD-TQ). *Journal of Affective Disorders*, 207, 181-187.

Karatzias, T., Shevlin, M., Fyvie, C., Hyland, P., Efthymiadou, E., Wilson, D., Roberts, N., Bisson, J. I., Brewin, C. R., & Cloitre, M. (2016). An initial psychometric assessment of an ICD-11 based measure of PTSD and complex PTSD (ICD-TQ): Evidence of construct validity. *Journal of Anxiety Disorders,* 44, 73-79.

Karatzias, T., Shevlin, M., Hyland, P., Fyvie, C., Roberts, N., Bisson, J. I., Brewin, C. R., Jumbe, S., Downes, A., & Cloitre, M. (2017). Measuring PTSD and CPTSD Using the Newly Developed ICD-TQ: Reliability & Validity in Two UK Samples.

Kazlauskas, E., Gegieckaite, G., Hyland, P., Zelviene, P., & Cloitre, M. (2018). The structure of ICD-11 PTSD and complex PTSD in Lithuanian mental health services. *European journal of psychotraumatology,* 9(1), 1414559.

Kempke, S., Luyten, P., Claes, S., Van Wambeke, P., Bekaert, P., Goossens, L., & Van Houdenhove, B. (2013). The prevalence and impact of early childhood trauma in Chronic Fatigue Syndrome. *Journal of psychiatric research*, *47*(5), 664-669.

Kendall-Tackett, K. A. (2000). Physiological correlates of childhood abuse: Chronic hyperarousal in PTSD, depression, and irritable bowel syndrome. *Child Abuse & Neglect*, 24, 799–810.

Kendler, K. S., Ohlsson, H., Sundquist, J., & Sundquist, K. (2018). Transmission of alcohol use disorder across three generations: a Swedish National Study. *Psychological Medicine*, *48*(1), 33-42.

Keren, M., & Tyano, S. (2019). The Impact of Trauma on the Fetus, the Infant, and the Child. In *An International Perspective on Disasters and Children's Mental Health* (pp. 3-20). Springer, Cham.

Kessler R.C., & Ustun T.B., (2004) The world mental health (WMH) survey initiative version of the World Health Organization (WHO) composite international diagnostic interview (CIDI). *International Journal of Methods Psychiatric Resources* 13(2):93–121

Keswani, M., Nemcek, S., & Rashid, N. (2021). Is it bipolar disorder, or a complex form of PTSD?. *Current Psychiatry*, *20*(12), 42-50.

Khan, A., McCormack, H. C., Bolger, E. A., McGreenery, C. E., Vitaliano, G., Polcari, A., & Teicher, M. H. (2015). Childhood maltreatment, depression, and suicidal ideation: critical importance of parental and peer emotional abuse during developmental sensitive periods in males and females. *Frontiers in Psychiatry*, *6*, 42.

Khanlari, S., Barnett AM, B., Ogbo, F. A., & Eastwood, J. (2019). Re-examination of perinatal mental health policy frameworks for women signalling distress on the Edinburgh Postnatal Depression Scale (EPDS) completed during their antenatal booking-in consultation: a call for population health intervention. *BMC Pregnancy and Childbirth*, 19(1), 1-11.

Khashan, A. S., Baker, P. N., & Kenny, L. C. (2010). Preterm birth and reduced birthweight in first and second teenage pregnancies: a register-based cohort study. *BMC pregnancy and childbirth*, *10*(1), 36.Lacey, R. E., Howe, L. D., Kelly-Irving, M., Bartley, M., & Kelly, Y. (2020). The clustering of adverse childhood experiences in the Avon Longitudinal Study of Parents and Children: are gender and poverty important? *Journal of interpersonal violence*, 0886260520935096.

Kim, P. (2021). How stress can influence brain adaptations to motherhood. *Frontiers in Neuroendocrinology*, *60*, 100875.

Kim, S., & Strathearn, L. (2016). Oxytocin and maternal brain plasticity. *New Directions for Child and Adolescent Development*, *2016*(153), 59-72.

Kim-Cohen, J., Moffitt, T. E., Taylor, A., Pawlby, S. J., & Caspi, A. (2005). Maternal depression and children's antisocial behavior: nature and nurture effects. *Archives of general psychiatry*, *62*(2), 173-181.

Klest, B. (2012). Childhood trauma, poverty, and adult victimization. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*(3), 245.

Koball, A. M., Domoff, S. E., Klevan, J., Olson-Dorff, D., Borgert, A., & Rasmussen, C. (2021). The impact of adverse childhood experiences on healthcare utilization in children. *Child Abuse & Neglect,* 111, 104797.

Koenig, A. M., Gao, W., Umlauft, M., Schury, K., Reister, F., Kirschbaum, C., Karabatsiakis, A., & Kolassa, I. T. (2018). Altered hair endocannabinoid levels in mothers with childhood maltreatment and their newborns. *Biological Psychology*, *135*, 93-101.

Kohlhoff, J., Eapen, V., Dadds, M., Khan, F., Silove, D., & Barnett, B. (2017). Oxytocin in the postnatal period: Associations with attachment and maternal caregiving. *Comprehensive Psychiatry*, *76*, 56-68.

Kolb, B., & Gibb, R. (2014). Searching for the principles of brain plasticity and behavior. *Cortex*, *58*, 251-260.

Kong, J. (2018). Childhood maltreatment and psychological well-being in later life: The mediating effect of contemporary relationships with the abusive parent. *The Journals of Gerontology: Series B*, *73*(5), e39-e48.

Kristman-Valente, A. N., Brown, E. C., & Herrenkohl, T. I. (2013). Child physical and sexual abuse and cigarette smoking in adolescence and adulthood. *Journal of Adolescent Health*, *53*(4), 533-538.

Krogh, L. Q., Boie, S., Henriksen, T. B., Thornton, J., Fuglsang, J., & Glavind, J. (2022). Induction of labour at 39 weeks versus expectant management in low-risk obese women: study protocol for a randomised controlled study. *BMJ open*, 12(4), e057688.

Krzewska, I., & Dolińska-Zygmunt, G. (2013). Sense of body boundaries survey–construction and psychometric values. *Polish Journal of Applied Psychology*, 11(3), 93-110.

Kubany, E. S., Leisen, M. B., Kaplan, A. S., Watson, S. B., Haynes, S. N., Owens, J. A., & Burns, K. (2000). Development and preliminary validation of a brief broad-spectrum measure of trauma exposure: the Traumatic Life Events Questionnaire. *Psychological assessment*, 12(2), 210.

Kuhlman, K. R., Horn, S. R., Chiang, J. J., & Bower, J. E. (2020). Early life adversity exposure and circulating markers of inflammation in children and adolescents: A systematic review and meta-analysis. Brain, behavior, and immunity, 86, 30-42.

Kuzma, E. K., Pardee, M., & Morgan, A. (2020). Implementing patient-centered trauma-informed care for the perinatal nurse. *The Journal of Perinatal & Neonatal Nursing*, *34*(4), E23-E31.

Kwok, J., Hall, H. A., Murray, A. L., Lombardo, M. V., & Auyeung, B. (2022). Associations between maternal infections during pregnancy and childhood IQ scores using the ALSPAC birth cohort. *medRxiv.*

Lacey, R. E., & Minnis, H. (2020). Practitioner review: twenty years of research with adverse childhood experience scores–advantages, disadvantages and applications to practice. *Journal of Child Psychology and Psychiatry*, *61*(2), 116-130.

Lager, A. C. J., & Torssander, J. (2012). Causal effect of education on mortality in a quasi-experiment on 1.2 million Swedes. *Proceedings of the National Academy of Sciences*, *109*(22), 8461-8466.

Laisk, T., Soares, A. L. G., Ferreira, T., Painter, J. N., Censin, J. C., Laber, S., Bacelis, J., Chen, C-Y., Lepamets, M., Lin, K., Liu, S., Millwood, I. Y., Ramu, A., Southcombe, J., Andersen, M. S., Yang, L., Becker, C. M., Børglum, A. D., Gordon, S. D., Bybjerg-Grauholm, J., Helgeland, Ø., Hougaard, D, M.,

Jin, X., Johansson, S., Juodakis, J., Kartsonaki, C., Kukushkina, V., Lind, P. A., Metspalu, A., Montgomery, G. W., Morris, A. P., Mors, O., Mortensen, P. B., Njølstad, P.R., Nordentoft, M., Nyholt, D. R., Lippincott, M., Seminara, S., Salumets, A., Snieder, H., Zondervan, K., Werge, T., Chen, Z., Conrad, D. F., Jacobsson, B., Li, L., Martin, N. G., Neale, B. M., Nielsen, R., Walters, R. G,., Granne, I., Medland, S. E., Mägi, R., Lawlor, D. A., & Lindgren, C. M. (2020). The genetic architecture of sporadic and multiple consecutive miscarriage. *Nature communications,* 11(1), 1-12.

Lang, A. J., Gartstein, M. A., Rodgers, C. S., & Lebeck, M. M. (2010). The impact of maternal childhood abuse on parenting and infant temperament. *Journal of Child and Adolescent Psychiatric Nursing*, *23*(2), 100-110.

Langtry, J., Owczarek, M., McAteer, D., Taggart, L., Gleeson, C., Walshe, C., & Shevlin, M. (2021). Predictors of PTSD and CPTSD in UK firefighters. *European Journal of Psychotraumatology*, 12(1), 1849524.

Lara, M. A., Navarrete, L., Nieto, L., & Le, H. N. (2015). Childhood abuse increases the risk of depressive and anxiety symptoms and history of suicidal behavior in Mexican pregnant women. *Brazilian Journal of Psychiatry*, *37*(3), 203-210.

Laursen, L., Hebert, L., Newton, S., Norcott, C., & Gilliam, M. (2020). Community violence exposure and adolescent pregnancy in Chicago. *Journal of interpersonal violence*, 0886260520917509.

Laursen, M., Hedegaard, M., & Johansen, C. (2008). Fear of childbirth: predictors and temporal changes among nulliparous women in the Danish National Birth Cohort. BJOG: *An International Journal of Obstetrics & Gynaecology*, 115(3), 354-360.

Lawn, J. E., Gravett, M. G., Nunes, T. M., Rubens, C. E., & Stanton, C. (2010). Global report on preterm birth and stillbirth (1 of 7): definitions, description of the burden and opportunities to improve data. *BMC pregnancy and childbirth*, *10*(1), 1-22.

Lawn, R. B., Anderson, E. L., Suderman, M., Simpkin, A. J., Gaunt, T. R., Teschendorff, A. E., Widschwendter, M., Hardy, R., Kuh, D., Relton, C., & Howe, L. D. (2018). Psychosocial adversity and socioeconomic position during childhood and epigenetic age: analysis of two prospective cohort studies. *Human molecular genetics*, *27*(7), 1301-1308.

Lederman, R. Weis. K.(2009). Psychosocial adaptation to pregnancy: Seven dimensions of maternal role development. *Psychosocial adaptation to pregnancy*, 1-38.

Lee, H. E., Ermakova, T., Ververis, V., & Fabian, B. (2020). Detecting child sexual abuse material: A comprehensive survey. *Forensic Science International: Digital Investigation*, *34*, 301022.

Lee, H. Y., Kim, I., Nam, S., & Jeong, J. (2020). Adverse childhood experiences and the associations with depression and anxiety in adolescents. *Children and youth services review*, 111, 104850.

Lee, H., Kim, Y., & Terry, J. (2020). Adverse childhood experiences (ACEs) on mental disorders in young adulthood: Latent classes and community violence exposure. *Preventive medicine*, *134*, 106039.

Lee, S. A. (2018). Parental divorce, relationships with fathers and mothers, and children's romantic relationships in young adulthood. *Journal of Adult Development*, 25(2), 121-134.

Leeners, B., Görres, G., Block, E., & Hengartner, M. P. (2016). Birth experiences in adult women with a history of childhood sexual abuse. *Journal of psychosomatic research*, *83*, 27-32.

Leeners, B., Rath, W., Block, E., Görres, G., & Tschudin, S. (2014). Risk factors for unfavorable pregnancy outcome in women with adverse childhood experiences. *Journal of Perinatal Medicine*, *42*(2), 171-178.

Leeners, B., Richter-Appelt, H., Imthurn, B., & Rath, W. (2006). Influence of childhood sexual abuse on pregnancy, delivery, and the early postpartum period in adult women. *Journal of psychosomatic research,* 61(2), 139-151.

Leeners, B., Stiller, R., Block, E., Görres, G., Imthurn, B., & Rath, W. (2007). Effect of childhood sexual abuse on gynecologic care as an adult. *Psychosomatics*, *48*(5), 385-393.

Leeners, B., Stiller, R., Neumaier-Wagner, P., Kuse, S., Schmitt, A., & Rath, W. (2008). Psychosocial distress associated with treatment of hypertensive diseases in pregnancy. *Psychosomatics*, *49*(5), 413-419.

Leffert, L. R., Clancy, C. R., Bateman, B. T., Bryant, A. S., & Kuklina, E. V. (2015). Hypertensive disorders and pregnancy-related stroke: frequency, trends, risk factors, and outcomes. *Obstetrics and gynecology*, *125*(1), 124.

Leppälahti, S., Gissler, M., Mentula, M., & Heikinheimo, O. (2013). Is teenage pregnancy an obstetric risk in a welfare society? A population-based study in Finland, from 2006 to 2011. *BMJ open*, *3*(8).

Letica-Crepulja, M., Stevanović, A., Protuđer, M., Grahovac Juretić, T., Rebić, J., & Frančišković, T. (2020). Complex PTSD among treatment-seeking veterans with PTSD. *European Journal of Psychotraumatology*, *11*(1), 1716593.

Letourneau, N. L., Dennis, C. L., Cosic, N., & Linder, J. (2017). The effect of perinatal depression treatment for mothers on parenting and child development: A systematic review. *Depression and anxiety*, *34*(10), 928-966.

Lever Taylor, B., Kandiah, A., Johnson, S., Howard, L. M., & Morant, N. (2021). A qualitative investigation of models of community mental health care for women with perinatal mental health problems. *Journal of Mental Health*, *30*(5), 594-600.

Leverich, G. S., McElroy, S. L., Suppes, T., Keck Jr, P. E., Denicoff, K. D., Nolen, W. A., Altshuler, L. L., Rush, A. J., Kupka, R., Frye, M. A., Autio, K. A., & Post, R. M. (2002). Early physical and sexual abuse associated with an adverse course of bipolar illness. *Biological psychiatry*, *51*(4), 288-297.

Levey, E. J., Rondon, M. B., Sanchez, S., Zhong, Q. Y., Williams, M. A., & Gelaye, B. (2018). Suicide risk assessment: examining transitions in suicidal behaviors among pregnant women in Perú. *Archives of Women's Mental Health*, *22*(1), 65-73.

Lev-Wiesel, R., Chen, R., Daphna-Tekoah, S., & Hod, M. (2009). Past traumatic events: are they a risk factor for high-risk pregnancy, delivery complications, and postpartum posttraumatic symptoms? *Journal of Women's Health*, *18*(1), 119-125.

Lev-Wiesel, R., Daphna-Tekoah, S., & Hallak, M. (2009). Childhood sexual abuse as a predictor of birth-related posttraumatic stress and postpartum posttraumatic stress. *Child abuse & neglect*, *33*(12), 877-887.

Lewis, C. E., Farewell, D., Groves, V., Kitchiner, N. J., Roberts, N. P., Vick, T., & Bisson, J. I. (2017). Internet-based guided self-help for posttraumatic stress disorder (PTSD): Randomized controlled trial. *Depression and anxiety,* 34(6), 555-565.

Lewis, C., Raisanen, L., Bisson, J. I., Jones, I., & Zammit, S. (2018). Trauma exposure and undetected posttraumatic stress disorder among adults with a mental disorder. *Depression and anxiety*, *35*(2), 178-184.

Lewis, C., Roberts, N. P., Andrew, M., Starling, E., & Bisson, J. I. (2020). Psychological therapies for post-traumatic stress disorder in adults: Systematic review and meta-analysis. *European journal of psychotraumatology*, 11(1), 1729633.

Lewis, C., Roberts, N. P., Bethell, A., Robertson, L., & Bisson, J. I. (2018). Internet-based cognitive and behavioural therapies for post-traumatic stress disorder (PTSD) in adults. *Cochrane Database of Systematic Reviews*, (12).

Lewis, C., Roberts, N. P., Simon, N., Bethell, A., & Bisson, J. I. (2019). Internet-delivered cognitive behavioural therapy for post-traumatic stress disorder: Systematic review and meta-analysis. *Acta Psychiatrica Scandinavica*, *140*(6), 508-521.

Lewis, C., Roberts, N., Vick, T., & Bisson, J. I. (2013). Development of a guided self-help (GSH) program for the treatment of mild-to-moderate posttraumatic stress disorder (PTSD). *Depression and anxiety,* 30(11), 1121-1128.

Lewis, M., Jones, A., & Hunter, B. (2017). Women's experience of trust within the midwife–mother relationship. *International Journal of Childbirth,* 7(1), 40-52.

Lewis, T., Kotch, J., Proctor, L., Thompson, R., English, D., Smith, J., Zolotor, A., Block, S., & Dubowitz, H. (2019). The role of emotional abuse in youth smoking. *American journal of preventive medicine*, *56*(1), 93-99.

Li, X., Zhang, W., Lin, J., Liu, H., Yang, Z., Teng, Y., Duan, S., Li, Y., Xie, Y., Lin, X., Xie, L., Peng, Q., Huang, J., Chen, J., Duan, W., Luo, J., & Zhang, J. (2018). Preterm birth, low birthweight, and small for gestational age among women with preeclampsia: Does maternal age matter? *Pregnancy hypertension*, *13*, 260-266.

Li, Y., Duan, W., & Chen, Z. (2020). Latent profiles of the comorbidity of the symptoms for posttraumatic stress disorder and generalized anxiety disorder among children and adolescents who are susceptible to COVID-19. *Children and youth services review*, *116*, 105235.

Liming, K. W., Brook, J., & Akin, B. (2021). Cumulative adverse childhood experiences among children in foster care and the association with reunification: a survival analysis. *Child Abuse & Neglect,* 113, 104899.

Link, B. G., Struening, E. L., Neese-Todd, S., Asmussen, S., & Phelan, J. C. (2001). Stigma as a barrier to recovery: The consequences of stigma for the self-esteem of people with mental illnesses. *Psychiatric services,* 52(12), 1621-1626.

Logie, C. H., Lys, C. L., Dias, L., Schott, N., Zouboules, M. R., MacNeill, N., & Mackay, K. (2019). "Automatic assumption of your gender, sexuality and sexual practices is also discrimination": Exploring sexual healthcare experiences and recommendations among sexually and gender diverse persons in Arctic Canada. *Health & social care in the community*, 27(5), 1204-1213.

LoGiudice, J. A., & Beck, C. T. (2016). The lived experience of childbearing from survivors of sexual abuse: “It was the best of times, it was the worst of times”. *Journal of Midwifery & Women's Health,* 61(4), 474-481.

López-Martínez, A. E., Serrano-Ibáñez, E. R., Ruiz-Párraga, G. T., Gómez-Pérez, L., Ramírez-Maestre, C., & Esteve, R. (2018). Physical health consequences of interpersonal trauma: A systematic review of the role of psychological variables. *Trauma, Violence, & Abuse*, *19*(3), 305-322.

Lord, K., Ibrahim, K., Kumar, S., Rudd, N., Mitchell, A. J., & Symonds, P. (2012). Measuring trust in healthcare professionals—a study of ethnically diverse UK cancer patients. *Clinical Oncology*, 24(1), 13-21.

Lotzin, A., Lu, X., Kriston, L., Schiborr, J., Musal, T., Romer, G., & Ramsauer, B. (2015). Observational tools for measuring parent–infant interaction: a systematic review. *Clinical Child and Family Psychology Review*, *18*(2), 99-132.

Loudermilk, E., Loudermilk, K., Obenauer, J., & Quinn, M. A. (2018). Impact of adverse childhood experiences (ACEs) on adult alcohol consumption behaviors. *Child Abuse & Neglect*, *86*, 368-374.

Loughnan, S. A., Sie, A., Hobbs, M. J., Joubert, A. E., Smith, J., Haskelberg, H., Mahoney, A. E. J., Kladnitski, N., Holt, C. J., Milgrom, J., Austin, M. P., Andrews, G., & Newby, J. M. (2019). A randomized controlled trial of ‘MUMentum Pregnancy’: Internet-delivered cognitive behavioral therapy program for antenatal anxiety and depression. *Journal of affective disorders*, 243, 381-390.

Low birth weight (2021). Available online at: https://www.nuffieldtrust.org.uk/resource/low-birth-weight. (Accessed June 10, 2022).

Lupattelli, A., Twigg, M. J., Zagorodnikova, K., Moretti, M. E., Drozd, M., Panchaud, A., Rieutord, A., Juraski, R. G., Odalovic, M., Kennedy, D., Rudolf, G., Juch, H., & Nordeng, H. (2018). Self-reported perinatal depressive symptoms and postnatal symptom severity after treatment with antidepressants in pregnancy: a cross-sectional study across 12 European countries using the Edinburgh Postnatal Depression Scale. *Clinical Epidemiology*, 10, 655.

Lyberg, A., Dahl, B., Haruna, M., Takegata, M., & Severinsson, E. (2019). Links between patient safety and fear of childbirth—A meta-study of qualitative research. *Nursing Open*, 6(1), 18-29.

Lyons-Ruth, K., Bronfman, E., & Parsons, E. (1999). Maternal frightened, frightening, or atypical behavior and disorganized infant attachment patterns. *Monographs of the society for research in child development*, 67-96.

Machlin, L., Miller, A. B., Snyder, J., McLaughlin, K. A., & Sheridan, M. A. (2019). Differential associations of deprivation and threat with cognitive control and fear conditioning in early childhood. *Frontiers in Behavioral Neuroscience*, *13*, 80.

MacMillan, K. K., Lewis, A. J., Watson, S. J., Jansen, B., & Galbally, M. (2020). Maternal trauma and emotional availability in early mother-infant interaction: findings from the Mercy Pregnancy and Emotional Well-being Study (MPEWS) cohort. *Attachment & Human Development,* 1-23.

Madigan, S., Wade, M., Tarabulsy, G., Jenkins, J. M., & Shouldice, M. (2014). Association between abuse history and adolescent pregnancy: a meta-analysis. *Journal of Adolescent Health*, *55*(2), 151-159.

Maercker, A., Brewin, C. R., Bryant, R. A., Cloitre, M., van Ommeren, M., Jones, L. M., Humyan, A., Kagee, A., Llosa, A. E., Rousseau, C., Somasundaram, D. J., Souza, R., Suzuki, Y., Weissbecker, I., Wessely, S. C., First, M. B., & Reed, G. M. (2013). Diagnosis and classification of disorders specifically associated with stress: proposals for ICD-11. *World Psychiatry*, 12(3), 198-206.

Maercker, A., Hecker, T., Augsburger, M., & Kliem, S. (2018). ICD-11 prevalence rates of posttraumatic stress disorder and complex posttraumatic stress disorder in a German nationwide sample. *Journal of Nervous and Mental Disease,* 206(4), 270–276.

Maneta, E. K., Cohen, S., Schulz, M. S., & Waldinger, R. J. (2015). Linkages between childhood emotional abuse and marital satisfaction: The mediating role of empathic accuracy for hostile emotions. *Child abuse & neglect*, *44*, 8-17.

Manyema, M., Norris, S. A., & Richter, L. M. (2018). Stress begets stress: the association of adverse childhood experiences with psychological distress in the presence of adult life stress. *BMC public health*, *18*(1), 835.

Maples-Keller, J. L., Yasinski, C., Manjin, N., & Rothbaum, B. O. (2017). Virtual reality-enhanced extinction of phobias and post-traumatic stress. *Neurotherapeutics*, *14*(3), 554-563.

Marca-Ghaemmaghami, L., & Ehlert, U. (2015). Stress during pregnancy: Experienced stress, stress hormones, and protective factors. *European Psychologist*, 20(2), 102.

Marini, S., Davis, K. A., Soare, T. W., Zhu, Y., Suderman, M. J., Simpkin, A. J., Smith, A. D. A. C., Wolf, E. J., Relton, C. L., & Dunn, E. C. (2020). Adversity exposure during sensitive periods predicts accelerated epigenetic aging in children. *Psychoneuroendocrinology*, *113*, 104484.

Markovic, M., Manderson, L., Schaper, H., & Brennecke, S. (2006). Maternal identity change as a consequence of antenatal hospitalization. *Health Care for Women International*, *27*(9), 762-776.

Maroof, D. A. (2012). Binary logistic regression. In *Statistical methods in neuropsychology* (pp. 67-75). Springer, Boston, MA.

Martínez, M. R., Numa, L. T., Bernal, D. R., de Galvis, Y. T., & Sierra, G. (2017). Sexual abuse and neglect situations as risk factors for adolescent pregnancy. *Revista Colombiana de Psiquiatria (English ed.)*, *46*(2), 74-81.

Martinez-Torteya, C., Dayton, C. J., Beeghly, M., Seng, J. S., McGinnis, E., Broderick, A., Rosenblum, K., & Muzik, M. (2014). Maternal parenting predicts infant biobehavioral regulation among women with a history of childhood maltreatment. *Development and Psychopathology*, *26*(2), 379-392.

Martini, J., Petzoldt, J., Knappe, S., Garthus-Niegel, S., Asselmann, E., & Wittchen, H. U. (2017). Infant, maternal, and familial predictors and correlates of regulatory problems in early infancy: The differential role of infant temperament and maternal anxiety and depression. *Early human development*, *115*, 23-31.

Marvin-Dowle, K., Kilner, K., Burley, V. J., & Soltani, H. (2018). Impact of adolescent age on maternal and neonatal outcomes in the Born in Bradford cohort. *BMJ open*, *8*(3), e016258.

Marysko, M., Reck, C., Mattheis, V., Finke, P., Resch, F., & Moehler, E. (2010). History of childhood abuse is accompanied by increased dissociation in young mothers five months postnatally. *Psychopathology*, *43*(2), 104-109.

Maschi, T., Baer, J., Morrissey, M. B., & Moreno, C. (2013). The aftermath of childhood trauma on late life mental and physical health: A review of the literature. *Traumatology*, *19*(1), 49-64.

Maselko, J., Sikander, S., Turner, E. L., Bates, L. M., Ahmad, I., Atif, N., Baranov, V., Bhalotra, S., Bibi, A., Bibi, T., Bilal, S., Biroli, P., Chung, E., Gallis, J. A., Hagaman, A., Jamil, A., LeMasters, K., O'Donnell, K., Scherer, E., Sharif, M., Waqas, A., Zaidi, A., Zulfiqar, S., & Rahman, A. (2020). Effectiveness of a peer-delivered, psychosocial intervention on maternal depression and child

development at 3 years postnatal: a cluster randomised trial in Pakistan. *The Lancet Psychiatry*, *7*(9), 775-787.

Mason, S. M., Flint, A. J., Roberts, A. L., Agnew-Blais, J., Koenen, K. C., & Rich-Edwards, J. W. (2014). Posttraumatic stress disorder symptoms and food addiction in women by timing and type of trauma exposure. *JAMA psychiatry*, *71*(11), 1271-1278.

Mason, W. A., Russo, M. J., Chmelka, M. B., Herrenkohl, R. C., & Herrenkohl, T. I. (2017). Parent and peer pathways linking childhood experiences of abuse with marijuana use in adolescence and adulthood. *Addictive behaviors*, *66*, 70-75.

Matto, M., McNiel, D. E., & Binder, R. L. (2019). A Systematic Approach to the Detection of False PTSD. *The journal of the American Academy of Psychiatry and the Law*, *47*(3), 325-334.

McCraw, S., & Parker, G. (2017). The prevalence and outcomes of exposure to potentially traumatic stressful life events compared across patients with bipolar disorder and unipolar depression. *Psychiatry research*, *255*, 399-404.

McDonnell, C. G., & Valentino, K. (2016). Intergenerational effects of childhood trauma: evaluating pathways among maternal ACEs, perinatal depressive symptoms, and infant outcomes. *Child Maltreatment*, *21*(4), 317-326.

McElroy, S., & Hevey, D. (2014). Relationship between adverse early experiences, stressors, psychosocial resources and wellbeing. *Child abuse & neglect*, *38*(1), 65-75.

McGinty, G., Fox, R., Ben-Ezra, M., Cloitre, M., Karatzias, T., Shevlin, M., & Hyland, P. (2021). Sex and age differences in ICD-11 PTSD and complex PTSD: An analysis of four general population samples. *European Psychiatry*, *64*(1).

McKenzie-McHarg, K., Ayers, S., Ford, E., Horsch, A., Jomeen, J., Sawyer, A., Stramrood, C., Thomson, G., & Slade, P. (2015). Post-traumatic stress disorder following childbirth: an update of current issues and recommendations for future research. *Journal of Reproductive and Infant Psychology*, *33*(3), 219-237.

McLaughlin, J., O'Carroll, R. E., & O'Connor, R. C. (2012). Intimate partner abuse and suicidality: a systematic review. *Clinical psychology review*, *32*(8), 677-689.

McLaughlin, K. A. (2016). Future directions in childhood adversity and youth psychopathology. *Journal of Clinical Child & Adolescent Psychology*, *45*(3), 361-382.

McLaughlin, K. A., & Hatzenbuehler, M. L. (2009). Mechanisms linking stressful life events and mental health problems in a prospective, community-based sample of adolescents. *Journal of Adolescent Health,* 44(2), 153–160.

McLaughlin, K. A., & Sheridan, M. A. (2016). Beyond cumulative risk: A dimensional approach to childhood adversity. *Current directions in psychological science*, *25*(4), 239-245.

McLaughlin, K. A., Colich, N. L., Rodman, A. M., & Weissman, D. G. (2020). Mechanisms linking childhood trauma exposure and psychopathology: a transdiagnostic model of risk and resilience. *BMC medicine*, *18*(1), 1-11.

McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2012). Childhood adversities and first onset of psychiatric disorders in a national sample of US adolescents. *Archives of general psychiatry*, *69*(11), 1151-1160.

McLaughlin, K. A., Sheridan, M. A., & Lambert, H. K. (2014). Childhood adversity and neural development: Deprivation and threat as distinct dimensions of early experience. *Neuroscience & Biobehavioral Reviews*, *47*, 578-591.

McLaughlin, K. A., Sheridan, M. A., Humphreys, K. L., Belsky, J., & Ellis, B. J. (2021). The value of dimensional models of early experience: Thinking clearly about concepts and categories. *Perspectives on Psychological Science*, *16*(6), 1463-1472.

McLaughlin, K. A., Weissman, D., & Bitrán, D. (2019). Childhood adversity and neural development: A systematic review. *Annual review of developmental psychology*, *1*, 277.

Meinck, F., Cosma, A. P., Mikton, C., & Baban, A. (2017). Psychometric properties of the adverse childhood experiences abuse short form (ACE-ASF) among Romanian high school students. *Child abuse & neglect*, 72, 326-337.

Mental Health Foundation. Available online at: https://www.mentalhealth.org.uk/. (Accessed on June 05, 2022).

Merians, A. N., Baker, M. R., Frazier, P., & Lust, K. (2019). Outcomes related to adverse childhood experiences in college students: Comparing latent class analysis and cumulative risk. *Child Abuse & Neglect,* 87, 51-64.

Mersky, J. P., Janczewski, C. E., & Topitzes, J. (2017). Rethinking the measurement of adversity: Moving toward second-generation research on adverse childhood experiences. *Child maltreatment*, *22*(1), 58-68.

Michopoulos, V., Powers, A., Moore, C., Villarreal, S., Ressler, K. J., & Bradley, B. (2015). The mediating role of emotion dysregulation and depression on the relationship between childhood trauma exposure and emotional eating. *Appetite*, *91*, 129-136.

Milani, S. A., Swain, M., Otufowora, A., Cottler, L. B., & Striley, C. W. (2021). Willingness to participate in health research among community-dwelling middle-aged and older adults: Does race/ethnicity matter?. *Journal of Racial and Ethnic Health Disparities*, 8(3), 773-782.

Milgrom, J., Gemmill, A. W., Ericksen, J., Burrows, G., Buist, A., & Reece, J. (2015). Treatment of postnatal depression with cognitive behavioural therapy, sertraline and combination therapy: a randomised controlled trial. *Australian & New Zealand Journal of Psychiatry*, *49*(3), 236-245.

Milgrom, J., Holt, C., Holt, C. J., Ross, J., Ericksen, J., & Gemmill, A. W. (2015). Feasibility study and pilot randomised trial of an antenatal depression treatment with infant follow-up. *Archives of Women's Mental Health, 18*(5), 717–730.

Millar, H. C., Lorber, S., Vandermorris, A., Thompson, G., Thompson, M., Allen, L., Aggarwal, A., & Spitzer, R. F. (2021). "No, you need to explain what you are doing": obstetric care experiences and preferences of adolescent mothers with a history of childhood trauma. *Journal of Pediatric and Adolescent Gynecology*, *34*(4), 538-545.

Miller-Perrin, C. L., Perrin, R. D., & Kocur, J. L. (2009). Parental physical and psychological aggression: Psychological symptoms in young adults. *Child abuse & neglect*, 33(1), 1-11.

Milner, J. S. (1986). The Child Abuse Potential Inventory manual— Second edition. DeKalb, IL: Psytec.

Mirzakhani, K., Khadivzadeh, T., Faridhosseini, F., & Ebadi, A. (2020). Pregnant women's experiences of the conditions affecting marital well-being in high-risk pregnancy: A qualitative study. *International Journal of Community Based Nursing and Midwifery*, *8*(4), 345.

Mistry, S., Harrison, J. R., Smith, D. J., Escott-Price, V., & Zammit, S. (2018). The use of polygenic risk scores to identify phenotypes associated with genetic risk of bipolar disorder and depression: A systematic review. *Journal of affective disorders*, 234, 148-155.

Mizuki, R., & Fujiwara, T. (2020). Validation of the Japanese version of the Childhood Trauma Questionnaire—Short Form (CTQ–J). *Psychological Trauma: Theory, Research, Practice, and Policy.*

Moehler, E., Biringen, Z., & Poustka, L. (2007). Emotional availability in a sample of mothers with a history of abuse. *American Journal of Orthopsychiatry*, *77*(4), 624-628.

Moehler, E., Matheis, V., Poustka, L., Marysko, M., Finke, P., Kaufmann, C., Reck, C., Cierpka, M., & Resch, F. (2009). Mothers with a history of abuse tend to show more impulsiveness. *Child Abuse & Neglect*, *33*(3), 123-126.

Möhler, E., Matheis, V., Marysko, M., Finke, P., Kaufmann, C., Cierpka, M., Reck, C., & Resch, F. (2008). Complications during pregnancy, peri-and postnatal period in a sample of women with a history of child abuse. *Journal of Psychosomatic Obstetrics & Gynecology,* 29(3), 197-202.

Montgomery, E., Pope, C., & Rogers, J. (2015). The re-enactment of childhood sexual abuse in maternity care: a qualitative study. *BMC pregnancy and childbirth*, 15(1), 1-7.

Moog, N. K., Buss, C., Entringer, S., Shahbaba, B., Gillen, D. L., Hobel, C. J., & Wadhwa, P. D. (2016). Maternal exposure to childhood trauma is associated during pregnancy with placental-fetal stress physiology. *Biological Psychiatry*, *79*(10), 831-839.

Moog, N. K., Entringer, S., Rasmussen, J. M., Styner, M., Gilmore, J. H., Kathmann, N., Heim, C. M., Wadhwa, P. D., & Buss, C. (2018). Intergenerational effect of maternal exposure to childhood maltreatment on newborn brain anatomy. *Biological Psychiatry*, *83*(2), 120-127.

Moog, N. K., Heim, C. M., Entringer, S., Kathmann, N., Wadhwa, P. D., & Buss, C. (2017). Childhood maltreatment is associated with increased risk of subclinical hypothyroidism in pregnancy. *Psychoneuroendocrinology*, *84*, 190-196.

Morelen, D., Menke, R., Rosenblum, K. L., Beeghly, M., & Muzik, M. (2016). Understanding bidirectional mother-infant affective displays across contexts: Effects of maternal maltreatment history and postpartum depression and PTSD symptoms. *Psychopathology*, *49*(4), 305-314.

Moring, J. C., Koch, L. M., Cherrington, A., Peterson, A. L., & Resick, P. A. (2020). Cognitive Processing Therapy for PTSD and Bipolar Disorder Comorbidity: A Case Study. *Cognitive and Behavioral Practice*.

Morland, L., Goebert, D., Onoye, J., Frattarelli, L., Derauf, C., Herbst, M., Matsu, C., & Friedman, M. (2007). Posttraumatic stress disorder and pregnancy health: preliminary update and implications. *Psychosomatics*, *48*(4), 304-308.

Motsan, S., Bar-Kalifa, E., Yirmiya, K., & Feldman, R. (2021). Physiological and social synchrony as markers of PTSD and resilience following chronic early trauma. *Depression and anxiety*, *38*(1), 89-99.

Muglu, J., Rather, H., Arroyo-Manzano, D., Bhattacharya, S., Balchin, I., Khalil, A., Thilaganathan, B., Khan, K. S., Zamora, J., & Thangaratinam, S. (2019). Risks of stillbirth and neonatal

death with advancing gestation at term: A systematic review and meta-analysis of cohort studies of 15 million pregnancies. *PLoS medicine*, *16*(7), e1002838.

Mulcahy, R., Reay, R. E., Wilkinson, R. B., & Owen, C. (2010). A randomised control trial for the effectiveness of group interpersonal psychotherapy for postnatal depression. *Archives of Women's Mental Health, 13*(2), 125– 139.

Mulder, E. J., De Medina, P. R., Huizink, A. C., Van den Bergh, B. R., Buitelaar, J. K., & Visser, G. H. (2002). Prenatal maternal stress: effects on pregnancy and the (unborn) child. *Early Human Development*, *70*(1-2), 3-14.

Mustonen, P., Karlsson, L., Scheinin, N. M., Kortesluoma, S., Coimbra, B., Rodrigues, A. J., & Karlsson, H. (2018). Hair cortisol concentration (HCC) as a measure for prenatal psychological distress—A systematic review. *Psychoneuroendocrinology*, 92, 21-28.

Mustonen, U., Huurre, T., Kiviruusu, O., Haukkala, A., & Aro, H. (2011). Long-term impact of parental divorce on intimate relationship quality in adulthood and the mediating role of psychosocial resources. *Journal of Family Psychology*, *25*(4), 615.

Muzik, M., Bocknek, E. L., Broderick, A., Richardson, P., Rosenblum, K. L., Thelen, K., & Seng, J. S. (2013). Mother–infant bonding impairment across the first 6 months postpartum: the primacy of psychopathology in women with childhood abuse and neglect histories. *Archives of Women's Mental Health*, *16*(1), 29-38.

Muzik, M., Morelen, D., Hruschak, J., Rosenblum, K. L., Bocknek, E., & Beeghly, M. (2017). Psychopathology and parenting: An examination of perceived and observed parenting in mothers with depression and PTSD. *Journal of Affective Disorders*, 207, 242-250.

Nagl, M., Lehnig, F., Stepan, H., Wagner, B., & Kersting, A. (2017). Associations of childhood maltreatment with pre-pregnancy obesity and maternal postpartum mental health: a cross-sectional study. *BMC Pregnancy and Childbirth*, *17*(1), 391.

National Institute for Health and Care Excellence (2018). Post-Traumatic Stress Disorder (NICE Guideline NG116). NICE.

National Institute for Health and Care Excellence. Patient experience in adult NHS services: improving the experience of care for people using adult NHS services (2021). Available online at: https://www.nice.org.uk/guidance/cg138/chapter/1-guidance. (Accessed June 09, 2022)

Naughton, J. N., Maybery, D., & Sutton, K. (2018). Review of child and adolescent mental health recovery literature: concordance and Contention. *Journal of Psychosocial Rehabilitation and Mental Health*, *5*(2), 151-158.

Naughton, M. F., Maybery, D. J., & Goodyear, M. (2018). Prevalence of mental illness within families in a regional child-focussed mental health service. *International Journal of Mental Health Nursing*, 27(2), 901-910.

Nemeroff, C. B. (2016). Paradise lost: the neurobiological and clinical consequences of child abuse and neglect. *Neuron*, *89*(5), 892-909.

Ngo-Metzger, Q., Legedza, A. T., & Phillips, R. S. (2004). Asian Americans' reports of their health care experiences. *Journal of general internal medicine,* 19(2), 111-119.

Nicolson, S., Judd, F., Thomson-Salo, F., & Mitchell, S. (2013). Supporting the adolescent mother–infant relationship: preliminary trial of a brief perinatal attachment intervention. *Archives of women's mental health*, *16*(6), 511-520.

Nidey, N., Bowers, K., Ammerman, R. T., Shah, A. N., Phelan, K. J., Clark, M. J., Van Ginkel, J. B., & Folger, A. T. (2020). Combinations of Adverse Childhood Events and Risk of Postpartum Depression Among Mothers Enrolled in a Home Visiting Program. *Annals of Epidemiology*.

Nieminen, P., Lehtiniemi, H., Vähäkangas, K., Huusko, A., & Rautio, A. (2013). Standardised regression coefficient as an effect size index in summarising findings in epidemiological studies. *Epidemiology, Biostatistics and Public Health*, 10(4).

Nijenhuis, E. R., Van der Hart, O., & Kruger, K. (1999). Traumatic Experiences Checklist. *Clinical Psychology & Psychotherapy*.

Nikodem, K., Ćurković, M., & Borovečki, A. (2022). Trust in the Healthcare System and Physicians in Croatia: A Survey of the General Population. *International Journal of Environmental Research and Public Health*, 19(2), 993.

Nilsson, C., Lundgren, I., Karlström, A., & Hildingsson, I. (2012). Self reported fear of childbirth and its association with women's birth experience and mode of delivery: a longitudinal population-based study. *Women and Birth*, 25(3), 114-121.

Noll, J. G., Shenk, C. E., & Putnam, K. T. (2009). Childhood sexual abuse and adolescent pregnancy: A meta-analytic update. *Journal of pediatric psychology*, *34*(4), 366-378.

Noll, J. G., Trickett, P. K., & Putnam, F. W. (2003). A prospective investigation of the impact of childhood sexual abuse on the development of sexuality. *Journal of consulting and clinical psychology*, *71*(3), 575.

Nollett, C., Lewis, C., Kitchiner, N., Roberts, N., Addison, K., Brookes-Howell, L., Cosgrove, S., Cullen, K., Ehlers, A., Heke, S., Kelson, M., Lovell, K., Madden, K., McEwan, K., McNamara, R., Phillips,

C., Pickles, T., Simon, N., & Bisson, J. (2018). Pragmatic RAndomised controlled trial of a trauma-focused guided self-help Programme versus InDividual trauma-focused cognitive Behavioural therapy for post-traumatic stress disorder (RAPID): trial protocol. *BMC psychiatry*, 18(1), 1-14.

NOMIS: Labour Market Profile - Great Britain. Available online at: https://www.nomisweb.co.uk/reports/lmp/gor/2092957698/report.aspx#defs. (Accessed on July 15, 2022).

Norton, E. C., & Dowd, B. E. (2018). Log odds and the interpretation of logit models. *Health services research*, *53*(2), 859-878.

Nurius, P. S., Logan-Greene, P., & Green, S. (2012). Adverse childhood experiences (ACE) within a social disadvantage framework: Distinguishing unique, cumulative, and moderated contributions to adult mental health. *Journal of prevention & intervention in the community*, 40(4), 278-290.

Nursing and Midwifery Council standards of proficiency for midwives (2019). Available online at: https://www.nmc.org.uk/standards/standards-for-midwives/. (Accessed June 09, 2022)

Odd, D., Evans, D., & Emond, A. M. (2019). Prediction of school outcome after preterm birth: a cohort study. *Archives of disease in childhood*, 104(4), 348-353.

Office for National Statistics (ONS). Abuse during childhood: Findings from the Crime Survey for England and Wales, year ending March 2016. https://www.ons.gov.uk/peoplepopulationandcommunity/crimeandjustice/articles/abuseduringchildhood/findingsfromtheyearendingmarch2016crimesurveyforenglandandwales. Accessed 25 January 2022.

Office for National Statistics. "Child abuse extent and nature, England and Wales: Year ending March 2019." (2020).

Ohan, J. L., Leung, D. W., & Johnston, C. (2000). The Parenting Sense of Competence scale: Evidence of a stable factor structure and validity. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 32(4), 251.

Oladapo, O. T., Tunçalp, Ö., Bonet, M., Lawrie, T. A., Portela, A., Downe, S., & Gülmezoglu, A. M. (2018). WHO model of intrapartum care for a positive childbirth experience: transforming care of women and babies for improved health and wellbeing. *Bjog,* 125(8), 918.

Olausson, P. O., Cnattingius, S., & Haglund, B. (1999). Teenage pregnancies and risk of late fetal death and infant mortality. *BJOG: An International Journal of Obstetrics & Gynaecology*, *106*(2), 116-121.

Oliveira, S. E., Carvalho, H., & Esteves, F. (2016). Internalized stigma and quality of life domains among people with mental illness: the mediating role of self-esteem. *Journal of Mental Health*, 25(1), 55-61.

O'Mahen, H., Fedock, G., Henshaw, E., Himle, J. A., Forman, J., & Flynn, H. A. (2012). Modifying CBT for perinatal depression: what do women want?: a qualitative study. *Cognitive and Behavioral Practice*, *19*(2), 359-371.

Onchonga, D., Várnagy, Á., Keraka, M., & Wainaina, P. (2020). Midwife-led integrated pre-birth training and its impact on the fear of childbirth. A qualitative interview study. *Sexual & Reproductive Healthcare,* 25, 100512.

O'Neal, E. L., Adams, J. R., McHugo, G. J., Van Citters, A. D., Drake, R. E., & Bartels, S. J. (2008). Preferences of older and younger adults with serious mental illness for involvement in decision-making in medical and psychiatric settings. *The American Journal of Geriatric Psychiatry, 16(10),* 826-833.

ONS: Change over time in admin-based ethnicity statistics, England: 2016 to 2020. Available online at: https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/ethnicity/articles/changeovertimeinadminbasedethnicitystatisticsengland2016to2020/2022-05-23. (Accessed on July 15, 2022).

ONS: Population estimates by marital status and living arrangements, England and Wales: 2019. Available online at: https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/bulletins/populationestimatesbymaritalstatusandlivingarrangements/2019. (Accessed on July 15, 2022).

ONS: Sexual orientation, UK. Available online at: https://www.ons.gov.uk/peoplepopulationandcommunity/culturalidentity/sexuality/datasets/sexualidentityuk. (Accessed on July 15, 2022).

Oosterman, M., Schuengel, C., Forrer, M. L., & De Moor, M. H. (2018). The impact of childhood trauma and psychophysiological reactivity on at-risk women's adjustment to parenthood. *Development and Psychopathology*, *31*(1), 127-141.

Orth, U., Erol, R. Y., & Luciano, E. C. (2018). Development of self-esteem from age 4 to 94 years: A meta-analysis of longitudinal studies. *Psychological bulletin,* 144(10), 1045.

Orth, U., Robins, R. W., & Widaman, K. F. (2012). Life-span development of self-esteem and its effects on important life outcomes. *Journal of personality and social psychology,* 102(6), 1271.

Owen, C. (2020). Obscure dichotomy of early childhood trauma in PTSD versus attachment disorders. *Trauma, Violence, & Abuse*, *21*(1), 83-96.

Özşahin, Z. (2020). The effects of adverse childhood experiences on pregnancy-related anxiety and acceptance of motherhood role. *African Health Sciences*, 20(3), 1217-1228.

Pagura, J., Stein, M. B., Bolton, J. M., Cox, B. J., Grant, B., & Sareen, J. (2010). Comorbidity of borderline personality disorder and posttraumatic stress disorder in the US population. *Journal of Psychiatric Research*, 44(16), 1190-1198.

Paintain, E., & Cassidy, S. (2018). First-line therapy for post-traumatic stress disorder: A systematic review of cognitive behavioural therapy and psychodynamic approaches. *Counselling and psychotherapy research*, *18*(3), 237-250.

Parchaa, T., Togoobaatar, G., Fukuzawa, R. K., Chunagsuren, B., Tseleejav, B., Nyam, N., & Katsumata, A. T. (2021). Translation and Validation of the Mongolian Version of the Childbirth Experience Questionnaire. *Journal of Patient Experience,* 8, 23743735211060636.

Park, H. A. (2013). An introduction to logistic regression: from basic concepts to interpretation with particular attention to nursing domain. *Journal of Korean Academy of Nursing*, *43*(2), 154-164.

Partridge, B., & Affleck, J. (2017). Verbal abuse and physical assault in the emergency department: Rates of violence, perceptions of safety, and attitudes towards security. *Australasian Emergency Nursing Journal,* 20(3), 139-145.

Pascual, M. A., Levenson, J. C., Merranko, J., Gill, M. K., Hower, H., Yen, S., Strober, M., Goldstein, T. R., Goldstein, B, I., Ryan, N. D., Weinstock, L. M., Keller, M. B., Axelson, D., & Birmaher, B. (2020). The effect of traumatic events on the longitudinal course and outcomes of youth with bipolar disorder. *Journal of affective disorders*, *274*, 126-135.

Patten, S. B., Wilkes, T. C. R., Williams, J. V. A., Lavorato, D. H., El-Guebaly, N., Schopflocher, D., Wild, C., Colman, I., & Bulloch, A. G. M. (2015). Retrospective and prospectively assessed childhood adversity in association with major depression, alcohol consumption and painful conditions. *Epidemiology and Psychiatric Sciences*, 24(2), 158-165.

Patterson, J., Hollins Martin, C., & Karatzias, T. (2019). PTSD post-childbirth: a systematic review of women's and midwives' subjective experiences of care provider interaction. *Journal of reproductive and infant psychology,* 37(1), 56-83.

Pawlby, S., Hay, D. F., Sharp, D., Waters, C. S., & O'Keane, V. (2009). Antenatal depression predicts depression in adolescent offspring: prospective longitudinal community-based study. *Journal of Affective Disorders*, *113*(3), 236-243.

Pawlby, S., Hay, D., Sharp, D., Waters, C. S., & Pariante, C. M. (2011). Antenatal depression and offspring psychopathology: the influence of childhood maltreatment. *The British Journal of Psychiatry*, *199*(2), 106-112.

Pearson, R. M., Lightman, S. L., & Evans, J. (2009). Emotional sensitivity for motherhood: late pregnancy is associated with enhanced accuracy to encode emotional faces. *Hormones and Behavior*, *56*(5), 557-563.

Penman-Aguilar, A., Carter, M., Snead, M. C., & Kourtis, A. P. (2013). Socioeconomic disadvantage as a social determinant of teen childbearing in the US. *Public Health Reports*, *128*(21), 5-22.

Penner, F., & Rutherford, H. J. (2022). Emotion regulation during pregnancy: a call to action for increased research, screening, and intervention. *Archives of Women's Mental Health*, *25*(2), 527-531.

Peristat, E., & Macfarlane, A. J. (2018). Euro-Peristat Project. European Perinatal Health Report. Core indicators of the health and care of pregnant women and babies in Europe in 2015.

Perry, D. F., Ettinger, A. K., Mendelson, T., & Le, H.-N. (2011). Prenatal depression predicts postpartum maternal attachment in low-income Latina mothers with infants. *Infant Behaviour and Development, 34*(2), 339–350.

Petanjek, Z., Judas, M., Simic, G., Rasin, M. R., Uylings, H. B. M., Rakic, P., & Kostovic, I. (2011). Extraordinary neoteny of synaptic spines in the human prefrontal cortex. Proceedings of the National Academy of Sciences, 108(32), 13281–13286.

Petersen, A., Poetter, U., Michelsen, C., & Gross, M. M. (2013). The sequence of intrapartum interventions: a descriptive approach to the cascade of interventions. *Archives of gynecology and obstetrics*, 288(2), 245-254.

Pillemer, D. B., & White, S. H. (1989). Childhood events recalled by children and adults. *Advances in child development and behavior*, 21, 297-340.

Plant, D. T., Barker, E. D., Waters, C. S., Pawlby, S., & Pariante, C. M. (2013). Intergenerational transmission of maltreatment and psychopathology: the role of antenatal depression. *Psychological Medicine*, *43*(3), 519-528.

Plant, D. T., Jones, F. W., Pariante, C. M., & Pawlby, S. (2017). Association between maternal childhood trauma and offspring childhood psychopathology: mediation analysis from the ALSPAC cohort. *The British Journal of Psychiatry*, *211*(3), 144-150.

Plant, D. T., Pawlby, S., Pariante, C. M., & Jones, F. W. (2018). When one childhood meets another–maternal childhood trauma and offspring child psychopathology: A systematic review. *Clinical Child Psychology and Psychiatry*, *23*(3), 483-500.

Plaza, A., Garcia-Esteve, L., Torres, A., Ascaso, C., Gelabert, E., Imaz, M. L., Navarro, P., Valdes, M., & Martín-Santos, R. (2012). Childhood physical abuse as a common risk factor for depression and thyroid dysfunction in the earlier postpartum. *Psychiatry Research*, *200*(2-3), 329-335.

Póka, Róbert, Levente Barna, Péter Damjanovich, Zsolt Farkas, Gerg˝o Orosz, Mónika Orosz, Lilla Ördög, Attila Sipos, and Olga Török. 2020. Emelked˝o anyai életkor részesedése a császármetszés-frekvencia növekedésében. [Rising maternal age in the increase in cesarean section frequency]. *Magyar N˝oorvosok Lapja* 83: 3–9.

Pollak, S. D., Messner, M., Kistler, D. J., & Cohn, J. F. (2009). Development of perceptual expertise in emotion recognition. *Cognition*, *110*(2), 242-247.

Pomerleau, A., Scuccimarri, C., & Malcuit, G. (2003). Mother–infant behavioral interactions in teenage and adult mothers during the first six months postpartum: Relations with infant development. *Infant Mental Health Journal: Official Publication of The World Association for Infant Mental Health*, *24*(5), 495-509.

Poole, J. C., Dobson, K. S., & Pusch, D. (2017). Childhood adversity and adult depression: the protective role of psychological resilience. *Child Abuse & Neglect*, *64*, 89-100.

Preterm birth (2018). Available at: https://www.who.int/news-room/fact-sheets/detail/preterm-birth. Accessed on June 05, 2022.

Price, L., Centifanti, L., & Slade, P. (2020). Personality factors and vulnerability to post-traumatic stress responses after childbirth. *British Journal of Clinical Psychology*, 59(4), 480-502.

Price, M., Legrand, A. C., Brier, Z. M., & Hébert-Dufresne, L. (2019). The symptoms at the center: Examining the comorbidity of posttraumatic stress disorder, generalized anxiety disorder, and depression with network analysis. *Journal of psychiatric research*, *109*, 52-58.

Price-Robertson, R. (2012). Child sexual abuse, masculinity and fatherhood. *Journal of Family Studies,* 18(2-3), 130-142.

Puckering, C., McIntosh, E., Hickey, A., & Longford, J. (2010). Mellow Babies: a group intervention for infants and mothers experiencing postnatal depression. *Couns Psychol Rev*, *25*(1), 28-40.

Purcell, J. B., Goodman, A. M., Harnett, N. G., Davis, E. S., Wheelock, M. D., Mrug, S., Elliott, M. N., Emery, S. T., Schuster, M. A., & Knight, D. C. (2021). Stress-elicited neural activity in young adults varies with childhood sexual abuse. *Cortex*, *137*, 108-123.

Putnam, S. P., Gartstein, M. A., & Rothbart, M. K. (2006). Measurement of fine-grained aspects of toddler temperament: The Early Childhood Behavior Questionnaire. *Infant behavior and development,* 29(3), 386-401.

Qiu, A., Shen, M., Buss, C., Chong, Y. S., Kwek, K., Saw, S. M., Gluckman, P. D., Wadhwa, P. D., Entringer, S., Styner, M., Karnani, N., Heim, C, M., O'Donnell, K. J., Holbrook, J. D., Fortier, M. V., Meaney, M, J., & GUSTO Study Group. (2017). Effects of antenatal maternal depressive symptoms and socio-economic status on neonatal brain development are modulated by genetic risk. *Cerebral cortex*, 27(5), 3080-3092.

Radford, L. et al. (2011) Child abuse and neglect in the UK today. *London: NSPCC*.

Radford, L., Corral, S., Bradley, C., Fisher, H., Bassett, C., Howat, N., & Collishaw, S. (2011). Child abuse and neglect in the UK today.

Radoš, S. N., Sawyer, A., Ayers, S., & Burn, E. (2018). Coping styles associated with post-traumatic stress and depression symptoms following childbirth in Croatian women. *Psihologijske teme,* 27(3), 543-559.

Raleva, M. (2018). Early life stress: a key link between childhood adversity and risk of attempting suicide. *Psychiatria Danubina*, 30(6), 341-347.

Rantalainen, V., Binder, E. B., Lahti-Pulkkinen, M., Czamara, D., Laivuori, H., Villa, P. M., Girchenko, P., Kvist, T., Hämäläinen, E., Kajantie, E., Lahti, J., & Räikkönen, K. (2020). Polygenic prediction of the risk of perinatal depressive symptoms. *Depression and anxiety*, 37(9), 862-875.

Rasmussen, T. D., Villadsen, S. F., Andersen, P. K., Clausen, T. D., & Nybo Andersen, A. M. (2019). Ethnic differences in the risk of caesarean section: a Danish population-based register study 2004–2015. *BMC pregnancy and childbirth*, 19(1), 1-11.

Ratnasiri, A. W., Lakshminrusimha, S., Dieckmann, R. A., Lee, H. C., Gould, J. B., Parry, S. S., Arief, A. N., DeLacy, I. H., DiLibero, R. J., & Basford, K. E. (2020). Maternal and infant predictors of infant mortality in California, 2007–2015. *PloS one*, *15*(8), e0236877.

Razak, A., Priyanka, A., Padmakumar, R., & Nayak, K. (2018). Comparison of biventricular function between pregnant and non-pregnant women by conventional and newer echocardiographic indices. *Int J Cardiovasc Pract Original Article*, *3*(3), 57-61.

Read, J., Harper, D., Tucker, I., & Kennedy, A. (2018). Do adult mental health services identify child abuse and neglect? A systematic review. *International journal of mental health nursing*, *27*(1), 7-19.

Reay, R. E., Owen, C., Shadbolt, B., Raphael, B., Mulcahy, R., & Wilkinson, R. B. (2012). Trajectories of long-term outcomes for postnatally depressed mothers treated with group interpersonal psychotherapy. *Archives of Women's Mental Health, 15*(3), 217–228.

Redican, E., Nolan, E., Hyland, P., Cloitre, M., McBride, O., Karatzias, T., Murphy, J., & Shevlin, M. (2021). A systematic literature review of factor analytic and mixture models of ICD-11 PTSD and CPTSD using the International Trauma Questionnaire. *Journal of Anxiety Disorders*, 79, 102381.

Reed, G. M., First, M. B., Billieux, J., Cloitre, M., Briken, P., Achab, S., Brewin, C. R., Kind, D. L., Kraus, S. W., & Bryant, R. A. (2022). Emerging experience with selected new categories in the ICD-11: complex PTSD, prolonged grief disorder, gaming disorder, and compulsive sexual behaviour disorder. *World Psychiatry*, *21*(2), 189-213.

Rees, S., Channon, S., & Waters, C. S. (2019). The impact of maternal prenatal and postnatal anxiety on children's emotional problems: a systematic review. *European Child & Adolescent Psychiatry*, *28*(2), 257-280.

Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders, B. E., & Best, C. L. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *Journal of consulting and clinical psychology*, 61(6), 984.

Restrepo-Méndez, M. C., Lawlor, D. A., Horta, B. L., Matijasevich, A., Santos, I. S., Menezes, A. M., Barros, F. C., & Victora, C. G. (2015). The association of maternal age with birthweight and gestational age: a cross-cohort comparison. *Paediatric and perinatal epidemiology*, 29(1), 31-40.

Reuben, A., Moffitt, T. E., Caspi, A., Belsky, D. W., Harrington, H., Schroeder, F., Hogan, S., Ramrakha, S., Poulton, R., & Danese, A. (2016). Lest we forget: comparing retrospective and prospective assessments of adverse childhood experiences in the prediction of adult health. *Journal of Child Psychology and Psychiatry*, 57(10), 1103-1112.

Rhoades, G. K., Stanley, S. M., Markman, H. J., & Ragan, E. P. (2012). Parents' marital status, conflict, and role modeling: Links with adult romantic relationship quality. *Journal of Divorce & Remarriage*, *53*(5), 348-367.

Roberts, N. P., Cloitre, M., Bisson, J., & Brewin, C. R. (2018). International Trauma Interview (ITI) for ICD-11 PTSD and complex PTSD. *Test version*, *3*.

Romano, E., Babchishin, L., Marquis, R., & Fréchette, S. (2015). Childhood maltreatment and educational outcomes. *Trauma, Violence, & Abuse*, *16*(4), 418-437.

Romano, M., & Peters, L. (2015). Evaluating the mechanisms of change in motivational interviewing in the treatment of mental health problems: A review and meta-analysis. *Clinical Psychology Review*, *38*, 1-12.

Romans, S., Belaise, C., Martin, J., Morris, E., & Raffi, A. (2002). Childhood abuse and later medical disorders in women. An epidemiological study. *Psychotherapy and Psychosomatics*, 71, 141–150.

Romero, S., Birmaher, B., Axelson, D., Goldstein, T., Goldstein, B. I., Gill, M. K., Iosif, A., Strober, M. A., Hunt, J., Esposito-Smythers, C., Ryan, N. D., Leonard, H., & Keller, M. (2009). Prevalence and correlates of physical and sexual abuse in children and adolescents with bipolar disorder. *Journal of affective disorders*, *112*(1-3), 144-150.

Rondó, P. H., Ferreira, R. F., Nogueira, F., Ribeiro, M. C., Lobert, H., & Artes, R. (2003). Maternal psychological stress and distress as predictors of low birth weight, prematurity and intrauterine growth retardation. *European journal of clinical nutrition*, 57(2), 266-272.

Roper, L. J., Purdon, S. E., & Aitchison, K. J. (2015). Childhood and later life stressors and psychosis. *Clinical Neuropsychiatry: Journal of Treatment Evaluation*.

Roper, S. W., Fife, S. T., & Seedall, R. B. (2020). The intergenerational effects of parental divorce on young adult relationships. *Journal of Divorce & Remarriage*, 61(4), 249-266.

Rosen, M. L., Hagen, M. K. P., Lurie, L. A., Miles, Z. E., Sheridan, M. A., Meltzoff, A. N., & McLaughlin, K. A. (2020). Cognitive stimulation as a mechanism linking socioeconomic status with executive function: A longitudinal investigation. *Child Development*, 91(4)

Rosenthal, L., Lobel, M., 2016. Stereotypes of black American women related to sexuality and motherhood. *Psychol. Women Q.* 40 (3), 414–427.

Rossen, L., Hutchinson, D., Wilson, J., Burns, L., Olsson, C. A., Allsop, S., Elliott, E. J., Jacobs, S., Macdonald, J. A., & Mattick, R. P. (2016). Predictors of postnatal mother-infant bonding: the role of antenatal bonding, maternal substance use and mental health. *Archives of Women's Mental Health*, *19*(4), 609-622.

Rouhe, H., Salmela-Aro, K., Toivanen, R., Tokola, M., Halmesmäki, E., Ryding, E. L., & Saisto, T. (2015). Group psychoeducation with relaxation for severe fear of childbirth improves maternal adjustment and childbirth experience–a randomised controlled trial. *Journal of psychosomatic obstetrics & gynecology,* 36(1), 1-9.

Rowe, H. J., Wynter, K. H., Steele, A., Fisher, J. R. W., Quinlivan, J. A., (2013). The growth of maternal-fetal emotional attachment in pregnant adolescents: a prospective cohort study. *J Pediatr Adolesc Gynecol; 26*: 327–333.

Roy-Byrne, P. P., Joesch, J. M., Wang, P. S., & Kessler, R. C. (2009). Low socioeconomic status and mental health care use among respondents with anxiety and depression in the NCS-R. *Psychiatric Services*, *60*(9), 1190-1197.

Runtz, M. G. (2002). Health concerns of university women with a history of child physical and sexual maltreatment. *Child Maltreatment*, 7, 241–253.

Russell, A. E., Heron, J., Gunnell, D., Ford, T., Hemani, G., Joinson, C., Moran, P., Relton, C., Suderman, M., & Mars, B. (2019). Pathways between early-life adversity and adolescent self-harm: the mediating role of inflammation in the Avon Longitudinal Study of Parents and Children. *Journal of child psychology and psychiatry,* 60(10), 1094-1103.

Rutherford, H. J. V., Wallace, N. S., Laurent, H. K., & Mayes, L. C. (2015). Emotion regulation in parenthood. Developmental review. *Development Review*, 36, 1–14.

Rydahl, Eva, Eugene Declercq, Mette Juhl, and Rikke Damkjær Maimburg. 2019. Cesarean section on a rise—Does advanced maternal age explain the increase? A population register-based study. *PLoS ONE* 14: e0210655

Sachs-Ericsson, N., Gayman, M. D., Kendall-Tackett, K., Lloyd, D. A., Medley, A., Collins, N., Corsentino, E., & Sawyer, K. (2010). The long-term impact of childhood abuse on internalizing disorders among older adults: The moderating role of self-esteem. *Aging & Mental Health*, *14*(4), 489-501.

Sandvik, E., & Diener, E. L. Seidlitz (1993)"Subjective Well-Being: The Convergence and Stability of Self and Non Self Report Measures". *Journal of Personality*, 61(3), 317-342.

Sareen, J., Cox, B. J., Clara, I., & Asmundson, G. J. (2005). The relationship between anxiety disorders and physical disorders in the US National Comorbidity Survey. *Depression and anxiety*, *21*(4), 193-202.

Sareen, J., Houlahan, T., Cox, B. J., & Asmundson, G. J. (2005). Anxiety disorders associated with suicidal ideation and suicide attempts in the National Comorbidity Survey. *The Journal of nervous and mental disease*, *193*(7), 450-454.

Saunders, E. E. (2000). Screening for domestic violence during pregnancy. *International journal of trauma nursing*, 6(2), 44-47.

Schei, B., Lukasse, M., Ryding, E. L., Campbell, J., Karro, H., Kristjansdottir, H., Laanpere, M., Schroll, A., Tabor, A., Temmerman, M., Van Parys, A., Wangel, A., & Steingrimsdottir, T. (2014). A history of abuse and operative delivery–results from a European multi-country cohort study. *PloS one,* 9(1), e87579.

Scheidell, J. D., Quinn, K., McGorray, S. P., Frueh, B. C., Beharie, N. N., Cottler, L. B., & Khan, M. R. (2018). Childhood traumatic experiences and the association with marijuana and cocaine use in adolescence through adulthood. *Addiction*, *113*(1), 44-56.

Schetter, C. D., & Tanner, L. (2012). Anxiety, depression and stress in pregnancy: implications for mothers, children, research, and practice. *Current opinion in psychiatry*, 25(2), 141.

Schilling, E. A., Aseltine, R. H., & Gore, S. (2007). Adverse childhood experiences and mental health in young adults: a longitudinal survey. *BMC public health*, *7*(1), 30.

Schoeps, A., Peterson, E. R., Mia, Y., Waldie, K. E., Underwood, L., D'Souza, S., & Morton, S. M. (2018). Prenatal alcohol consumption and infant and child behavior: Evidence from the Growing Up in New Zealand Cohort. *Early human development*, 123, 22-29.

Schreier, H. M., Enlow, M. B., Ritz, T., Gennings, C., & Wright, R. J. (2015). Childhood abuse is associated with increased hair cortisol levels among urban pregnant women. *Journal of Epidemiol Community Health*, *69*(12), 1169-1174.

Schulze, L. N., Van der Auwera, S., Janowitz, D., Hertel, J., Wittfeld, K., Walk, R., Friedrich, N., Volzkey, H., & Grabe, H. J. (2019). The impact of childhood trauma and depressive symptoms on body mass index. *Global Psychiatry*, *2*(1), 97-105.

Schwerdtfeger, K. L., & Wampler, K. S. (2009). Sexual trauma and pregnancy: A qualitative exploration of women's dual life experience*. Contemporary Family Therapy,* 31(2), 100-122.

Seale, C., Chaplin, R., Lelliott, P., & Quirk, A. (2006). Sharing decisions in consultations involving anti-psychotic medication: a qualitative study of psychiatrists' experiences. *Social science & medicine,* 62(11), 2861-2873.

Selkirk, R., McLaren, S., Ollerenshaw, A., McLachlan, A. J., & Moten, J. (2006). The longitudinal effects of midwife-led postnatal debriefing on the psychological health of mothers. *Journal of reproductive and infant psychology,* 24(02), 133-147.

Selous, C., Kelly-Irving, M., Maughan, B., Eyre, O., Rice, F., & Collishaw, S. (2020). Adverse childhood experiences and adult mood problems: evidence from a five-decade prospective birth cohort. *Psychological Medicine,* 50(14), 2444-2451.

Seng J., Low L., Sperlich M., Ronis D., Liberzon I., (2011) Post-traumatic stress disorder, child abuse history, birthweight and gestational age: a prospective cohort study. *BJOG, 118(11):1329–1339*.

Seng J., Oakley D., Sampselle C., Killion C., Graham-Bermann S., Liberzon I., (2001). Posttraumatic stress disorder and pregnancy complications*. Obstet Gynecol, 97(1):17–22. 9.*

Seng, J. S., D'Andrea, W., & Ford, J. D. (2014). Complex mental health sequelae of psychological trauma among women in prenatal care. *Psychological Trauma: Theory, Research, Practice, and Policy*, *6*(1), 41.

Seng, J. S., Low, L. K., Sparbel, K. J., & Killion, C. (2004). Abuse-related post-traumatic stress during the childbearing year. *Journal of Advanced Nursing,* 46(6), 604-613.

Seng, J. S., Sperlich, M., Low, L. K., Ronis, D. L., Muzik, M., & Liberzon, I. (2013). Childhood abuse history, posttraumatic stress disorder, postpartum mental health, and bonding: a prospective cohort study. *Journal of Midwifery & Women's Health*, *58*(1), 57-68.

Senn, T. E., Carey, M. P., & Vanable, P. A. (2008). Childhood and adolescent sexual abuse and subsequent sexual risk behavior: Evidence from controlled studies, methodological critique, and suggestions for research. *Clinical psychology review*, *28*(5), 711-735.

Sentell, T., Shumway, M., & Snowden, L. (2007). Access to mental health treatment by English language proficiency and race/ethnicity. *Journal of general internal medicine*, 22(2), 289-293.

Seto, M. C., Babchishin, K. M., Pullman, L. E., & McPhail, I. V. (2015). The puzzle of intrafamilial child sexual abuse: A meta-analysis comparing intrafamilial and extrafamilial offenders with child victims. *Clinical psychology review*, *39*, 42-57.

Sexton, M. B., Hamilton, L., McGinnis, E. W., Rosenblum, K. L., & Muzik, M. (2015). The roles of resilience and childhood trauma history: main and moderating effects on postpartum maternal mental health and functioning. *Journal of Affective Disorders*, *174*, 562-568.

Shamseer, L., Moher, D., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Shekelle, P., & Stewart, L. A. (2015). Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *The British Medical Journal*, *349*, g7647.

Shapero, B. G., Black, S. K., Liu, R. T., Klugman, J., Bender, R. E., Abramson, L. Y., & Alloy, L. B. (2014). Stressful life events and depression symptoms: the effect of childhood emotional abuse on stress reactivity. *Journal of Clinical Psychology*, *70*(3), 209-223.

Shavers, V.L., Fagan, P., Jones, D., Klein, W.M., Boyington, J., Moten, C., Rorie, E., 2012. The state of research on racial/ethnic discrimination in the receipt of health care. *Am. J. Public Health 102 (5), 953–966*

Shaw, J. G., Asch, S. M., Katon, J. G., Shaw, K. A., Kimerling, R., Frayne, S. M., & Phibbs, C. S. (2017). Post-traumatic stress disorder and antepartum complications: a novel risk factor for gestational diabetes and preeclampsia. *Paediatric and Perinatal Epidemiology*, *31*(3), 185-194.

Sheffler, J. L., Stanley, I., & Sachs-Ericsson, N. (2020). ACEs and mental health outcomes. In *Adverse Childhood Experiences* (pp. 47-69). Academic Press.

Shevlin, M., McBride, O., Murphy, J., Miller, J. G., Hartman, T. K., Levita, L., Mason, L., Martinex, A. P., McKay, R., Stocks, T. V. A., Bennett, K. M., Hyland, P., Karatzias, T., & Bentall, R. P.

(2020). Anxiety, depression, traumatic stress and COVID-19-related anxiety in the UK general population during the COVID-19 pandemic. *BJPsych open*, *6*(6).

Shisler, S., Eiden, R. D., Molnar, D. S., Schuetze, P., Huestis, M., & Homish, G. (2017). Smoking in pregnancy and fetal growth: the case for more intensive assessment. *Nicotine & Tobacco Research*, 19(5), 525-531.

Silverman, M. E., & Loudon, H. (2010). Antenatal reports of pre-pregnancy abuse is associated with symptoms of depression in the postpartum period. *Archives of women's mental health*, *13*(5), 411-415.

Simon, N., Ploszajski, M., Lewis, C., Smallman, K., Roberts, N. P., Kitchiner, N. J., Brookes-Howell, L., & Bisson, J. I. (2021). Internet-based psychological therapies: A qualitative study of National Health Service commissioners and managers views. *Psychology and Psychotherapy: Theory, Research and Practice*, 94(4), 994-1014.

Simon, N., Roberts, N. P., Lewis, C. E., van Gelderen, M. J., & Bisson, J. I. (2019). Associations between perceived social support, posttraumatic stress disorder (PTSD) and complex PTSD (CPTSD): implications for treatment. *European journal of psychotraumatology*, 10(1), 1573129.

Simon, N., Robertson, L., Lewis, C., Roberts, N. P., Bethell, A., Dawson, S., & Bisson, J. I. (2021). Internet-based cognitive and behavioural therapies for post-traumatic stress disorder (PTSD) in adults. *Cochrane database of systematic reviews*, (5).

Simons, R. L., Lei, M. K., Beach, S. R., Philibert, R. A., Cutrona, C. E., Gibbons, F. X., & Barr, A. (2016). Economic hardship and biological weathering: the epigenetics of aging in a US sample of black women. *Social Science & Medicine*, *150*, 192-200.

Simon, V. A., Feiring, C., & Kobielski McElroy, S. (2010). Making meaning of traumatic events: Youths' strategies for processing childhood sexual abuse are associated with psychosocial adjustment. *Child maltreatment*, 15(3), 229-241.

Sirati Nir, M., Ebadi, A., Fallahi Khoshknab, M., & Tavallaie, A. (2020). Consequences of living with posttraumatic stress disorder: A qualitative study. *Journal of Qualitative Research in Health Sciences*, 1(2), 92-101.

Skehan, D., Larkin, W., & Read, J. (2012). Childhood adversity and psychosis: A literature review with clinical and societal implications. *Psychoanalysis, Culture & Society*, *17*(4), 373-391.

Slade A, Aber JL, Berger B, Bresgi I, Kaplan M. Parent Development Interview Revised Short Version. 2003. *Unpublished manuscript.*

Slomski, A. (2019). Why do hundreds of US women die annually in childbirth?. *JAMA*, *321*(13), 1239-1241.

Smith, H. C., Saxena, S., & Petersen, I. (2020). Postnatal checks and primary care consultations in the year following childbirth: an observational cohort study of 309 573 women in the UK, 2006–2016. *BMJ open*, *10*(11), e036835.

Smith, K. E., & Pollak, S. D. (2021). Rethinking concepts and categories for understanding the neurodevelopmental effects of childhood adversity. *Perspectives on psychological science*, *16*(1), 67-93.

Smith, M. V., Shao, L., Howell, H., Lin, H., & Yonkers, K. A. (2011). Perinatal depression and birth outcomes in a Healthy Start project. *Maternal and child health journal*, *15*(3), 401-409.

Soares, A. L. G., Matijasevich, A., Menezes, A. M., Assunção, M. C., Wehrmeister, F. C., Howe, L. D., & Gonçalves, H. (2018). Adverse childhood experiences (ACES) and adiposity in adolescents: a cross-cohort comparison. *Obesity*, 26(1), 150-159.

Sobel, L., O'Rourke-Suchoff, D., Holland, E., Remis, K., Resnick, K., Perkins, R., & Bell, S. (2018). Pregnancy and childbirth after sexual trauma: patient perspectives and care preferences. *Obstetrics & Gynecology*, *132*(6), 1461-1468.

Sockol, L. E. (2015). A systematic review of the efficacy of cognitive behavioral therapy for treating and preventing perinatal depression. *Journal of Affective Disorders*, *177*, 7-21.

Soet, J. E., Brack, G. A., & DiIorio, C. (2003). Prevalence and predictors of women's experience of psychological trauma during childbirth. *Birth,* 30(1), 36-46.

Sonu, S., Post, S., & Feinglass, J. (2019). Adverse childhood experiences and the onset of chronic disease in young adulthood. *Preventive Medicine*, 123, 163-170.

Sorenson, D. S., & Tschetter, L. (2010). Prevalence of negative birth perception, disaffirmation, perinatal trauma symptoms, and depression among postpartum women. *Perspectives in Psychiatric Care*, 46(1), 14-25.

Souch, A. J., Jones, I. R., Shelton, K. H., & Waters, C. S. (2022). Maternal childhood maltreatment and perinatal outcomes: A systematic review. *Journal of affective disorders*.

Spector, P. E. (1994). Using self-report questionnaires in OB research: A comment on the use of a controversial method. *Journal of organizational behavior,* 385-392.

Spikol, E., Robinson, M., McGlinchey, E., Ross, J., & Armour, C. (2022). Exploring complex-PTSD comorbidity in trauma-exposed Northern Ireland veterans. *European Journal of Psychotraumatology*, 13(1), 2046953.

Spinhoven, P., Penninx, B. W., Van Hemert, A. M., De Rooij, M., & Elzinga, B. M. (2014). Comorbidity of PTSD in anxiety and depressive disorders: Prevalence and shared risk factors. *Child abuse & neglect*, *38*(8), 1320-1330.

Spitzer, R. L., Kroenke, K., Williams, J. B., Patient Health Questionnaire Primary Care Study Group, & Patient Health Questionnaire Primary Care Study Group. (1999). Validation and utility of a self-report version of PRIME-MD: the PHQ primary care study. *Jama*, 282(18), 1737-1744.

Squires, J., Potter, L., & Bricker, D. (1995). The ASQ user's guide for the Ages & Stages Questionnaires: A parent-completed, child-monitoring system. *Paul H Brookes Publishing.*

Stacks, A. M., Muzik, M., Wong, K., Beeghly, M., Huth-Bocks, A., Irwin, J. L., & Rosenblum, K. L. (2014). Maternal reflective functioning among mothers with childhood maltreatment histories: Links to sensitive parenting and infant attachment security. *Attachment & Human Development*, *16*(5), 515-533.

St-Cyr, S., Abuaish, S., Sivanathan, S., & McGowan, P. O. (2017). Maternal programming of sex-specific responses to predator odor stress in adult rats. *Hormones and Behavior*, *94*, 1-12.

Steel, C., Tehrani, N., Lewis, G., & Billings, J. (2021). Risk factors for complex posttraumatic stress disorder in UK police. *Occupational medicine*, 71(8), 351-357.

Steele, H., Bate, J., Steele, M., Dube, S. R., Danskin, K., Knafo, H., Nikitiades, A., Bonucl, K., Meissner, P., & Murphy, A. (2016). Adverse childhood experiences, poverty, and parenting stress. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, *48*(1), 32.

Steiger, J. H. (2004). Beyond the F test: effect size confidence intervals and tests of close fit in the analysis of variance and contrast analysis. *Psychological Methods*, 9(2), 164.

Stein, A., Pearson, R. M., Goodman, S. H., Rapa, E., Rahman, A., McCallum, M., Howard, L. M., & Pariante, C. M. (2014). Effects of perinatal mental disorders on the fetus and child. *The Lancet, 384*(9956), 1800-1819.

Steinberg, M. (1994). Interviewer's guide to the structured clinical interview for DSM-IV dissociative disorders (SCID-D). *American Psychiatric Pub.*

Stephenson, L. A., Beck, K., Busuulwa, P., Rosan, C., Pariante, C. M., Pawlby, S., & Sethna, V. (2018). Perinatal interventions for mothers and fathers who are survivors of childhood sexual abuse. *Child Abuse & Neglect,* 80, 9-31.

Stevens, N. R., Tirone, V., Lillis, T. A., Holmgreen, L., Chen-McCracken, A., & Hobfoll, S. E. (2017). Posttraumatic stress and depression may undermine abuse survivors' self-efficacy in the obstetric care setting. *Journal of Psychosomatic Obstetrics & Gynecology*, *38*(2), 103-110.

Stevens-Simon, C., & McAnarney, E. R. (1994). Childhood victimization: relationship to adolescent pregnancy outcome. *Child Abuse & Neglect*, *18*(7), 569-575.

Stoltzfus, J. C. (2011). Logistic regression: a brief primer. *Academic emergency medicine*, 18(10), 1099-1104.

Størksen, H. T., Garthus-Niegel, S., Adams, S. S., Vangen, S., & Eberhard-Gran, M. (2015). Fear of childbirth and elective caesarean section: a population-based study. *BMC pregnancy and childbirth,* 15(1), 1-10.

Straatmann, V. S., Lai, E., Law, C., Whitehead, M., Strandberg-Larsen, K., & Taylor-Robinson, D. (2020). How do early-life adverse childhood experiences mediate the relationship between childhood socioeconomic conditions and adolescent health outcomes in the UK?. *J Epidemiol Community Health*, 74(11), 969-975.

Strathearn, L., Giannotti, M., Mills, R., Kisely, S., Najman, J., & Abajobir, A. (2020). Long-term cognitive, psychological, and health outcomes associated with child abuse and neglect. *Pediatrics*, *146*(4).

Stress, T. (2018). Center on the Developing Child at Harvard University. *Center on the Developing Child (https://developingchild. harvard. edu/science/key-concepts/toxicstress/).*

Stripe, N. (2020). Crime in England and Wales: year ending December 2019. *Office for National Statistics*.

Stutts, L. A., Leary, M. R., Zeveney, A. S., & Hufnagle, A. S. (2018). A longitudinal analysis of the relationship between self-compassion and the psychological effects of perceived stress. *Self and Identity,* 17(6), 609–626.

Su, Y., D'Arcy, C., & Meng, X. (2020). Intergenerational Effect of Maternal Childhood Maltreatment on Next Generation's Vulnerability to Psychopathology: A Systematic Review With Meta-Analysis. *Trauma, Violence, & Abuse*, 1524838020933870.

Sumner, J. A., Colich, N. L., Uddin, M., Armstrong, D., & McLaughlin, K. A. (2019). Early experiences of threat, but not deprivation, are associated with accelerated biological aging in children and adolescents. *Biological psychiatry*, *85*(3), 268-278.

Suzumori, N., & Sugiura-Ogasawara, M. (2010). Genetic factors as a cause of miscarriage. *Current medicinal chemistry*, 17(29), 3431-3437.

Swales, D. A., Winiarski, D. A., Smith, A. K., Stowe, Z. N., Newport, D. J., & Brennan, P. A. (2018). Maternal depression and cortisol in pregnancy predict offspring emotional reactivity in the preschool period. *Developmental psychobiology*, *60*(5), 557-566.

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics* (Vol. 5, pp. 481-498). Boston, MA: pearson.

Tabberer, S., Hall, C., Prendergast, S., & Webster, A. (2000). Teenage pregnancy and choice. *York: Joseph Rowntree Foundation*.

Tacconelli, E. (2010). Systematic reviews: CRD's guidance for undertaking reviews in health care. *The Lancet Infectious Diseases*, *10*(4), 226.

Taheri, M., Takian, A., Taghizadeh, Z., Jafari, N., & Sarafraz, N. (2018). Creating a positive perception of childbirth experience: systematic review and meta-analysis of prenatal and intrapartum interventions. *Reproductive health*, 15(1), 1-13.

Taheri, M., Takian, A., Taghizadeh, Z., Jafari, N., & Sarafraz, N. (2018). Creating a positive perception of childbirth experience: systematic review and meta-analysis of prenatal and intrapartum interventions. *Reproductive health,* 15(1), 1-13.

Talmon, A., & Ginzburg, K. (2016). The nullifying experience of self-objectification: The development and psychometric evaluation of the Self-Objectification Scale. *Child Abuse & Neglect,* 60, 46-57.

Talmon, A., & Ginzburg, K. (2019). Chased by the past: The relation between childhood maltreatment and fear of childbirth. *Sex Roles*, *81*(3), 223-234.

Talmon, A., Horovitz, M., Shabat, N., Haramati, O. S., & Ginzburg, K. (2019). "Neglected moms"-The implications of emotional neglect in childhood for the transition to motherhood. *Child Abuse & Neglect*, *88*, 445-454.

Tani, F., & Castagna, V. (2017). Maternal social support, quality of birth experience, and post-partum depression in primiparous women. *The Journal of Maternal-Fetal & Neonatal Medicine*, 30(6), 689-692.

Tate, J., & Bushnell, C. (2011). Pregnancy and stroke risk in women. *Women's health*, *7*(3), 363-374.

Tavares, A. I. (2017). Infant mortality in Europe, socio-economic determinants based on aggregate data. *Applied Economics Letters*, *24*(21), 1588-1596.

Taylor, C. M., Golding, J., & Emond, A. M. (2015). Adverse effects of maternal lead levels on birth outcomes in the ALSPAC study: a prospective birth cohort study. BJOG*: An International Journal of Obstetrics & Gynaecology*, 122(3), 322-328.

Taylor, S., Asmundson, G. J., & Carleton, R. N. (2006). Simple versus complex PTSD: A cluster analytic investigation. *Journal of anxiety disorders*, *20*(4), 459-472.

The National Information Centre on Children of Offenders. Available online at: https://www.nicco.org.uk/. (Accessed on June 05, 2022).

Thomas, E. (2021). Bipolar Disorder and Postpartum Psychosis Pregnancy Planning (PREP) Study: developing an interactive guide for women at high risk (Doctoral dissertation, Cardiff University).

Thompson-Booth, C., Viding, E., Mayes, L. C., Rutherford, H. J., Hodsoll, S., & McCrory, E. J. (2014). Here's looking at you, kid: Attention to infant emotional faces in mothers and non-mothers. *Developmental Science*, *17*(1), 35-46.

Tilson, E. C. (2018). Adverse childhood experiences (ACEs): an important element of a comprehensive approach to the opioid crisis. *North Carolina Medical Journal*, *79*(3), 166-169.

Tirumalaraju, V., Suchting, R., Evans, J., Goetzl, L., Refuerzo, J., Neumann, A., Anand, D., Ravikumar, R., Green, C. E., Cowen, P. J., & Selvaraj, S. (2020). Risk of depression in the adolescent and adult offspring of mothers with perinatal depression: a systematic review and meta-analysis*. JAMA network open*, 3(6), e208783-e208783.

Tolu, L. B., Jeldu, W. G., & Feyissa, G. T. (2020). Effectiveness of utilizing the WHO safe childbirth checklist on improving essential childbirth practices and maternal and perinatal outcome: A systematic review and meta-analysis. *PloS one*, *15*(6), e0234320.

Toohill, J., Fenwick, J., Gamble, J., Creedy, D. K., Buist, A., Turkstra, E., & Ryding, E. L. (2014). A randomized controlled trial of a psycho-education intervention by midwives in reducing childbirth fear in pregnant women. *Birth,* 41(4), 384-394.

Torous, J., Lipschitz, J., Ng, M., & Firth, J. (2020). Dropout rates in clinical trials of smartphone apps for depressive symptoms: a systematic review and meta-analysis. *Journal of affective disorders,* 263, 413-419.

Trends, C. (2019). Child maltreatment. Avaiable from: https://www. childtrends. org/indicators/childmaltreatment [Accessed February 6 2020].

Tronick, E., Als, H., Adamson, L., Wise, S., & Brazelton, T. B. (1978). The infant's response to entrapment between contradictory messages in face-to-face interaction. *Journal of the American Academy of Child psychiatry*, 17(1), 1-13.

Trzesniewski, K. H., Donnellan, M. B., Moffitt, T. E., Robins, R. W., Poulton, R., & Caspi, A. (2006). Low self-esteem during adolescence predicts poor health, criminal behavior, and limited economic prospects during adulthood. *Developmental psychology*, 42(2), 381.

Tsur, N., & Abu-Raiya, H. (2020). COVID-19-related fear and stress among individuals who experienced child abuse: The mediating effect of complex posttraumatic stress disorder. *Child Abuse & Neglect*, 110, 104694.

Turney, K. (2018). Adverse childhood experiences among children of incarcerated parents. *Children and Youth Services Review*, *89*, 218-225.

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(6), 2219-2223.

Usher, J. A., & Neisser, U. (1993). Childhood amnesia and the beginnings of memory for four early life events. *Journal of Experimental Psychology: General*, 122(2), 155.

Utamsingh, P. D., Richman, L. S., Martin, J. L., Lattanner, M. R., & Chaikind, J. R. (2016). Heteronormativity and practitioner–patient interaction. *Health communication,* 31(5), 566-574.

Vallières, F., Ceannt, R., Daccache, F., Abou Daher, R., Sleiman, J., Gilmore, B., Byrne, S., Shelvin, M., Murphy, J., & Hyland, P. (2018). ICD-11 PTSD and complex PTSD amongst Syrian refugees in Lebanon: The factor structure and the clinical utility of the International Trauma Questionnaire. *Acta Psychiatrica Scandinavica*, 138(6), 547–557.

Van de Ven, M. C., van den Heuvel, M. I., Bhogal, A., Lewis, T., & Thomason, M. E. (2020). Impact of maternal childhood trauma on child behavioral problems: The role of child frontal alpha asymmetry. *Developmental psychobiology*, 62(2), 154-169.

Van der Does, A. J. W., Barnhofer, T., & Williams, J. M. G. (2003). The major depression questionnaire (MDQ).

Van Dijke, A., Hopman, J. A., & Ford, J. D. (2018). Affect dysregulation, psychoform dissociation, and adult relational fears mediate the relationship between childhood trauma and complex posttraumatic stress disorder independent of the symptoms of borderline personality disorder. *European Journal of Psychotraumatology*, *9*(1), 1400878.

Van Kirk, N., Fletcher, T. L., Wanner, J. L., Hundt, N., & Teng, E. J. (2018). Implications of comorbid OCD on PTSD treatment: A case study. *Bulletin of the Menninger Clinic*, *82*(4), 344-359.

Vance, A. J., & Brandon, D. H. (2017). Delineating among parenting confidence, parenting self-efficacy and competence. *ANS. Advances in nursing science*, *40*(4), E18.

Veisani, Y., Jenabi, E., Delpisheh, A., & Khazaei, S. (2019). Effect of prenatal smoking cessation interventions on birth weight: meta-analysis. *The Journal of Maternal-Fetal & Neonatal Medicine*, 32(2), 332-338.

Verbeek, T., Bockting, C. L., van Pampus, M. G., Ormel, J., Meijer, J. L., Hartman, C. A., & Burger, H. (2012). Postpartum depression predicts offspring mental health problems in adolescence independently of parental lifetime psychopathology. *Journal of affective disorders*, *136*(3), 948-954.

Verhaeghe, Mieke, Piet Bracke, and Kevin Bruynooghe. (2008). "Stigmatization and self-esteem of persons in recovery from mental illness: the role of peer support." *International Journal of Social Psychiatry 54, no. 3*: 206-218.

Vesel, J., & Nickasch, B. (2015). An evidence review and model for prevention and treatment of postpartum posttraumatic stress disorder. *Nursing for women's health*, *19*(6), 504-525.

Vignato, J., Georges, J. M., Bush, R. A., & Connelly, C. D. (2017). Post-traumatic stress disorder in the perinatal period: A concept analysis. *Journal of clinical nursing*, *26*(23-24), 3859-3868.

Vogel, J. P., Chawanpaiboon, S., Moller, A. B., Watananirun, K., Bonet, M., & Lumbiganon, P. (2018). The global epidemiology of preterm birth. *Best Practice & Research Clinical Obstetrics & Gynaecology*, 52, 3-12.

von Soest, T., Wichstrøm, L., & Kvalem, I. L. (2016). The development of global and domain-specific self-esteem from age 13 to 31. *Journal of Personality and Social Psychology*, 110(4), 592.

Waehrer, G. M., Miller, T. R., Silverio Marques, S. C., Oh, D. L., & Burke Harris, N. (2020). Disease burden of adverse childhood experiences across 14 states. *PLoS one*, 15(1), e0226134.

Wagner, J., Lang, F. R., Neyer, F. J., & Wagner, G. G. (2014). Self-esteem across adulthood: The role of resources. *European journal of ageing,* 11(2), 109-119.

Wahlbeck, H., Kvist, L. J., & Landgren, K. (2018). Gaining hope and self-confidence—An interview study of women's experience of treatment by art therapy for severe fear of childbirth. *Women and Birth*, 31(4), 299-306.

Walani, S. R. (2020). Global burden of preterm birth. *International Journal of Gynecology & Obstetrics*, 150(1), 31-33.

Walker, K. F., Bugg, G. J., Macpherson, M., McCormick, C., Grace, N., Wildsmith, C., ... & Thornton, J. G. (2016). Randomized trial of labor induction in women 35 years of age or older. *New England journal of medicine,* 374(9), 813-822.

Walker, K. F., Wilson, P., Bugg, G. J., Dencker, A., & Thornton, J. G. (2015). Childbirth experience questionnaire: validating its use in the United Kingdom. *BMC pregnancy and childbirth*, 15(1), 1-8.

Walsh, D., McCartney, G., Smith, M., & Armour, G. (2019). Relationship between childhood socioeconomic position and adverse childhood experiences (ACEs): a systematic review. *J Epidemiol Community Health*, *73*(12), 1087-1093.

Wang, Z. Y., Hu, M., Yu, T. L., & Yang, J. (2019). The relationship between childhood maltreatment and risky sexual behaviors: a meta-analysis. *International journal of environmental research and public health*, *16*(19), 3666.

Ward, L. G. (2020). Trauma-informed perinatal healthcare for survivors of sexual violence. *The Journal of Perinatal & Neonatal Nursing*, *34*(3), 199-202.

Waters, C. S., Hay, D. F., Simmonds, J. R., & van Goozen, S. H. (2014). Antenatal depression and children's developmental outcomes: potential mechanisms and treatment options. *European Child & Adolescent Psychiatry*, *23*(10), 957-971.

Watson, S., Gallagher, P., Dougall, D., Porter, R., Moncrieff, J., Ferrier, I. N., & Young, A. H. (2014). Childhood trauma in bipolar disorder. *Australian & New Zealand Journal of Psychiatry*, *48*(6), 564-570.

Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. M. (2013). The clinician-administered PTSD scale for DSM-5 (CAPS-5). *Interview available from the National Center for PTSD at www. ptsd. va. gov*, *6*.

Weissman, D. G., Bitran, D., Miller, A. B., Schaefer, J. D., Sheridan, M. A., & McLaughlin, K. A. (2019). Difficulties with emotion regulation as a transdiagnostic mechanism linking child maltreatment with the emergence of psychopathology. *Development and Psychopathology*, *31*(3), 899-915.

Wells, G. A., Shea, B., O'connell, D., Peterson, J., Welch, V., Losos, M., & Tugwell, P. (2016). The Newcastle-Ottawa Scale (NOS) for assessing the quality if nonrandomized studies in meta-analyses. 2009. *Epub* Available from: URL: http://www.ohri.ca/programs/clinical_epidemiology/oxford. htm

Welsh Government Review of Adverse Childhood Experiences (ACE) policy: report. Available online at: https://gov.wales/sites/default/files/pdf-versions/2021/3/3/1615991408/review-adverse-childhood-experiences-ace-policy-report.pdf. (Accessed June 10, 2022).

Werner-Bierwisch, T., Pinkert, C., Niessen, K., Metzing, S., & Hellmers, C. (2018). Mothers' and fathers' sense of security in the context of pregnancy, childbirth and the postnatal period: an integrative literature review. *BMC pregnancy and childbirth*, 18(1), 1-16.

Wheeler, J., Davis, D., Fry, M., Brodie, P., & Homer, C. S. (2012). Is Asian ethnicity an independent risk factor for severe perineal trauma in childbirth? A systematic review of the literature. *Women and Birth*, 25(3), 107-113.

Wheeler, S., Maxson, P., Truong, T., & Swamy, G. (2018). Psychosocial stress and preterm birth: the impact of parity and race. *Maternal and child health journal*, 22(10), 1430-1435.

White, A. (2014). Responding to prenatal disclosure of past sexual abuse. *Obstetrics and Gynecology,* 123(6), 1344.

Whitworth, M., & Cockerill, R. (2010). Antenatal management of teenage pregnancy. *Obstetrics, Gynaecology & Reproductive Medicine*, *20*(11), 323-328.

Wichers, M., Myin-Germeys, I., Jacobs, N., Peeters, F., Kenis, G., Derom, C., Vlietinck, R., Delespaul, P., & Van Os, J. (2007). Genetic risk of depression and stress-induced negative affect in daily life. *The British Journal of Psychiatry*, 191(3), 218-223.

Wilde, N., & Hsu, A. (2019). The influence of general self-efficacy on the interpretation of vicarious experience information within online learning. *International Journal of Educational Technology in Higher Education*, 16(1), 1-20.

Williamson, A. (2007). Using self-report measures in neurobehavioural toxicology: can they be trusted?. *Neurotoxicology*, 28(2), 227-234.

Wiss, D. A., & Brewerton, T. D. (2020). Adverse childhood experiences and adult obesity: a systematic review of plausible mechanisms and meta-analysis of cross-sectional studies. *Physiology & Behavior*, *223*, 112964.

Wolfe, J., Kimerling, R., Brown, P. J., Chrestman, K. R., & Levin, K. (1996). Life Stressor Checklist--Revised. *Journal of Community Psychology*.

Wong, Luchin F., Aaron B. Caughey, Sanae Nakagawa, Anjali J. Kaimal, Susan H. Tran, and Yvonne W. Cheng. (2008). "Perinatal outcomes among different Asian-American subgroups." *American journal of obstetrics and gynecology* 199, no. 4: 382-e1.

Wong, S. P., Twynstra, J., Gilliland, J. A., Cook, J. L., & Seabrook, J. A. (2020). Risk factors and birth outcomes associated with teenage pregnancy: A Canadian sample. *Journal of pediatric and adolescent gynecology*, *33*(2), 153-159.

Woodall, A., Morgan, C., Sloan, C., & Howard, L. (2010). Barriers to participation in mental health research: are there specific gender, ethnicity and age related barriers?. *BMC psychiatry*, 10(1), 1-10.

Woods, S. M., Melville, J. L., Guo, Y., Fan, M. Y., & Gavin, A. (2010). Psychosocial stress during pregnancy. *American journal of obstetrics and gynecology*, 202(1), 61-e1.

Xie, H., Huffman, N., Shih, C. H., Cotton, A. S., Buehler, M., Brickman, K. R., Wall, J. T., & Wang, X. (2022). Adverse childhood experiences associate with early post-trauma thalamus and thalamic nuclei volumes and PTSD development in adulthood. *Psychiatry Research: Neuroimaging,* 319, 111421.

Yildiz, P. D., Ayers, S., & Phillips, L. (2017). The prevalence of posttraumatic stress disorder in pregnancy and after birth: A systematic review and meta-analysis. *Journal of affective disorders,* 208, 634-645.

Yu, M., Linn, K. A., Shinohara, R. T., Oathes, D. J., Cook, P. A., Duprat, R., Moore, T. M., Oquendo, M. A., Phillips, M. L., McInnis, M., Fava, M., Trivedi, M. H., McGrath, P., Parsey, R., Weissman, M. M., & Sheline, Y. I. (2019). Childhood trauma history is linked to abnormal brain connectivity in major depression. *Proceedings of the National Academy of Sciences*, *116*(17), 8582-8590.

Zamani, P., Ziaie, T., Lakeh, N. M., & Leili, E. K. (2019). The correlation between perceived social support and childbirth experience in pregnant women. *Midwifery,* 75, 146-151.

Zambaldi, C. F., Cantilino, A., Farias, J. V., Moraes, G. P., & Sougey, E. B. (2016). Incidence and associated factors with traumatic childbirth in postpartum Brazilian woman. *Summa Psicológica UST,* 13(2), 5-12.

Zamir, O. (2021). Childhood maltreatment and relationship quality: A review of type of abuse and mediating and protective factors. *Trauma, Violence, & Abuse*, 1524838021998319.

Zammit, S., Lewis, C., Dawson, S., Colley, H., McCann, H., Piekarski, A., Rockliff, H., & Bisson, J. (2018). Undetected post-traumatic stress disorder in secondary-care mental health services: systematic review. *The British Journal of Psychiatry*, *212*(1), 11-18.

Zammit, S., Odd, D., Horwood, J., Thompson, A., Thomas, K., Menezes, P., Gunnell, D., Hollis, C., Wolke, D., Lewis, G., & Harrison, G. (2009). Investigating whether adverse prenatal and perinatal events are associated with non-clinical psychotic symptoms at age 12 years in the ALSPAC birth cohort. *Psychological medicine*, 39(9), 1457-1467.

Zhai, Z. W., Yip, S. W., Lacadie, C. M., Sinha, R., Mayes, L. C., & Potenza, M. N. (2019). Childhood trauma moderates inhibitory control and anterior cingulate cortex activation during stress. *Neuroimage*, 185, 111-118

Zhang, B., Wei, D., Legro, R. S., Shi, Y., Li, J., Zhang, L., Hong, Y., Sun, G., Zhang, T., Li, W., & Chen, Z. J. (2018). Obstetric complications after frozen versus fresh embryo transfer in women with polycystic ovary syndrome: results from a randomized trial. *Fertility and sterility*, *109*(2), 324-329.

Zhang, G., Srivastava, A., Bacelis, J., Juodakis, J., Jacobsson, B., & Muglia, L. J. (2018). Genetic studies of gestational duration and preterm birth. *Best practice & research Clinical obstetrics & gynaecology*, 52, 33-47.

Zhang, R., Xie, R., Ding, W., Wang, X., Song, S., & Li, W. (2022). Why is my world so dark? Effects of child physical and emotional abuse on child depression: the mediating role of self-compassion and negative automatic thoughts. *Child Abuse & Neglect*, *129*, 105677.

Zhang, X., Sun, J., Wang, J., Chen, Q., Cao, D., Wang, J., & Cao, F. (2020). Suicide ideation among pregnant women: The role of different experiences of childhood abuse. *Journal of Affective Disorders*, 266, 182-186

Zwickl, S., & Merriman, G. (2011). The association between childhood sexual abuse and adult female sexual difficulties. *Sexual and Relationship Therapy*, *26*(1), 16-32.

9. Appendix

9.1. Adverse Childhood Experience (ACE) Questionnaire

While you were growing up, during your first 18 years of life:

1. Did a parent or other adult in the household often … Swear at you, insult you, put you down, or humiliate you? or Act in a way that made you afraid that you might be physically hurt?
   Yes No
2. Did a parent or other adult in the household often … Push, grab, slap, or throw something at you? or Ever hit you so hard that you had marks or were injured?
   Yes No
3. Did an adult or person at least 5 years older than you ever… Touch or fondle you or have you touch their body in a sexual way? or Try to or actually have oral, anal, or vaginal sex with you?
   Yes No
4. Did you often feel that … No one in your family loved you or thought you were important or special? or Your family didn't look out for each other, feel close to each other, or support each other?
   Yes No
5. Did you often feel that … You didn't have enough to eat, had to wear dirty clothes, and had no one to protect you? or Your parents were too drunk or high to take care of you or take you to the doctor if you needed it?
   Yes No
6. Were your parents ever separated or divorced?
   Yes No
7. Was your mother or stepmother: Often pushed, grabbed, slapped, or had something thrown at her? or Sometimes or often kicked, bitten, hit with a fist, or hit with something hard? or Ever repeatedly hit over at least a few minutes or threatened with a gun or knife?
   Yes No
8. Did you live with anyone who was a problem drinker or alcoholic or who used street drugs?
   Yes No
9. Was a household member depressed or mentally ill or did a household member attempt suicide?
   Yes No
10. Did a household member go to prison?

Yes No

9.2 International Trauma Questionnaire

THE INTERNATIONAL TRAUMA QUESTIONNAIRE (ITQ)

OVERVIEW:
The attached instrument is a brief, simply worded measure, focusing only on the core features of PTSD and CPTSD, and employs straightforward diagnostic rules. The ITQ was developed to be consistent with the organizing principles of the ICD-11, as set forth by the World Health Organization, which are to maximize clinical utility and ensure international applicability through a focus on the core symptoms of a given disorder. The ITQ is freely available in the public domain to all interested parties. Evaluation of the measure continues particularly as it relates to the definition of functional impairment for both PTSD and CPTSD and possibly the content of the items as they might relate to being predictive of differential treatment outcome.

DIAGNOSTIC ALGORITHMS are as follows:
PTSD. A diagnosis of PTSD requires the endorsement of one of two symptoms from the symptom clusters of (1) re-experiencing in the here and now, (2) avoidance, and (3) sense of current threat, plus endorsement of at least one indicator of functional impairment associated with these symptoms. Endorsement of a symptom or functional impairment item is defined as a score ≥ 2.

CPTSD. A diagnosis of CPTSD requires the endorsement of one of two symptoms from each of the three PTSD symptoms clusters (re-experiencing in the here and now, avoidance, and sense of current threat) and one of two symptoms from each of the three Disturbances in Self-Organization (DSO) clusters: (1) affective dysregulation, (2) negative self-concept, and (3) disturbances in relationships. Functional impairment must be identified where at least one indicator of functional impairment is endorsed related to the PTSD symptoms and one indicator of functional impairment is endorsed related to the DSO symptoms. Endorsement of a symptom or functional impairment item is defined as a score ≥ 2.

An individual can receive either a diagnosis of PTSD or CPTSD, not both. If a person meets the criteria for CPTSD, that person does not also receive a PTSD diagnosis.

Scoring instructions are available at the end of this document.

THE REFERENCE for the measure is:
Cloitre, M., Shevlin M., Brewin, C.R., Bisson, J.I., Roberts, N.P., Maercker, A., Karatzias, T., Hyland, P. (2018). The International Trauma Questionnaire: Development of a self-report measure of ICD-11 PTSD and Complex PTSD. *Acta Psychiatrica Scandinavica. 138*(6), 536–546. https://doi.org/10.1111/acps.12956

BACKGROUND PUBLICATIONS:
Redican, E., Nolan, E., Hyland, P., Cloitre, M., McBride, O., Karatzias, T., Murphy, J., & Shevlin, M. (2021). A systematic literature review of factor analytic and mixture models of ICD-11 PTSD and CPTSD using the International Trauma Questionnaire. *Journal of Anxiety Disorders*, *79*, 102381. https://doi.org/10.1016/j.janxdis.2021.102381

Cloitre, M., Hyland, P., Prins, A., & Shevlin, M. (2021). The international trauma questionnaire (ITQ) measures reliable and clinically significant treatment-related change in PTSD and complex PTSD. *European Journal of Psychotraumatology, 12*(1), Article 1930961. https://doi.org/10.1080/20008198.2021.1930961

Brewin, C. R., Cloitre, M., Hyland, P., Shevlin, M., Maercker, A., Bryant, R. A., Humayun, A., Jones, L. M., Kagee, A., Rousseau, C., Somasundaram, D., Suzuki, Y., Wessely, S., van Ommeren, M., & Reed, G. M. (2017). A review of current evidence regarding the ICD-11 proposals for diagnosing PTSD and complex PTSD. *Clinical Psychology Review*, *58*, 1–15. https://doi.org/10.1016/j.cpr.2017.09.001

Shevlin, M., Hyland, P., Roberts, N. P., Bisson, J. I., Brewin, C.R. & Cloitre M. (2018). A psychometric assessment of Disturbances in Self-Organization symptom indicators for ICD-11 Complex PTSD using the International Trauma Questionnaire, *European Journal of Psychotraumatology*, 9:1, DOI: 10.1080/20008198.2017.1419749

International Trauma Questionnaire

Instructions: Please identify the experience that troubles you most and answer the questions in relation to this experience.

Brief description of the experience _____

When did the experience occur? (circle one)

a. less than 6 months ago
b. 6 to 12 months ago
c. 1 to 5 years ago
d. 5 to 10 years ago
e. 10 to 20 years ago
f. more than 20 years ago

Below are a number of problems that people sometimes report in response to traumatic or stressful life events. Please read each item carefully, then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

Below are problems that people who have had stressful or traumatic events sometimes experience. The questions refer to ways you typically feel, ways you typically think about yourself and ways you typically relate to others. Answer the following thinking about how true each statement is of you.

How true is this of you?	***Not at all***	***A little bit***	***Moderately***	***Quit a bit***	***Extremely***
C1. When I am upset, it takes me a long time to calm down.	0	1	2	3	4
C2. I feel numb or emotionally shut down.	0	1	2	3	4
C3. I feel like a failure.	0	1	2	3	4
C4. I feel worthless.	0	1	2	3	4
C5. I feel distant or cut off from people.	0	1	2	3	4
C6. I find it hard to stay emotionally close to people.	0	1	2	3	4

In the past month, have the above problems in emotions, in beliefs about yourself and in relationships:

C7. Created concern or distress about your relationships or social life?	0	1	2	3	4
C8. Affected your work or ability to work?	0	1	2	3	4
C9. Affected any other important parts of your life such as parenting, or school or college work, or other important activities?	0	1	2	3	4

	Not at all	*A little bit*	*Moderately*	*Quite a bit*	*Extremely*
P1. Having upsetting dreams that replay part of the experience or are clearly related to the experience?	0	1	2	3	4
P2. Having powerful images or memories that sometimes come into your mind in which you feel the experience is happening again in the here and now?	0	1	2	3	4
P3. Avoiding internal reminders of the experience (for example, thoughts, feelings, or physical sensations)?	0	1	2	3	4
P4. Avoiding external reminders of the experience (for example, people, places, conversations, objects, activities, or situations)?	0	1	2	3	4
P5. Being "super-alert", watchful, or on guard?	0	1	2	3	4
P6. Feeling jumpy or easily startled?	0	1	2	3	4

In the past month have the above problems:

P7. Affected your relationships or social life?	0	1	2	3	4
P8. Affected your work or ability to work?	0	1	2	3	4
P9. Affected any other important part of your life such as parenting, or school or college work, or other important activities?	0	1	2	3	4

9.3. International Trauma Interview

National Centre for Mental Health

Structured Clinical Interview

Instructions to interviewers are written in UPPERCASE BOLD.

PLEASE MARK RESPONSES BY PLACING AN X IN THE RESPONSE BOX

ROUGH NOTES WILL NOT BE ENTERED. PLEASE ENSURE ANY TEXT TO BE ENTERED IS LEGIBLE AND WRITTEN IN BLOCK CAPITALS.

ANYTHING WRITTEN IN MIXED CASE IS MEANT TO BE READ TO THE PARTICIPANT (P).

IF P BECOMES DISTRESSED, RESPOND IN A SUPPORTIVE MANNER.

IF YOU JUDGE IT APPROPRIATE, YOU CAN -

- PROVIDE P WITH INFORMATION AS TO HOW TO OBTAIN COUNSELLING OR OTHER APPROPRIATE SUPPORT
- SEEK ADVICE FROM A MORE SENIOR MEMBER OF THE RESEARCH TEAM

IF P REQUESTS, MAKE A REFERRAL TO AN APPROPRIATE PERSON OR AGENCY (E.G. GP, LOCAL MENTAL HEALTH SERVICE, MENTAL HEALTH VOLUNTARY ORGANISATION)

Part 1: Diagnosing PTSD in ICD-11

Traumatic event guidelines: involves an event or situation (either short- or long-lasting) of an exceptionally threatening or catastrophic nature (e.g. experiencing natural or man-made disaster, combat, serious accident, life-threatening illness, sexual assault or rape, or the sudden, unexpected or violent death of a loved one; witnessing the violent death of others). Traumatic events also include experiences such as childhood sexual or physical abuse or domestic violence, or being a victim of torture or a victim of violence (as a member of a minority group). These events can happen only one time or multiple times. Also include events that were extremely subjectively (but not objectively) threatening only if judgement was altered e.g. through a temporary delusional state or a condition such as autistic spectrum disorder.

[Administer Life Events Checklist (see previous page) or other structured trauma screen]

Have you ever served in the military?

☐ Yes

☐ No

If yes, what service

If more than one event is endorsed on the Life Events Checklist, identify which event the participant sees as the worst event

Which of these events would you consider to be the worst for you, i.e. which would you consider troubles you most?

CODE WORST EVENT USING LEC NUMBER ☐☐

I'm going to ask you about the stressful experiences questionnaire you filled out. First I'll ask you to tell me a little bit about the event you said was the worst for you. Then I'll ask how that event may have affected you over the past month. In general I don't need a lot of information - just enough so I can understand any problems you may have had. Please let me know if you find yourself becoming upset as we go through the questions so we can slow down and talk about it. Also, let me know if you have any questions or don't understand something. Do you have any questions before we start?

The event you said was the worst was (EVENT). What I'd like for you to do is briefly describe what happened.

What happened? *(How old were you? How were you involved? Who else was involved? Was anyone seriously injured or killed? Was anyone's life in danger? How many times did this happen?)*

Exposure type:

Experienced ☐
Witnessed ☐
Learned about ☐
Exposed to aversive details ☐

	No	Yes (to me)	Yes (to someone else)
Life threat?	☐	☐	☐
Serious injury?	☐	☐	☐
Sexual violation?	☐	☐	☐

Meets definition for a traumatic event for **ICD-11**
Yes ☐
Probable ☐
No ☐

How old were you when the event occurred/ started? ☐☐

How long did the worst event last? _____ **RECORD IN DAYS** ☐☐☐☐

How long ago did this event end? _____ **RECORD IN MONTHS** ☐☐☐

Does P report that they have little or no memory for the event (for example, because the event occurred in childhood or because P suffered a head injury at the time of the event)? No ☐ Yes ☐

For the rest of the interview, I want you to keep (EVENT) in mind as I ask you about different problems it may have caused you. You may have had some of these problems before, but for this interview we're going to focus just on the past month. For each problem I'll ask if you've had it in the past month, and if so, how often and how much it bothered you.

Re-experiencing symptoms

Symptoms that are associated with the traumatic event(s) (that began after the traumatic event(s)), as evidenced by one or more of the following:

Nightmares:
(1) - recurrent distressing dreams in which the content and/or affect of the dream is related to the event(s). Nightmares should be accompanied by feelings of fear or horror (this is not necessary when dreams are associated with childhood sexual abuse).

In the past month, have you had any upsetting dreams that replay part of (EVENT) or are clearly related to (EVENT)?

Describe a typical dream. *(What happens?)*

[If not clear:] ***(Do they wake you up?)***

[If yes:] ***(What do you experience when you wake up? How do you feel when you wake up? How long does it take you to get back to sleep?)***

[If reports not returning to sleep:] ***(How much sleep do you normally lose?)***

[If not clear:] **Do the dreams normally include feelings of fear or horror?**

How much do these dreams bother you?

Circle: Distress = *Minimal Clearly Present Pronounced Extreme*

How often have you had these dreams in the past month?

# of times _____

Key rating dimensions = frequency / intensity of distress
Moderate = at least 2 X month / distress clearly present, less than 1 hour sleep loss
Severe = at least 2 X week / pronounced distress, more than 1 hour sleep loss

SEVERITY

Absent ☐
Mild/ subthreshold ☐
Moderate/ threshold ☐
Severe/ markedly elevated ☐
Extreme/ incapacitatng ☐

Dreams include fear or horror

Yes ☐ No ☐

Intrusive Memories/Flashbacks:
(2a) - vivid involuntary images and dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) are recurring in the present, even if only fleetingly (such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings). Reliving should be accompanied by feelings of fear or horror (this is not necessary when reliving is associated with childhood sexual abuse).

In the past month, have there been times when powerful images or memories have come into your mind in which you felt as though the event was happening again in the here and now, while you were awake?

Describes clear reliving in the "here and now"
Yes ☐ No ☐

Have you had other experiences in which you suddenly acted or felt as if (EVENT) were actually happening again?

SEVERITY

Absent ☐
Mild/ subthreshold ☐
Moderate/ threshold ☐
Severe/ markedly elevated ☐
Extreme/ incapacitating ☐

[If not clear:] ***(This is different than thinking about it or dreaming about it - now I'm asking about flashbacks, when you feel like you're actually back at the time of [EVENT], actually reliving it, even very briefly.)***

How much does it seem as if (EVENT) were happening again? *(Are you confused about where you actually are?)*

What do you do while this is happening? *(Do other people notice your behavior? What do they say?)*

How long does it last?

[If not clear:] **Do these episodes normally include feelings of fear or horror?** Yes ☐ No ☐

Circle: Dissociation = *Minimal Clearly Present Pronounced Extreme*

How often has this happened in the past month? *# of times* _____

Key rating dimensions = frequency / intensity of dissociation
Moderate = at least 2 X month / dissociative quality clearly present, may retain some awareness of surroundings but relives event in a manner clearly distinct from thoughts and memories
Severe = at least 2 X week / pronounced dissociative quality, reports vivid reliving, e.g., with images, sounds, smells

Emotional Reactivity: *(Only to be administered when there is an absence or insufficient memory of the event such as may occur with traumatic brain injury, heavy alcohol intoxication, being drugged or childhood abuse)*

(2b) - intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s)

In the past month, have you become emotionally upset when something reminded you of (EVENT)?

What kinds of reminders make you upset?

How much do these reminders bother you?

Are you able to calm yourself down when this happens? *(How long does it take?)*

Circle: Distress = *Minimal Clearly Present Pronounced Extreme*

How often has this happened in the past month? *# of times* _____

Key rating dimensions = frequency / intensity of distress
Moderate = at least 2 X month / distress clearly present, some difficulty recovering
Severe = at least 2 X week / pronounced distress, considerable difficulty recovering

SEVERITY

Absent ☐
Mild/ subthreshold ☐
Moderate/ threshold ☐
Severe/ markedly elevated ☐
Extreme/ incapacitating ☐

Avoidance symptoms

Persistent avoidance of stimuli associated with the traumatic event(s) beginning after the traumatic event(s) occurred, as evidenced by avoidance or efforts to avoid one or more of the following:

(3) - distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s)

In the past month, have you tried to avoid thoughts or feelings about (EVENT)?

What kinds of thoughts or feelings do you avoid?

How hard do you try to avoid these thoughts or feelings? *(What kinds of things do you do?)*

Circle: Avoidance = *Minimal Clearly Present Pronounced Extreme*

How often in the past month? *# of times* _____

Key rating dimensions = frequency / intensity of avoidance
Moderate = at least 2 X month / avoidance clearly present
Severe = at least 2 X week / pronounced avoidance

SEVERITY

- Absent ☐
- Mild/ subthreshold ☐
- Moderate/ threshold ☐
- Severe/ markedly elevated ☐
- Extreme/ incapacitating ☐

(4) - external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

In the past month, have you tried to avoid things that remind you of (EVENT), like certain people, places, or situations?

What kinds of things do you avoid?

How much effort do you make to avoid these reminders? *(Do you have to make a plan or change your activities to avoid them?)*

[If not clear:] ***(Overall, how much of a problem is this for you? How would things be different if you didn't have to avoid these reminders?)***

Circle: Avoidance = *Minimal Clearly Present Pronounced Extreme*

How often in the past month? *# of times* _____

Key rating dimensions = frequency / intensity of avoidance
Moderate = at least 2 X month / avoidance clearly present
Severe = at least 2 X week / pronounced avoidance

SEVERITY

- Absent ☐
- Mild/ subthreshold ☐
- Moderate/ threshold ☐
- Severe/ markedly elevated ☐
- Extreme/ incapacitating ☐

Persistent perception of heightened current threat

Alterations in arousal and reactivity that are associated with the traumatic event(s) (that began or worsened after the traumatic event(s)), as evidenced by one or more of the following:

(5) - hypervigilance

In the past month, have you been especially alert or watchful, even when there was no specific threat or danger? *(Have you felt as if you had to be on guard?)*

Can you give me some examples? *(What kinds of things do you do when you're alert or watchful?)*

[If not clear:] ***(What causes you to react this way? Do you feel like you're in danger or threatened in some way? Do you feel that way more than most people would in the same situation?)***

Circle: Hypervigilance = *Minimal Clearly Present Pronounced Extreme*

How much of the time in the past month have you felt that way?

% of time _____

Did being especially alert or watchful start or get worse after (EVENT)? *(Do you think it's related to [EVENT]? How so?)*

Tick trauma relatedness: Definite ☐ Probable ☐ Unlikely ☐

Key rating dimensions = frequency / intensity of hypervigilance
Moderate = some of the time (20-30%) / hypervigilance clearly present, e.g., watchful in public, heightened awareness of threat
Severe = much of the time (50-60%) / pronounced hypervigilance, e.g., scans environment for danger, may have safety rituals, exaggerated concern for safety of self/family/home

SEVERITY

- Absent ☐
- Mild/ subthreshold ☐
- Moderate/ threshold ☐
- Severe/ markedly elevated ☐
- Extreme/ incapacitating ☐

(6) - exaggerated startle response

In the past month, have you had any strong startle reactions?

What kinds of things made you startle?

How strong are these startle reactions? *(How strong are they compared to how most people would respond? Do you do anything other people would notice?)*

How long does it take you to recover?

Circle: Startle = *Minimal Clearly Present Pronounced Extreme*

How often has this happened in the past month? *# of times* _____

Did these startle reactions start or get worse after (EVENT)? *(Do you think they're related to [EVENT]? How so?)*

Tick trauma relatedness: Definite ☐ Probable ☐ Unlikely ☐

Key rating dimensions = frequency / intensity of startle
Moderate = at least 2 X month / startle clearly present, some difficulty recovering
Severe = at least 2 X week / pronounced startle, sustained arousal, considerable difficulty recovering

SEVERITY

- Absent ☐
- Mild/ subthreshold ☐
- Moderate/ threshold ☐
- Severe/ markedly elevated ☐
- Extreme/ incapacitating ☐

Impairment criteria

Impairment in social functioning

In the past month, have these (PTSD SYMPTOMS) affected your relationships with other people and your social life? By social life we mean your ability to enjoy social events with other people, feel comfortable in a group of people, engage in community events. How so? [Consider impairment in social functioning reported on earlier items]	No adverse impact ☐ Mild impact, minimal impairment in social functioning ☐ Moderate impact, definite impairment but many aspects of social functioning still intact ☐ Severe impact, marked impairment, few aspects of social functioning still intact ☐ Extreme impact, little or no social functioning ☐

Impairment in occupational or other important area of functioning

[If not clear:] **Are you working now?** [If yes:] **In the past month, have these (PTSD SYMPTOMS) affected your work or your ability to work? How so?** [Consider reported work history, including number and duration of jobs, as well as the quality of work relationships. If premorbid functioning is unclear, inquire about work experiences before the trauma. [If no:] **Have these (SYMPTOMS) affected any other important part of your life?** [As appropriate, suggest examples such as parenting, housework, schoolwork, volunteer work, etc.] **How so?**	No adverse impact ☐ Mild impact, minimal impairment in occupational/other important functioning ☐ Moderate impact, definite impairment but many aspects of occupational/ other important functioning still intact ☐ Severe impact, marked impairment, few aspects of occupational/other important functioning still intact ☐ Extreme impact, little or no occupational/other important functioning ☐

Duration of symptoms

[If not clear:] **How long have these (the SYMPTOMS) lasted altogether?** _____	***Total # WEEKS duration*** ☐☐☐☐ Duration more than a few weeks? Yes ☐ No ☐

Instructions to respondent

For the next set of questions, I want you to keep the event(s) that you have told me about in mind as I ask you about different problems it (they) may have caused you. These questions refer to ways in which you *typically* feel, ways you *typically* think about yourself and ways in which you *typically* relate to others. Consider how true these problems are of you.

(7a) Affect Dysregulation (Hyperactivation): **a severe and persistent pattern** of problems regulating emotions characterized by heightened emotional reactions to minor stressors

(i) When you are upset how easy is it for you to calm down? **Can you give me some examples of what makes you upset and how you react?** (Any other examples? Do other people notice when you are upset? What do they see?) [If not clear:] **How do you react when you have a minor argument or if you feel that you have made a mistake, are being misunderstood or criticized?** **Do you think that you find it harder to calm yourself than other people usually do?** [If not clear:] **In what way do you think your reaction is different to that of other people?** [If not clear:] **Typically, how long does it take you to calm down?** [If not clear:] **On average, how often do you react in these sorts of ways?** ***Key rating guidance:*** Moderately = Describes the presence of a tendency to overreact to minor stressors, on average at least on a weekly basis. The individuals reaction is usually prolonged with some difficulty calming down. The problem has been present for about 3 months or more. The interviewee may be able to calm himself or herself relatively quickly some of the time. Very much = A tendency to more markedly overreact to minor stressors (e.g. to become pre-occupied by thinking about the event, unable to complete goals or tasks, throwing things, upsetting others, extensive crying) and typically takes more than an hour to calm down. The interviewee has difficulty calming themselves most of the time and may require assistance from others. Incidents of overreaction typically occur at least twice a week, with at least one episode of marked overreaction.	**Describes a severe and persistent pattern of problems** Not at all ☐ A little bit ☐ Moderately ☐ Very much ☐ Extremely ☐

ii) If the participant endorses problems with emotion regulation (affect hyperactivation) and their trauma experience(s) occurred solely or primarily in adulthood ask: **Did these problems calming yourself when you are upset start or get worse after (EVENT) or other traumatic events that have happened in your life? *Do you think they're related to [EVENT]? How so?)*** ***OR*** For those with the index event occurring quite some time ago (e.g., in childhood): **Do these problems [summarise as appropriate] seem to be related to your traumatic experiences. … For example, some people with [index event] say that they noticed that people who havent had that type of experience did not have these same feelings or problems.**	**Trauma relatedness?** Definite ☐ Probable ☐ Unlikely ☐

(7b) - Affect Dysregulation (Deactivation): **a severe and persistent pattern** of problems regulating emotions when confronted with minor stressors, characterized by a tendency towards emotional numbing or dissociation.

i) Do you often feel emotionally numb or shut down? [if endorsed] **What makes you feel numb or emotionally shut down?** *Anything else?* [if the respondent only describes one situation] *Does this occur in a variety of situations? Like what?* [if not clear:] **Can you give me some examples of what its like when you are feeling that way?** **How often does this happen?** [if not clear:] **Would you say you get numb or emotionally shut down when you feel overwhelmed by difficult situations?** [if not clear:] This might include situations where you get into an argument with someone or have a frightening thing happen you. It can also include circumstances that remind you of your trauma. **Is it easy to bring yourself out of this state?** [if not clear:] How do you bring yourself out of this state? How long does it take you to come out of this state? ***Key rating guidance:*** Moderately = Describes the presence of a tendency to deactivate to minor or trauma related stressors, on average at least on a weekly basis, with deactivation being clearly present and lasting at least several minutes. The problem has been present for about 3 months or more. Very much = A tendency to more markedly deactivate to minor or trauma related stressors (e.g. become very disconnected from surroundings) and typically taking more than an hour to recover at least once a week on average. Episodes of deactivation typically occur at least twice a week.	**Describes a severe and persistent pattern of problems** Not at all ☐ A little bit ☐ Moderately ☐ Very much ☐ Extremely ☐

ii) If the participant endorses problems with emotional numbing (affect dysregulation) and their trauma experience(s) occurred solely or primarily in adulthood ask: **Did these problems with numbing or feeling shut down start or get worse after (EVENT) or other traumatic events that have happened in your life? *Do you think they're related to [EVENT]? How so?)*** ***OR*** For those with the index event occurring quite some time ago (e.g., in childhood): **Do these problems [summarise as appropriate] seem to be related to your traumatic experiences. … For example, some people with [index event] say that they noticed that people who havent had that type of experience did not have these same feelings or problems.**	**Trauma relatedness?** Definite ☐ Probable ☐ Unlikely ☐

(8) Disturbed Sense of Self - Negative Self Concept: persistent beliefs about being diminished, defeated or worthless. Deep and pervasive feelings of shame, guilt or failure may occur.

The next questions are about how you feel about yourself as a person.

i) Do you feel like a failure? [if not clear:] **Can you tell me more about that?** [if not clear:] **How strong are these feelings normally?** [if not clear:] **How often do you feel this way?** [if not clear:] **Can you see other ways of thinking about yourself?** [if not clear:] **Do you ever feel positively about yourself?**	**Describes a severe and persistent pattern of problems** Not at all ☐ A little bit ☐ Moderately ☐ Very much ☐ Extremely ☐
Key rating guidance: Moderately = feels like a failure much of the time (> 60-70%), or in many areas of life. Sense of failure is clearly present and hard to dismiss. The interviewee has difficulty seeing themselves in other ways. Sense of failure present for about 3 months or more. Very much = feels like a failure most of the time (> 80-90%) or in most areas of life. Sense of failure is pronounced and is very hard to dismiss. The interviewee has considerable difficulty seeing themselves in other ways. The presence of a pattern of a fluctuating sense of being a failure should caution the interviewer about the persistent presence of this criterion.	

ii) Do you feel worthless or inferior compared to other people?

[if not clear:] **Can you tell me more about that?**

[if not clear:] **How strong are these feelings normally?**

[if not clear:] **How often do you feel this way?**

[if not clear:] **Can you see other ways of thinking about yourself?**

[if not clear:] **Do you ever feel that you are better than or superior to other people?**

Key rating guidance:
Moderately = feels worthless or inferior much of the time (> 60-70%). Sense of worthlessness is clearly present and hard to dismiss. The interviewee has felt this way about themselves for about 3 months or more.

Very much = feels worthless or inferior most of the time (> 80-90%). Sense of worthlessness is pronounced and is very hard to dismiss. The interviewee has considerable difficulty seeing themselves in other ways.

The presence of a pattern of a fluctuating sense of being worthless or inferior should caution the interviewer about the persistent presence of this criterion.

Describes a severe and persistent pattern of problems

- Not at all ☐
- A little bit ☐
- Moderately ☐
- Very much ☐
- Extremely ☐

ii) If the participant endorses problems with negative self concept and their trauma experience(s) occurred solely or primarily in adulthood ask:

Did these problems you have just described with how you feel about yourself start or get worse after (EVENT) or other traumatic events that have happened in your life? *Do you think they're related to [EVENT]? How so?)*

OR

For those with the index event occurring quite some time ago (e.g., in childhood):
Do these problems with how you feel about yourself seem to be related to your traumatic experiences? … For example, some people with [index event] say that they noticed that people who havent had that type of experience did not have these same feelings or problems.

Trauma relatedness?

- Definite ☐
- Probable ☐
- Unlikely ☐

(9) Disturbed Relationships - Persistent difficulty in sustaining relationships and feeling close to others

The next questions are about relationships

i) Do you feel distant or cut off from other people much of the time?

[if not clear:] **Why do you think that is?**

How strong are your feelings of being distant or cut off from others?

[if not clear:] **Who do you feel distant and cut off from? Why do you think that is?**

[if not clear:] **In the past few months, how often have you felt distant or cut off from others?**

Are there times when you DO NOT feel distant or cut off from others, even if only for a fairly short time? [If yes] Can you give me some examples of these times?

Key rating guidance:
Moderately = much of the time (60-70%), feelings of being distant or cut off from others clearly present but still feels some interpersonal connection. This pattern has been present for about 3 months or more.

Very much = most of the time (80-90%), pronounced feelings of being distant or cut off from most people, may feel less distant to only one or two people.

The presence of a pattern of fluctuating or periodically intense/idealized relationships if identified (rather than sustained avoidance of relationships), is indicative of a BPD profile and the interviewer may wish to consider the need for assessing BPD to make an accurate differential diagnosis

Describes a severe and persistent pattern of problems

- Not at all ☐
- A little bit ☐
- Moderately ☐
- Very much ☐
- Extremely ☐

ii) Do you have any close relationships? How long have these been for?

Do you find it hard to stay emotionally close to people?

Can you tell me more about why that is?

[if not clear:] **How often do you feel this way?**

[if not clear:] **Who do you feel close to? How many people do you feel comfortable talking with about personal things?**

Are there times when you feel close to others if only for a fairly short time? [If yes] Can you give me examples of these times? What makes it difficult to keep relationships going?

Key rating guidance:
Moderately = much of the time (60-70%), difficulty maintaining relationships clearly present but still feels some interpersonal connection. This pattern has been present for about 3 months or more.

Very much = most of the time (80-90%), pronounced difficulty maintaining relationships and withdraws from most relationships, may be able to maintain relationships to one or two people.
Difficulty maintaining relationships reflects a preference to avoid or break off relationships when there is conflict or the relationship involves strong emotions (e.g. anxiety, anger, disappointment).

The presence of a pattern of fluctuating and intense engagement and disengagement, is indicative of a BPD profile and the interviewer may wish to consider the need for assessing BPD to make an accurate differential diagnosis.

Describes a severe and persistent pattern of problems

- Not at all ☐
- A little bit ☐
- Moderately ☐
- Very much ☐
- Extremely ☐

i) If the participant endorses either of these problems with disturbed relationships and their trauma experience(s) occurred solely or primarily in adulthood ask: **Did these problems you have just described with relationships start or get worse after (EVENT) or other traumatic events that have happened in your life? *Do you think they're related to [EVENT]? How so?)*** ***OR*** For those with the index event occurring quite some time ago (e.g., in childhood): **Do these problems with relationships seem to be related to your traumatic experiences. … For example, some people with [index event] say that they noticed that people who havent had that type of experience did not have these same feelings or problems.**	**Trauma relatedness?** Definite ☐ Probable ☐ Unlikely ☐

Impairment Criteria

Impairment in social functioning

In the past month, have these problems in emotions, in beliefs about yourself and in relationships affected your social life? By social life we mean your ability to enjoy social events with other people, feel comfortable in a group of people, engage in community events. **How so?** [Consider impairment in social functioning reported on earlier items]	No adverse impact ☐ Mild impact, minimal impairment in social functioning ☐ Moderate impact, definite impairment but many aspects of social functioning still intact ☐ Severe impact, marked impairment, few aspects of social functioning still intact ☐ Extreme impact, little or no social functioning ☐

Impairment in occupational or other important area of functioning

[If not clear:] **Are you working now?** [If yes:] **In the past month, have these problems in emotions, in beliefs about yourself and in relationships affected your work or your ability to work? How so?** [Consider reported work history, including number and duration of jobs, as well as the quality of work relationships. If premorbid functioning is unclear, inquire about work experiences before the trauma] [If no:] **Have these problems affected any other important part of your life?** [As appropriate, suggest examples such as parenting, housework, schoolwork, volunteer work, etc.] **How so?**	No adverse impact ☐ Mild impact, minimal impairment in occupational/other important functioning ☐ Moderate impact, definite impairment but many aspects of occupational/ other important functioning still intact ☐ Severe impact, marked impairment, few aspects of occupational/other important functioning still intact ☐ Extreme impact, little or no occupational/other important functioning ☐

Global validity

Estimate the overall validity of responses. Consider factors such as compliance with the interview, mental status (e.g., problems with concentration, comprehension of items, dissociation), and evidence of efforts to exaggerate or minimize symptoms	Excellent, no reason to suspect invalid responses ☐ Good, factors present that may adversely affect validity ☐ Fair, factors present that definitely reduce validity ☐ Poor, substantially reduced validity ☐ Invalid responses, severely impaired mental status or possible deliberate "faking bad" or "faking good" ☐

9.4. BPD SCID-II Interview

Now I am going to ask you some more specific questions about the kind of person you are.

(55) Frantic efforts to avoid real or imagined abandonment [DO NOT INCLUDE SUICIDAL OR SELF MUTILATING BEHAVIOUR COVERED IN 72]

You said that you have [Have you] often become frantic when you thought someone you really cared about was going to leave you? **What have you done?** [*If unclear*] **Have you threatened or pleaded with him/ her?** **How long have you had these problems/symptoms/tendencies?** ☐ since childhood (upto 11)? ☐ since adolescence (12-18)? ☐ since early adulthood (19-25)? ☐ in adulthood only (26+)	☐ Inadequate information ☐ Absent or false ☐ Subthreshold ☐ Threshold or true *Threshold or true = several examples*

(56) A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation

You said that [Do] your relationships with people you really care about have lots of extreme ups and downs? **Tell me about them?** [*If unclear*] **Were there times when you thought they were everything you wanted and then other times when you thought they were terrible? How many relationships were like this?** **How long have you had these problems/symptoms/tendencies?** ☐ since childhood (upto 11)? ☐ since adolescence (12-18)? ☐ since early adulthood (19-25)? ☐ in adulthood only (26+)	☐ Inadequate information ☐ Absent or false ☐ Subthreshold ☐ Threshold or true *Threshold or true = either one prolonged relationship or several briefer relationships in which the alternating patterns occurs at least twice*

(57) Identity disturbance: markedly and persistently unstable self-image or sense of self [DO NOT INCLUDE SUICIDAL OR SELF MUTILATING BEHAVIOUR COVERED IN 72]

a. You said that you have [Have you] all of a sudden changed your sense of who you are and where you are headed? **Give me some examples of this?** [*Do not include normal adolescent uncertainty*] **b. You said that [Does] your sense of who you are often change dramatically?** **Tell me more about that?** **c. You said that you are [Are you] different with different people or in different situations so that you sometimes don't know who you really are?** **Give me some examples of this. (Do you feel this way a lot?)** **d. You said that there have been [Have there been] lots of sudden changes in your goals, career plans, religious beliefs, and so on?** **Tell me more about that?** **How long have you had these problems/symptoms/tendencies?** ☐ since childhood (upto 11)? ☐ since adolescence (12-18)? ☐ since early adulthood (19-25)? ☐ in adulthood only (26+)	☐ Inadequate information ☐ Absent or false ☐ Subthreshold ☐ Threshold or true *Threshold or true = acknowledges traits*

(58) Impulsivity in at least two areas that are potentially self damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating) [DO NOT INCLUDE SUICIDAL OR SELF MUTILATING BEHAVIOUR COVERED IN 72]

You said that you've [Have you] often done things impulsively. What kinds of things?

[*If unclear*] **How about … buying things you really couldn't afford? … having sex with people you hardly knew, or unsafe sex … drinking too much or taking drugs? … driving recklessly … uncontrollable eating?**

[*If yes to any of the above*] **Tell me more about that. How often does it happen? What kinds of problems has it caused?**

How long have you had these problems/symptoms/tendencies?

- ☐ since childhood (upto 11)?
- ☐ since adolescence (12-18)?
- ☐ since early adulthood (19-25)?
- ☐ in adulthood only (26+)

- ☐ Inadequate information
- ☐ Absent or false
- ☐ Subthreshold
- ☐ Threshold or true

Threshold or true = several examples indicating a pattern of impulsive behavior (not necessarily limited to examples above)

(59) Recurrent suicidal behavior, gestures, or threats or self-mutilating behaviour

a. You said that you have [Have you] tried to hurt or kill yourself or threatened to do so when you are feeling distressed or frustrated?

Tell me more about that?

b. You said that you have [Have you ever] cut, burned or scratched yourself on purpose?

How long have you had these problems/symptoms/tendencies?

- ☐ since childhood (upto 11)?
- ☐ since adolescence (12-18)?
- ☐ since early adulthood (19-25)?
- ☐ in adulthood only (26+)

- ☐ Inadequate information
- ☐ Absent or false
- ☐ Subthreshold
- ☐ Threshold or true

Threshold or true = two or more events when not in a major depressive episode

(60) Affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days)

You said that you [Do] you have a lot of sudden mood changes?

Tell me about that?

[*If unclear*] **How long do your bad moods last? How often do these mood changes happen? How suddenly do your moods change?**

How long have you had these problems/symptoms/tendencies?

- ☐ since childhood (upto 11)?
- ☐ since adolescence (12-18)?
- ☐ since early adulthood (19-25)?
- ☐ in adulthood only (26+)

- ☐ Inadequate information
- ☐ Absent or false
- ☐ Subthreshold
- ☐ Threshold or true

Threshold or true = acknowledges traits

(61) Chronic feelings of emptiness

You've said that [Do] you often feel empty inside?

Tell me about this?

How long have you had these problems/symptoms/tendencies?

- ☐ since childhood (upto 11)?
- ☐ since adolescence (12-18)?
- ☐ since early adulthood (19-25)?
- ☐ in adulthood only (26+)

- ☐ Inadequate information
- ☐ Absent or false
- ☐ Subthreshold
- ☐ Threshold or true

Threshold or true = acknowledges traits

(62) Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)

You said that [Do] you often have temper outbursts or get so angry that you lose control?

Tell me about this?

You've said that [Do] you hit people or throw things when you get angry?

Tell me about this?

[*If unclear*] **Does this happen often?**

You've said that [Do] you even little things get you very angry

When does this happen?

[*If unclear*] **Does this happen often?**

How long have you had these problems/symptoms/tendencies?

- ☐ since childhood (upto 11)?
- ☐ since adolescence (12-18)?
- ☐ since early adulthood (19-25)?
- ☐ in adulthood only (26+)

- ☐ Inadequate information
- ☐ Absent or false
- ☐ Subthreshold
- ☐ Threshold or true

Threshold or true = acknowledges traits and at least one example OR several examples

(63) Transient, stress-related paranoid ideation or severe dissociative symptoms

You've said that when you are under a lot of stress, you [When you are under a lot of stress, do you] get suspicious of other people or feel especially spaced out?

Tell me about that?

How long have you had these problems/symptoms/tendencies?

- ☐ since childhood (up to 11)?
- ☐ since adolescence (12-18)?
- ☐ since early adulthood (19-25)?
- ☐ in adulthood only (26+)

- ☐ Inadequate information
- ☐ Absent or false
- ☐ Subthreshold
- ☐ Threshold or true

Threshold or true = several examples that do not occur exclusively during a Psychotic Disorder or a Mood Disorder with Psychotic Features

IF P APPEARS TO BE DISTRESSED, OR IF THERE IS A SUBSTANTIAL DETERIORATION BETWEEN PRE-INTERVIEW AND POST-INTERVIEW EMOTIONAL STATE YOU CAN, AS YOU JUDGE APPROPRIATE: -

PROVIDE P WITH INFORMATION AS TO HOW TO OBTAIN COUNSELLING OR OTHER APPROPRIATE SUPPORT.

MAKE A REFERRAL (WITH P'S AGREEMENT) TO AN APPROPRIATE PERSON OR AGENCY (E.G. GP, LOCAL MENTAL HEALTH SERVICE, MENTAL HEALTH VOLUNTARY ORGANISATION).

PROVIDE P WITH A NUMBER TO CONTACT A MEMBER OF THE RESEARCH TEAM SHOULD THEIR DISTRESS CONTINUE OR INCREASE.