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**Mothers with Borderline Personality Disorder:  
Parenting Knowledge, Perceptions, and  
Emotional Availability**

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Thesis submitted in fulfilment of the requirements for the degree of  
Doctor of Philosophy in Psychology

University of Warwick, Department of Psychology

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This thesis is submitted to the University of Warwick in support of my application for the degree of Doctor of Philosophy. The work has been carried out and composed by myself and has not been submitted for a degree at any other institution. Contributions to the published paper (chapter four), and the submitted paper (chapter seven) are as follows:

### Chapter four – Study 1

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## GLOSSARY OF TERMS AND ABBREVIATIONS

<b>ACE</b>	Adverse childhood experiences
<b>ACE-IQ</b>	Adverse Childhood Experiences – International Questionnaire
<b>ALSPAC</b>	Avon Longitudinal Study of Parents and Children
<b>AMCIES</b>	Assessment of Mother Child Interaction using Etch-A-Sketch
<b>ANOVA</b>	Analysis of variance
<b>ANCOVA</b>	Analysis of covariance
<b>APA</b>	American Psychiatric Association
<b>BD</b>	Bipolar disorder
<b>BDM</b>	Biosocial developmental model
<b>BPD</b>	Borderline personality disorder
<b>BPO</b>	Borderline personality organisation
<b>BSMHFT</b>	Birmingham & Solihull Mental Health Foundation Trust
<b>cBPD</b>	Children of mothers with BPD
<b>cDPN</b>	Children of mothers with depression
<b>chC</b>	Children of healthy comparison mothers
<b>CAT</b>	Cognitive Analytic Therapy
<b>CBT</b>	Cognitive Behavioural therapy
<b>CNWL</b>	Central & North West London Foundation Trust
<b>CWPT</b>	Coventry & Warwickshire Partnership Trust
<b>DBT</b>	Dialectical Behaviour Therapy
<b>DSM</b>	Diagnostic and Statistical Manual of Mental Disorders
<b>DPN</b>	Mothers with depression group
<b>EA</b>	Emotional availability
<b>EAS</b>	Emotional Availability Scales
<b>EA-2</b>	Emotional Availability and Emotional Attachment Screener
<b>ECM</b>	Emotional Cascades Model
<b>EMA</b>	Ecological Momentary Assessment
<b>EMDR</b>	Eye Movement Desensitisation and Reprocessing
<b>EUPD</b>	Emotionally unstable personality disorder
<b>FB</b>	Facebook
<b>FET</b>	Fisher's exact test
<b>GCC</b>	Good clinical care
<b>GID</b>	Gender identity disorder
<b>GPM</b>	General Psychiatric Management
<b>HC</b>	Healthy comparison group of mothers with no mental health difficulties
<b>HRA</b>	Health Research Authority
<b>HYPE</b>	Helping Young People Early programme

<b>IAPT</b>	Integrated access to psychological therapies
<b>ICD</b>	International Classification of Diseases manual
<b>IPU 3-8</b>	Mental health wellbeing team for those living with a non-psychotic disorder
<b>RAS</b>	Integrated Research Application System (for ethics application)
<b>KMO</b>	Kaiser-Meyer-Olin measure of sampling adequacy
<b>MBQS</b>	Maternal Behaviour Q-set
<b>MBT</b>	Mentalisation Based Therapy
<b>MDD</b>	Major depressive disorder
<b>MH</b>	Mental Health
<b>NHS</b>	National Health Service (in the UK)
<b>NIHR</b>	National Institute for Health Research
<b>NSPCC</b>	National Society for the Prevention of Cruelty to Children
<b>PAI-BOR</b>	Personality Assessment Inventory – Borderline type
<b>PASS</b>	Parent Awareness Skills Survey
<b>PCA</b>	Principal Component Analysis
<b>PD</b>	Personality disorder
<b>PDS</b>	Personality disorder services
<b>PHE</b>	Public Health England
<b>PHQ-9</b>	Patient health questionnaire for depression
<b>PIS</b>	Participant information sheet
<b>PRISMA</b>	Preferred Reporting Items for Systematic Reviews and Meta-Analysis
<b>PTSD</b>	Post-traumatic stress disorder
<b>REC</b>	Research Ethics Committee (for NHS studies)
<b>RIS</b>	Research & Impact Service at the University of Warwick
<b>rMDD</b>	Major depressive disorder in remission
<b>SBT</b>	Social baseline theory
<b>SCM</b>	Structured Clinical Management
<b>SES</b>	Socioeconomic status
<b>SFT</b>	Schema Focused Therapy
<b>SOS</b>	Significant Others Scale
<b>STROBE</b>	Strengthening the Reporting of Observational Studies in Epidemiology
<b>STEPPS</b>	Systems Training for Emotional Predictability & Problem Solving
<b>SWFT</b>	South Warwickshire Foundation Trust
<b>TAU</b>	Treatment as usual
<b>TFP</b>	Transference Focused Therapy
<b>TOPSE</b>	Tool to Measure Parenting Self-Efficacy
<b>UoW</b>	University of Warwick
<b>WoM</b>	Word of mouth

## ABSTRACT

The impact of parenting on child development, and the association between parenting and mental health are widely acknowledged. Borderline personality disorder (BPD) is a particularly complex mental health disorder which affects emotion, relationship, and identity stability. The dysregulation and impulsivity experienced by individuals with BPD has far-reaching implications in parenthood; if one struggles to manage their own emotions, how difficult might it be to help an infant to regulate their behaviours? This thesis aimed to explore the parenting perceptions, parenting knowledge, and observed behaviours of mothers with BPD and their children.

Study one systematically reviewed all published studies pertaining to maternal BPD, following PRISMA reporting guidelines. Mothers with BPD were more likely to have insensitive, overprotective, and hostile parenting behaviours with their offspring compared to those without BPD. Their children had a number of adverse outcomes including BPD symptoms and insecure attachment patterns. Findings suggest maladaptive parenting is one potential pathway by which vulnerability may be transmitted from mother to child.

For the empirical research, maternal parenting knowledge, parenting self-efficacy, and emotional availability (EA) were explored using questionnaires, Q-sort task, and observational methods (STROBE guidelines followed). Twenty-six mothers with BPD were compared to 25 clinical comparison (depression), and 25 healthy comparison (no mental health difficulty) mothers, with analysis at both a categorical (diagnostic) and dimensional (severity) level.

Study two found mothers with BPD had the same level of ideal sensitive parenting knowledge as mothers with depression and mothers with no mental health difficulties. Parenting self-efficacy was lower for mothers with BPD and depression compared with healthy comparison mothers and was strongly associated with severity of symptoms. Mothers with BPD know how to parent but thought they were not parenting well.

In study three, observations of mothers interacting with their child confirmed this; mothers with BPD were less sensitive, less structuring, more intrusive, and more hostile than healthy comparison mothers, and were more likely to be categorised as complicated EA (inconsistent and 'apparent' sensitivity). Except for losing composure under stress, further analyses of the EA subscales revealed their maladaptive behaviours appeared to be largely well-intentioned but misguided. Children of mothers with BPD also had EA difficulties with responsiveness and involvement, and were more often categorised as complicated, detached, or problematic EA. Symptom severity was associated with maternal EA difficulties; parenting knowledge was also associated with intrusiveness and hostility. Child EA difficulties, however, were most strongly associated with maternal sensitivity over and above that of mother's mental health difficulties. Multi-method coding highlighted the benefit of using a global assessment for clinical groups.

There are several implications for clinical intervention including improving maternal symptoms, perceived parenting efficacy, and maternal sensitivity. Parenting psychoeducation may help with reducing intrusive and hostile behaviours but may not be sufficient for sensitivity and structuring. Maternal sensitivity should be a key focus for intervention as findings suggest regardless of diagnosis, sensitivity may be important for improving child EA. Research to further understand why knowledge does not directly transfer to parenting behaviours is warranted.



## CHAPTER 1

### BORDERLINE PERSONALITY DISORDER

#### *Chapter overview*

BPD is a complex mental health condition and is amongst the most severe of behavioural disorders. It is multi-dimensional and highly symptomatic and is characterised by pervasive and enduring emotional, behavioural and cognitive dysregulation with high occurrence of self-harm and suicidality (APA, 2013; Paris, 2019). The condition, diagnosis and nomenclature have all been subject to considerable controversy and alternative descriptions. Research funding and attention to BPD remains particularly low despite enormous associated public health costs and devastating ramifications for both the individual with BPD and their close relationships (Gunderson, 2009). This chapter will explore a brief history of the borderline personality disorder construct, aetiology, diagnosis - highlighting difficulties with the current diagnostic system, prevalence, prognosis, and treatment options for BPD.

#### **1.1 History of the Borderline Personality Construct**

In 1938 the seminal work of psychoanalyst Stern first described a group of symptoms that we now recognise as BPD (Stern, 1938; see Appendix A ). Stern coined the term 'borderline' to describe a subset of patients with pathology inconsistent with any predefined diagnostic criterion who were considered to be on the border of schizophrenia, non-schizophrenic psychosis, and neurosis (Gunderson & Links, 2008; Stern, 1938). Such patients presented with apparent depression and anxiety yet often responded poorly to therapy and revealed more serious psychopathology including a myriad of behaviours such as: intense transference, anger, inappropriate feelings, impulsivity, and self-destruction, alternating between extreme idealisation and denigration (MacKinnon et al., 2016).

Knight (1953) was also influential in defining the borderline construct, suggesting that patients appeared to have severely weakened ego functions. This included

mentalization impairments such as those that make it difficult to distinguish between the thoughts and perceptions that are real, to those that are not. He called these cognitive impairments ‘borderline states’ indicating that patients regressed into borderline schizophrenia. Borderline patients were at this time seen as ‘help-rejecting complainers’ with BPD-associated treatment resistance and poor prognosis. The potential mechanisms for resistance were reported as the fault of the patient, and as such patients experienced the associated stigma (Choi-kain & Gunderson, 2009).

In the late 60’s, Kernberg defined three levels of mental health personality organisation: psychotic, neurotic and borderline (Appendix A). Borderline personality organisation (BPO) was considered to be less impaired than the psychotic level but more impaired than the neurotic level (Kernberg, 1967). Notably, Kernberg identified the key borderline traits of *fragmented sense of self and others*, and *difficulties with interpersonal relationship*. However, as much of his borderline descriptions were grounded in psychoanalytical defence mechanisms (e.g., splitting, projective identification) the focus was on the ego-structural underpinnings of the condition, which described a broader set of symptoms rather than a list of specific behaviours.

In the 70s with the condition now referred to as ‘the borderline syndrome’ (Grinker et al., 1986) there was a division regarding the construct with some approaches still linking borderline with schizophrenia (e.g., Kety et al., 1968; Kety et al., 1976) while others moved towards defining borderline pathology as an independent distinguishable clinical disorder (Gunderson et al., 1981; Gunderson & Singer, 1975; Spitzer et al., 1979). It was from this clinical work that the first diagnostic criteria was developed (Appendix B) and in 1980 *borderline personality disorder* was first recognised as a mental health disorder in the Diagnostic and Statistical Manual for Mental Health Disorders (DSM III; APA, 1980). Many of the criteria such as affective instability<sup>1</sup>, impulsivity, identity disturbance, and unstable relationships are seen as

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<sup>1</sup> Affective instability is described as ‘rapid oscillations of intense affect, with a difficulty in regulating these oscillations or their behavioural consequences’, and variably known as affective instability, emotional dysregulation, emotional lability etc. (Marwaha et al., 2014; p. 1793).

core to the condition and remain in the current conceptualisation of BPD (see Section 1.3).

The term borderline is still used today, however there is still ongoing debate regarding the use of borderline as a diagnostic label as it is neither informative nor accurate (Paris, 2018). Other alternatives have been proposed, however they tend to focus on only one aspect of this complex condition, such as impulsivity or emotional dysregulation (Paris, 2008). Indeed the International Classification of Diseases (ICD-10; WHO, 1992) uses the classification 'emotionally unstable personality disorder' (EUPD). Attempts have been made to define BPD under other disorders for example post-traumatic stress disorder (PTSD) or bipolar disorder (BD) although this too is considered a flawed approach as each overlook the other aspects of the condition (Paris, 2018). As the nomenclature borderline personality disorder (BPD) is universally most typically used, this term has been adopted throughout this thesis.

## **1.2 Aetiology**

A variety of theories have been posited for the cause of the development of BPD with hereditary, neurobiological, environmental, and developmental factors implicated. Initial theories focused on associations with childhood trauma (e.g., Ogata et al., 1990). These have since been superseded by the diathesis-stress models, which have been extended to consider developmental precursors of BPD (Lenzenweger & Cicchetti, 2005). The current widely accepted view is that BPD has complex multifactorial aetiology as discussed below.

### **1.2.1 Environmental/developmental factors**

#### ***Childhood trauma***

Environmental risk factors, in particular adverse childhood experiences increase the likelihood of developing mental health disorders including but not limited to BPD. The majority of individuals diagnosed with BPD however have experienced childhood adversity, with at least a third describing highly traumatic events such as abandonment and physical or sexual abuse (Paris, 2008). Many studies have reported robust associations with childhood abuse/neglect and BPD (e.g., Battle et

al., 2004; Soloff et al., 2002; Zanarini et al., 2006); those experiencing physical abuse have a three-fold increase in developing BPD and those experiencing sexual abuse have a five times increase (Winsper et al., 2016). Furthermore, individuals with BPD are three times more likely to report childhood adversity (abuse and neglect) than those with other psychopathology and thirteen times more likely than those with no mental health difficulties (Porter et al., 2020). When sexual abuse is reported it is often severe, with severity of abuse and neglect associated with the severity of BPD (Zanarini et al., 2002).

### ***Developmental precursors***

Temperament is considered innate but also shaped by our experiences to form life-long behaviour traits and characteristics (Chen et al., 2014). Studies show child temperament in the form of emotionality, low sociability and shyness (Stepp et al., 2014), poor self-control and negative emotionality (Hallquist et al., 2015), and high impulsivity (Laporte et al., 2011; Stepp et al., 2016) is associated with the development of BPD symptoms (for a review see Bozzatello et al., 2019). A prospective cohort study showed a negative linear relationship between IQ and BPD symptoms, indicating that higher IQ may modify behaviour and mobilise more resourceful responses when faced with difficult situations (Winsper et al., 2012). Poor cognitive function, impulsivity and behavioural problems even at age 5 have been associated with later borderline personality characteristics at age 12 (Belsky et al., 2012).

Maladaptive parenting is clearly implicated in the most extreme form (abuse and neglect) as noted previously, however other parenting influencers such as maternal temperament (Macfie & Strimpfel, 2014), parental conflict (Winsper et al., 2012), low affection (Johnson, Cohen, Chen, et al., 2006; Schuppert et al., 2012), adverse parenting (Johnson, Cohen, Chen, et al., 2006; Winsper et al., 2017) and parental rearing styles (Paris, 2003) are also considered to be involved. Similarly, mother-child discord was shown to predict BPD in offspring at age 30 (Stepp et al., 2013). As children move through childhood spending progressively less time with parents and more time with peers, problematic peer relations can occur in the form of bullying. A

prospective study found teacher, parent and self-reports all show greater odds of developing BPD if bullied than controls, with chronically bullied children having highly increased odds of developing BPD (Wolke et al., 2012).

### ***Invalidating environment***

An invalidating environment, or an environment in which the individual's emotions are invalidated are considered to be risk factors, which on interaction with other factors (e.g., emotional, behavioural, and cognitive dysregulation) can lead to the development of BPD (Fruzzetti & Boulanger, 2005; Linehan, 1993; Sauer & Baer, 2010). A review of family studies showed those with BPD often have family histories of parental substance misuse, antisocial behaviour and depression (White et al., 2003). Furthermore, association has been found between parental low socioeconomic status (SES) and offspring BPD symptoms (Crawford et al., 2009; Stepp et al., 2016 for a review), and the effects of low SES remain apparent on repeated BPD assessment from 10-36 years (Cohen et al., 2008). Family separation or divorce show little long term differences for the development of personality disorders, however for a minority of children a vulnerability is experienced when other factors are involved, for example a change of location and/or school, financial difficulties, and depression in the custodial parent (Amato & Booth, 2001). As Rutter (2012) describes, it is the 'cascades of adversity' that often follow family separation that create increased risk for psychopathology. Stressful life events and family adversity (e.g., poor living conditions, abusive partner, maternal psychopathology etc.) are amongst the most robust environmental risk factors for the development of BPD (Stepp et al., 2016; Winsper et al., 2017). Moreover, the more family adversities experienced (i.e., the more invalidating the environment), the greater the risk of the child developing BPD symptoms (Winsper et al., 2012).

### ***Structural, neural, and cognitive mechanisms***

Hippocampal and amygdala atrophy has been observed in patients with BPD (Mauchnik et al., 2005) with reductions of 11% in the hippocampus and 13% in the amygdala of those with BPD after controlling for depression, PTSD or substance misuse (Ruocco et al., 2012). Cognitive and neurobiological differences have also

been reported in BPD with fMRI studies consistently finding differences in the frontolimbic circuit<sup>2</sup> contributing to difficulties in social cognition and emotion processing (Bohus et al., 2004; Domes et al., 2009; Hallquist et al., 2018). Studies converge in reporting stronger activation of the amygdala - the area of the brain involved in emotion processing and behaviour (in particular fear) (Broome et al., 2015). Decreased connectivity of the anterior cingulate in the salience network<sup>3</sup> is potentially responsible for the lack of behaviour modification and compensation with emotional dysregulation associated with BPD (Holtmann et al., 2013), with salience network difficulties affecting the accuracy of identifying facial emotions (see Daros et al., 2013). These brain alterations therefore directly affect ability to control emotion and social interactions potentially impacting on relationship formation.

The neurotransmitter serotonin, associated with happiness and wellbeing is potentially implicated (e.g., Hansenne et al., 2002; NHS, 2020) with serotonin function associated with increased susceptibility to depressive, anxious and obsessive symptoms in women with BPD (Maurex et al., 2010). Reductions in the social bonding hormone oxytocin has also been associated with BPD difficulties. On a neurobiological level oxytocin down regulates the amygdala (notably in response to threatening social cues), dampens the effects of stress hormones, and facilitates social encounters (Labuschagne et al., 2010). Review findings suggest that lower oxytocin levels are associated with greater defence mechanisms and avoidance behaviours observed with BPD (Brüne, 2016). From an aetiological perspective it is not certain whether the structural, cognitive, and neurobiological differences are contributors to the development BPD, or as a result of the condition.

### **1.2.2 Hereditary factors**

#### ***Familial***

Increased rates of BPD have been found in the relatives of those with BPD (e.g., Baron et al., 1985; Johnson et al., 1995; Zanarini et al., 2004), with research showing

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<sup>2</sup> Primary structures include the prefrontal cortex, amygdala, hippocampus, thalamus, hypothalamus, basal ganglia and cingulate gyrus.

<sup>3</sup> The salience network includes the brain regions that select which stimuli will receive attention.

a heritable component to BPD and BPD traits (such as emotional dysregulation, impulsivity)<sup>4</sup> of around .40 (Paris, 2018). Twin studies that have looked at differences between monozygotic and dizygotic twins further corroborate heritability (Bassir Nia et al., 2018; Distel et al., 2009; Distel et al., 2008; Torgersen et al., 2000; Torgersen et al., 2012). While heritability of BPD is now widely considered, the genetic influences and architecture (i.e., gene combinations and variation of phenotypic traits) are yet to be fully understood.

### ***Genetic***

Genetic research of single-gene-candidate studies show no significance after meta analyses (Amad et al., 2014; Calati et al., 2013). The endophenotype approach (i.e., looking at underlying measurable biological components to the BPD phenotype to inform heritability) has had moderate success at identifying putative BPD endophenotypes (e.g., stress-potentiated impulsivity, impulsive aggression, emotional dysregulation, cognitive impairments; Bassir Nia et al., 2018). More recently there have been two genome-wide association studies identifying genetic variants of individuals associated with given traits, for sub-clinical BPD (Lubke et al., 2014) and BPD diagnosis (Witt et al., 2017). Whilst sample sizes were limited for this type of research (tens of thousands are typically required), initial findings revealed some genetic variations (single nucleotide polymorphisms), and gene-sets significantly associated with BPD. Whilst putative genes have yet to be confirmed in PD studies, gene studies and heritability studies show circumstantial evidence for genetic implication in BPD. Gene identification in BPD in particular may be difficult as specific genes may only be activated in exposure to certain environmental triggers (Jang & Vernon, 2018).

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<sup>4</sup> Note: having the traits of impulsivity or emotional dysregulation does not alone cause BPD but can lead to diagnosis via feedback loops whereby a trait may lead to an individual becoming more sensitive to their environment, causing negative perceptions of others, and leading to further emotional lability (Paris, 2008).

### ***Epigenetic***

Epigenetic studies have increased our knowledge of how genes are expressed in BPD. Non-genetic influences cause modification of gene expression without altering the genetic code (i.e., a change in phenotype without a change in genotype).

Chemical 'tags' are added to chromosomes, which affects how cells read the genes and express them (or not), and aberrations in methylation found in BPD leads to erroneous gene expressions (Gescher et al., 2018). Environmental factors such as childhood trauma (in particular sexual abuse and physical neglect) interfere with many neurofunctional genes, notably dopamine and serotonin receptors, and MAOA (the enzyme that breaks down important neurotransmitters in the brain). These findings give credence to epigenetic processes in the development of BPD traits and disorder.

### **1.2.3 Contemporary aetiological theories**

Contemporary theories have focussed on diathesis-stress models, hence the interaction of a predispositional vulnerability with life experiences. Linehan's (1993) seminal biosocial theory proposed BPD as largely an emotional dysregulation disorder that emerges when biological vulnerabilities interact with an invalidating environment (Linehan & Koerner, 1993). This influential theory paved the way for subsequent aetiological theories of BPD. In particular, Crowell & colleagues (2009) expanded Linehan's theory to include a lifespan developmental approach to BPD. Their biosocial developmental model (BDM) posits impulsivity as one of the earliest emerging traits. This predisposes a vulnerability for emotion regulation difficulties potentiated by environmental risk factors. Emotional lability develops based on the sensitivity of the child and the developmental context and is shaped and perpetuated by the caregiving environment. Over-time reciprocal transactions between the biological vulnerabilities and invalidating environment lead to more extreme emotional dysregulation and poor social and cognitive outcomes; in adolescence these coalesce as maladaptive coping strategies and increase risk for developing BPD (Crowell et al., 2009).



Similarly, Selby and colleagues (2008) proposed an Emotional Cascades Model (ECM) for BPD whereby perpetual cycles of negative and ruminative affect lead to 'cascades of emotion', explaining some of the behaviours of BPD. The ECM proposes that emotional stimuli invoke rumination, leading to increasing emotional intensity in a negative feedback loop, prompting dysregulated behaviours. Suicidal or self-harm behaviours are then resorted to as 'distraction' and release from these intense emotions and rumination (Selby et al., 2008; Selby & Joiner, 2009). Several factors and interactions contribute to perpetuating this cycle of emotional dysregulation cascades including child abuse (via distorted cognitions and rumination) and external negative interactions with others, eliciting poor reactions and a further downward escalation of emotional cascades (Winsper, 2018).

The importance of interpersonal involvement/interaction in the aetiology of BPD has been explored through a socially oriented model (Fonagy et al., 2017) and social baseline theory (SBT) (Hughes et al., 2012). Hughes et al.'s (2012) developmental model explicitly considers the role of frontolimbic dysfunction (the emotional centre) within the context of social baseline theory (Coan, 2008, 2010) and the co-regulation of emotions. It proposes that humans are hard-wired to seek close proximity to others as a baseline emotion regulation strategy. Interpersonal dependency is necessary for healthy emotional functioning and biological systems are thus adapted to operate *interdependently*. The authors hypothesise that emotion regulation is an individual and interpersonal process with relationships playing a crucial role in regulating biological processes and behaviour across the lifespan. For example, secure attachment relationships in infancy (see chapter two) form successful co-regulation of emotions by strengthening self-control neural structures in the child's developing brain and laying foundations for later emotional regulation. Conversely children with poor regulation and social cognition elicit poor responses from their peers, which preclude other co-regulatory resources from healthy friendship bonds and intimate relationships resulting in a risk of social isolation in adulthood and heightened risk of BPD over time (Hughes et al., 2012; Winsper et al., 2017).

From an evolutionary and developmental perspective, the socially oriented model (Fonagy et al., 2017) places a lack of resilience and difficulties in social communication and epistemic trust (i.e., the ability to learn about our social world via others; Csibra & Gergely, 2006) as core to the early development of BPD. If there is a shortage of non-verbal ostensive communicative cues from the primary caregiver, the infant has few opportunities to learn from his social environment and develop epistemic trust (the evolutionary social communication system, which usually facilitates resilience). Instead, the child becomes either hypervigilant or closed off to social communications and knowledge, adopting an inflexible thinking style with regards to learning from their social environment (as is often seen in individuals with BPD). In pervasive invalidating environments, this epistemic *mistrust* becomes a maladaptive process whereby over time hypervigilance may manifest into hypermentalisation such as over interpreting the motives of others. The result is a perpetuating cycle of hypervigilance, hypermentalisation, emotional dysregulation and further disruption in the ability to mentalise effectively (Sharp et al., 2011). Fonagy et al. (2017) suggest that it is the mentalising difficulties and lack of social communicative flexibility that impairs the mechanisms underlying resilience<sup>5</sup>. This perpetuates many of the emotional and interpersonal relationship difficulties of BPD and thus suggests BPD is a disorder characterised by lack of resilience (Fonagy et al., 2017). Others (i.e., extended family or non-family positive relationships) can help promote resilience by providing a buffer between the child and parent (Werner & Smith, 1992); as can higher intelligence, and positive personality traits through being more resourceful in devising better coping strategies (Rutter, 2012).

Family studies of abnormal trait profiles show that BPD is unlikely to develop without predisposition (Laporte et al., 2011) or to appear *de novo* in adulthood (Chanen, 2015) but rather develop over the life span through multiple aetiological pathways. Contemporary theories, while each with subtly different focus, all concur that BPD emerges via the transactional reciprocation of biological and environmental

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<sup>5</sup> Mechanisms of resilience include the initial positive classification of threat, reappraisal, and inhibition of retraumatising triggers.

vulnerabilities throughout development in the form of genetic, neural, behavioural, familial, and social pathways (Crowell & Kaufman, 2016; Winsper, 2018).

### **1.3 Diagnosis**

#### **1.3.1 Process and timing of diagnosis**

BPD is typically first clinically diagnosed in early adulthood (child rearing years) (Paris, 2003). Diagnosis is determined via clinical interviews using the diagnostic criteria from either the DSM-5 (APA, 2013) or ICD-10 (WHO, 1992). For many it is their impulsivity or self-harming behaviours (i.e., cutting, suicide attempt, substance misuse) that bring the individual to the attention of mental health services and then to receive a diagnosis (Paris, 2018). BPD is not always initially recognised, and many are diagnosed for bipolar disorder despite meeting criteria for BPD (Zimmermann et al., 2010). Furthermore, BPD is highly likely to manifest in childhood (Crowell & Kaufman, 2016; Hughes et al., 2012) but due to the typical personality turbulence often seen in adolescence and BPD's associated opprobrium, diagnosis in childhood has previously been controversial (Chanen & McCutcheon, 2008; Miller et al., 2008). Childhood BPD is however now clinically recognised (Chanen & McCutcheon, 2013; Crowell & Kaufman, 2016), with studies showing construct validity and adolescent BPD phenotypes (Winsper et al., 2015). With diagnosis of children under the age of 18-years (symptoms for at least a year, DSM-5) early intervention is possible.

#### **1.3.2 Diagnostic criteria**

The DSM and ICD diagnostic systems are not completely comparable (Coid, 2003) but each acknowledge the traits of instability in affect (emotional dysregulation), self-image, and interpersonal relationships, impulsivity, explosive anger, and suicidal/self-harming behaviours. Both require a number of criteria to be met out of a list of possible characteristics, however the polythetic approach of no single symptom being necessary or required results in the potential for considerable heterogeneity within the diagnosis. Potentially two affected individuals could overlap on one symptom only, although in reality those with BPD typically report difficulties in several domains (Hughes et al., 2012) with emotional dysregulation being one of the most prominent features (Lieb et al., 2004; Zanarini et al., 2004).

For consistency, the revised DSM-5 (APA, 2013) has retained the former set of nine diagnostic criteria, however in an attempt to bring about greater homogeneity, DSM-5 also proposes a model of clustering similar behaviours (e.g., unstable relationships, and fear of abandonment grouped as ‘impairments in interpersonal functioning’). Rather than any five out of nine symptoms being required for diagnosis (as with the DSM-IV), this diagnostic method requires impairment in *all* of the new groupings (see table 1.1 for abridged versions, and Appendix C-E for full DSM and ICD diagnostic criteria).

### **1.1.3 Co-occurring disorders**

BPD is one of 10 personality disorders (PD) with significant coexistence with, avoidant, dependent, paranoid, and obsessive-compulsive PDs (Biskin & Paris, 2013). BPD has wide co-occurrence with other psychopathology with 85% of those with BPD experiencing other disorders (Lenzenweger et al., 2007). Additional psychopathologies include mood disorders/major depressive disorder (MDD), anxiety disorders, eating disorders, substance misuse, post-traumatic stress disorder, bipolar disorder, and attention deficit hyperactivity disorder (Biskin & Paris, 2013; Grant et al., 2008; Gunderson & Links, 2008; Zanarini et al., 1998). In particular, depression/MDD is highly comorbid with BPD (Beatson & Rao, 2012) with 96% meeting criteria for a mood disorder and an 83% lifetime prevalence of MDD (Zanarini et al., 1998). Further, the DSM-5 cites negative affect and depressivity as symptomatology in the alternative diagnostic model. It is widely accepted that BPD is not a variant of MDD (e.g., Goodman et al., 2010; Gunderson et al., 2004) as treatment of depression does not result in remission of BPD symptoms. Where depression differs from those without BPD is that the depressive symptoms in individuals with BPD tend to wax and wane in accordance with the individual’s interpersonal and situational circumstances (Beatson & Rao, 2012).

**Table 1.1:** BPD diagnostic criteria as delineated in the DSM and ICD

DSMIII / DSM-IV-TR / DSM-5	DSM-5 ALTERNATIVE MODEL*	ICD-10
Five (or more) of the following:		Personality disorder characterised by:
1) Frantic efforts to avoid real or imagined abandonment	1) Impairments in self functioning in either: (a) Identity: unstable self-image, chronic feelings of emptiness, dissociative states under stress or (b) self-direction: goals and aspirations	1) A tendency to act impulsively and without consideration of the consequences
2) A pattern of unstable and intense interpersonal relationships	2) Impairment in interpersonal functioning in either: (a) Empathy, interpersonal hypersensitivity or (b) Intimacy: Intense, unstable, conflicted close relationships, preoccupation with real or imagined abandonment	2) Mood is unpredictable and capricious
3) Identity disturbance - unstable self-image or sense of self		3) Liability to outbursts of emotion and an incapacity to control the behavioural explosions
4) Impulsivity	3) Negative affectivity: emotional lability, anxiousness, separation insecurity, depressivity (including suicidal behaviour)	4) Tendency to quarrelsome behaviour and conflict with others, especially when impulsive acts are thwarted or censored
5) Recurrent suicidal behaviour, gestures, or threats, or self-mutilating behaviour	4) Disinhibition: impulsivity (including self-harming behaviour), risk taking	Two types of emotionally unstable personality disorder may be distinguished:
6) Affective instability due to a marked reactivity of mood	5) Antagonism/hostility: anger or irritability in response to minor slights and insults	a) Impulsive type: characterised predominantly by emotional instability and lack of impulse control
7) Chronic feelings of emptiness	6) The impairments in personality functioning are relatively stable across time and consistent across situations	b) Borderline type: as impulsive type <i>plus</i> disturbances in self-image/aims, chronic feelings of emptiness, intense and unstable interpersonal relationships, tendency to self-destructive behaviour, including suicide behaviour and attempts
8) Inappropriate, intense anger, or difficulty controlling anger	7. The impairments in personality functioning are not better understood as normative for the individual's developmental stage or socio-cultural environment	
<b>DSM-IV-TR additional criterion (also in DSM-5):</b>	8 The impairments in personality functioning and the individual's personality trait expression are not solely due to effects of a substance or a medical condition	
9) Transient, stress-related paranoid ideation or severe dissociative symptoms		

Adapted from DSM-IV-TR, (APA, 2000), DSM-5 (APA, 2013), ICD-10 (WHO, 1992; \* Section III DSM-5 "Emerging measures and models"

### 1.3.4 Problems with the current diagnostic system

#### *From categorical to dimensional*

It is widely acknowledged that the current categorical diagnostic system for BPD is less than perfect; this approach assumes the disorder is either present or not, rather than having trait symptoms along a continuum of severity (Oldham, 2015). Whilst categorical nosology gives clinicians clear demarcation to enable and recommend appropriate treatment pathways for disorders, for BPD it fails to acknowledge individual differences in symptoms, the relative importance of each symptom, symptom severity, and those falling below diagnostic thresholds (Brown & Barlow, 2005; Watson, 2005). For instance, an individual could have two out of the nine diagnostic criteria (i.e., emotional dysregulation and unstable interpersonal relationships) thus not meeting diagnostic criteria yet still be experiencing extreme distress and dysfunction. Further, the present diagnostic system localises personality pathology within the patient, so fails to acknowledge the many aspects of behaviour that are context dependent (Crowell & Kaufman, 2016; Hopwood et al., 2014; Jang & Vernon, 2018; Schaffer et al., 2015). Expert opinion suggests that PDs, and other psychopathologies, should be organised by multiple dimensions (e.g., disordered thought, dysregulated affect, etc.) which would reflect the similarities among disorders, explain comorbidity as 'patterns of elevation' across the relevant dimensions, and bring about greater homogeneity within diagnostic groups (Haslam, 2003; Krueger et al., 2005; Watson, 2005; Widiger et al., 2005). Caspi et al. (2014) in a 20 year-long study, proposed that mental health disorders are explained by three main dimensions: internalising, externalising, and thought disorder but potentially grouped further into a general psychopathology dimension, whereby higher scores on this dimension indicate more life impairment, increased familiarity, poorer developmental histories, and more compromised early brain function. The latest edition DSM-5 suggests potential use of a dimensional approach for psychopathology research (see *Emerging Measures and Models* DSM-5 section III; APA, 2013) to inform clinically relevant dimensional diagnostic criteria by advising of appropriate cut-points (i.e., how impulsive does one have to be to fulfil criteria; Widiger & Samuel, 2005). Symptom/dimension severity ratings have also been suggested (Brown & Barlow, 2005) and are proposed for PDs in the revised ICD-11 due 2022

(see Appendix F). This dimensional approach for PDs would represent extremes in personality along a continuum of otherwise normal, healthy personality traits.

### ***Stigma attached to BPD***

BPD is highly stigmatised amongst healthcare professionals (Chanen & McCutcheon, 2013), potentially due to high numbers only being seen when in crisis (Aviram et al., 2006; Biskin, 2015; Shanks et al., 2011). Awareness of this stigma does mean that clinicians can be reluctant to diagnose and as such defer and focus on the co-occurring disorders. This is to the detriment of the patient as even having just one symptom (i.e., only slight pathology) significantly differentiates from those with no symptoms on all psychosocial morbidity measures including suicide ideation, suicide attempts and hospitalisation (Zimmerman et al., 2012), and precludes early support and intervention.

### **1.4 Prevalence**

BPD affects approximately 1-6% of the general population (Grant et al., 2008; Jackson & Burgess, 2000; Swartz et al., 1990; Trull et al., 2010), with 10% of psychiatric outpatients and 20% of psychiatric inpatients having a BPD diagnosis (Lieb et al., 2004). It is more prevalent than both schizophrenia (1.5%; National Institute for Clinical Excellence, 2009) and bipolar (1-2%; Bipolar UK, 2020) combined. Some studies show an equal prevalence for men and women with BPD (Grant et al., 2008; Sansone & Sansone, 2011), however women (and girls; Crick et al., 2005) are more likely to experience greater overall symptomatology (impairing daily functioning), more likely to utilise pharmacologies and psychotherapy (Sansone & Sansone, 2011; Silberschmidt et al., 2015), and are therefore more likely to be seen by psychiatric services (75% female; APA, 2000). The prevalence of BPD in mothers is not known but given that BPD is often at its height in childbearing years (Paris & Zweig-Frank, 2001), and given many are either misdiagnosed or remain undiagnosed (Ruggero et al., 2010), the implications of the number of potential mothers affected are evident (Stepp et al., 2012).

## **1.5 Prognosis, Life-course, and Treatment**

BPD is associated with a range of long-term functional and social negative sequelae. In addition to the co-occurring psychopathologies discussed earlier, those with BPD also experience many physical health difficulties (Keuroghlian et al., 2013). There is high health care utilisation (Coid, 2003; Coid et al., 2006; Gross et al., 2002), substantial public health costs (Leichsenring et al., 2011; Soeteman et al., 2008), and the condition is amongst the costliest of all mental health disorders (Bender et al., 2001; Comtois et al., 2003).

### **1.5.1 Suicide and self-harm**

High risk of mortality is associated with BPD (Black, Blum, Pfohl, & Hale, 2004; Leichsenring et al., 2011; Paris & Zweig-Frank, 2001). Rates of suicide ideation and completion is alarming with 60-70% attempting suicide and around 8 to 10% completing suicide - fifty times that of the general population (Black, Blum, Pfohl, & Hale, 2004; Leichsenring et al., 2011; Oldham, 2006; Paris & Zweig-Frank, 2001; Pompili et al., 2005; Zanarini et al., 2005). The average age for suicide completions is late thirties (Paris & Zweig-Frank, 2001) prior to middle-age and often after several failed treatment attempts (Paris, 2018). Patients can have frequent suicide ideation over many years and describe having 'an option to die' as comforting in times of distress and hopelessness; suicidality can become the only way of communicating such level of despair (Paris, 2018, pp.422). Of all BPD diagnostic criterion, emotional dysregulation is the strongest predictor of suicidal behaviour and is beyond that of having a negative mood state overall (Yen et al., 2004). Further, the greater risk of premature death amongst this group is not all accounted for by suicide. Paris and Zweig-Frank (2001) found of the 18% who died before the age of 50, almost half died of causes other than suicide but potentially from associated health problems due to impulsive and risky behaviours. Evidence suggests 40-90% of those with BPD engage in non-suicidal self-harm and/or attempt suicide at some point in their lifetime (APA, 2004), with as many as 65-80% of individuals self-injuring, often by cutting (Brickman et al., 2014). The cutting is not viewed as a means of hurting but more a means of releasing tension and pressure, instantly calming the emotional dysregulation (Brown et al., 2002). Self-harming behaviours appear to start early on



in the onset of BPD with one study finding around a third of individuals with BPD commenced self-harming at 12 years or younger, and a further 30% started between 13 and 17 years of age (Zanarini et al., 2001).

### **1.5.2 Hopelessness and shame**

Low self-worth and feelings of rejection are prevalent in individuals with BPD (Fertuck et al., 2016). Self-condemnation, hopelessness, loneliness, and isolation are also experienced and are associated with depressive symptoms in BPD (Klonsky, 2008; Miller et al., 2020; Rogers et al., 1995). When experienced frequently and severely, chronic emptiness is associated with low levels of remission and higher self-harm and suicidality (Miller et al., 2015). Further, higher levels and duration of shame are also measured in individuals with BPD (Gratz et al., 2010).

### **1.5.3 Relationships**

Studies show high relationship dysfunction with BPD (Daley et al., 2000). Relationships are stormy with perceptions of their partner switching from idealising to hate, due to black and white thinking and the inability to integrate the positives alongside the faults of a person (Miano et al., 2020; Yeomans & Levy, 2019). Trust in relationships can be problematic in individuals with BPD; recall is high in memories where their trust had been previously failed by partners and family, and where they have failed to trust others (Botsford & Renneberg, 2020). Less than half of individuals with BPD marry (Paris, 2003; Tomko et al., 2014), fewer than the general population (Paris, 2002), and of those that marry there is a positive correlation between the severity of BPD and marital distress and disruption (Whisman & Schonbrun, 2009). BPD symptoms are also associated with poor marital problem solving and communication, and assortative mating, i.e., being drawn to (and marrying) partners who have similar symptoms (Jang & Vernon, 2018; Lavner et al., 2015). More individuals with BPD are likely to separate or divorce (Coid et al., 2006), make unfavourable partner choices (Jeung et al., 2020), have a greater number of intimate relationships overall, and a higher incidence of unplanned pregnancies (De Genna et al., 2012). Further, a prospective study showed that non-recovered BPD patients were less likely to live with a partner, were significantly younger when

entering into a relationship and becoming a parent, and more likely to lose custody of a child than those with remitted BPD (Zanarini et al., 2015).

#### **1.5.4 Employment/education**

BPD is associated with higher unemployment (Coid et al., 2006; Skodol et al., 2002), and significant impairment when working (Skodol et al., 2002). A 10-year study by Gunderson et al. (2011) showed levels of employment were consistently poorer than for MDD and other PDs, with only a third in full-time employment. Higher education did not account for better quality employment, but it was associated with the likelihood of attaining full-time work. Individuals with borderline features typically have lower academic achievement than those with other PDs, considered due to their emotional dysregulation, poor interpersonal relationships and impulsive acts (Bagge et al., 2004). Lower IQ also increases the risk of BPD outcomes (Stepp et al., 2016).

#### **1.5.5 Remission**

Personality disorders by definition are personality traits that are inflexible, impairing, stable, and enduring over time (APA, 2013; Biskin, 2015). Historically, BPD was seen as untreatable but longitudinal studies suggest that with appropriate therapy treatment BPD can progressively improve (Chanen et al., 2017; Gunderson, Stout, et al., 2011; Paris & Zweig-Frank, 2001; Zanarini et al., 2012), although BPD is slower and less likely to remit than other psychopathologies such as MDD (Biskin, 2015). Gunderson and colleagues (2011) found 85% of patients remitted over 10 years (for 12 months or longer). Zanarini et al. (2012) found just over half of patients attained functional recovery (i.e., stable relationship, employment etc.) and after 16 years 99% had remitted for 2 years (78% for 8 years or more). Paris and Zweig-Frank (2001) found 92% no longer met diagnostic criteria for BPD after 27 years, which was a significant improvement compared to the 15-year follow-up.

Remission is more likely in those who are not frequently hospitalised, have a higher IQ, and are functioning adequately at work (Zanarini et al., 2012; Zanarini et al., 2018). Better education also predicts better functioning with BPD (Gunderson, Stout,

et al., 2011). Moreover, clinical remission can be seen in those that have stable supportive relationships and are able to avoid interpersonal stress triggers (Gunderson et al., 2003). Typically, impulsivity tends to subside with age. Emotional dysregulation difficulties are slower to remit and severe deficits in social functioning tend to remain (Gunderson, Stout, et al., 2011; Paris, 2018). By middle age many do not meet diagnostic criteria for BPD but continue to experience poor psychosocial functioning (Biskin, 2015; Paris, 2018). The likelihood of sustaining remission is mixed: treatment-seeking patients with BPD are typically less likely to relapse than MDD or PD groups (Gunderson, Stout, et al., 2011) whereas of those initially hospitalised for BPD related reasons, fewer maintain remission with shorter remission times (Zanarini et al., 2012). It is evident that remission is possible with sustained appropriate treatment, but difficulties arise when individuals either do not seek clinical help and diagnosis or do not engage adequately with treatment programmes (Paris, 2018). Unfortunately drop-out rates for BPD treatment are high, with 57% not completing treatment (APA, 2000; Chalker et al., 2015).

#### **1.5.6 BPD-specific treatment**

Current pharmacological treatment of BPD is limited. Mood stabilisers, antidepressants and anti-psychotic drugs can be used for specific aspects of the disorder however patients can be resistant to treatment (Olabi & Hall, 2010). Improvements in symptoms can be seen with intensive psychotherapy treatments such as Dialectical Behaviour therapy (DBT, Linehan, 1993). This therapy was the first of such specialised treatments for BPD showing efficacy in many trials. DBT was grounded in Cognitive Behavioural Therapy (CBT) principles with emphasis placed on strategies to manage emotional and social impairments. Since then other equally effective therapies for reducing BPD symptoms have emerged (Levy et al., 2012; see table 1.2).

**Table 1.2: Recognised therapies for BPD**

Therapy	Author (Date)	Outline of therapy	Method/duration	Efficacy
DBT Dialectical Behaviour Therapy	Linehan (1993) Linehan (2014)	Based on CBT with emphasis on social and emotional aspects. 4 key skills: 1) Distress tolerance/building resilience; 2) Mindfulness; 3) Emotion regulation; 4) Interpersonal effectiveness with others	Group & individual weekly sessions over minimum 12m Additional skills coaching via phone contact with therapist	Evidence-based efficacy via numerous RCTs and research studies showing improved outcomes compared to TAU
MBT Mentalization-Based Therapy	Bateman & Fonagy (1999; 2001; 2009)	Integrates theory of mind, ego psychology & attachment theory. Therapy is structured around mentalizing (examining own thoughts and beliefs), impact on self & others, managing relationships, emotions, & impulsivity. Emphasis is placed on the client-therapist attachment relationship	Group & individual weekly sessions over 18m, minimal training for therapists	Several RCTs & research trials show treatment efficacy & improved outcomes compared to TAU
TFP Transference-Focused Psychotherapy	Yeomans, Clarkin & Kernberg (2002)	TFP applies the 4 psychodynamic principles of: interpretation, transference analysis, therapist neutrality, counter-transference analysis. Treatment focuses on behaviour and mental representations of self and others (& integration), self-control; includes family involvement, & psychoeducation	Individual sessions twice weekly – c.3 years as required	Significant improvement was seen in RCT studies compared to TAU; comparable to DBT
SFT Schema-Focused Therapy	Young (1994) Young, Klosko & Weishaar (2003)	Based on CBT, attachment theory, gestalt & psychodynamic perspectives. Using, behavioural cognitive and experiential techniques, therapy explores maladaptive early schemas that cause dysfunctional, self-defeating thoughts and behaviours, replacing them with healthier ones	Twice weekly individual therapy over 2-3 years	RCTs shows significant improvement in symptoms compared to TAU. Superior to TFP on all measures
CAT Cognitive Analytic Therapy	Ryle & Beard (1993) Ryle (1997)	Reformulation phase: Issues (& good aspects) jointly identified, underlying reasons for diagnosis (i.e., previously learned patterns). Active therapy: exploring behaviours that contribute to difficulties, evaluating & finding new ways by use of repertory grids (Kelly, 1955)	Time-limited individual therapy 4-24 weeks, typically 16 weeks	Mainly non-controlled/case studies. RCTs (all PDs) improvement compared to TAU; (adolescents BPF) same as GCC but improved quicker
STEPPS Systems Training for Emotional Predictability & Problem Solving	Blum et al. (2002) Black et al. (2004)	CBT skills based manualised therapy. Provides psychoeducation (awareness of illness) and skills training in emotion management and behaviour management. Provides a 'systems' approach informing significant others with an understanding of STEPPS	Weekly group sessions over 20 weeks plus 1-year follow-up advanced programme twice monthly	Several studies showing efficacy in symptom reduction & superiority to TAU. High level of patient acceptance

Therapy	Author (Date)	Outline of therapy	Method/duration	Efficacy
GPM General Psychiatric Management	Gunderson & Links (2014)	A treatment for early intervention, which can be administered in primary care settings. Combines case management (diagnosis, psychoeducation, pharmacology) with focus on psychodynamic and cognitive behavioural strategies, e.g., an understanding of self, adapting healthy reactions to stress, suicidality & self-harm management functional life-strategies	Weekly individual sessions open-ended with flexibility to increase or decrease. Minimal training required	Evidence-based simplified intervention, significant improvement in 10 sessions. Efficacy similar to DBT
SCM Structured Clinical Management	Bateman & Krawitz (2013)	Introductory phase identifying key difficulties, goals, crisis plan; Intervention phase: problem solving, managing emotions, relationships & risky behaviours; Ending phase: skills review and maintenance strategies	Weekly individual and group sessions 12-24m (varies between NHS trusts). Minimal training required	Evidence-based effective simplified therapy more superior to TAU in symptom reduction but less than MBT

**Notes:** BPF = borderline personality features; CBT = cognitive behavioural therapy; GCC = good clinical care; NHS = National Health Service; RCT = randomised control trial; TAU = treatment as usual

#### Efficacy citations:

DBT: Stiglmayr, Stecher-Mohr, Wagner, MeiBner, Spretz...Renneberg (2014); Stoffers-Winterling, Vollum, Rucker, Timmer, Huband, & Lieb (2012); van den Bosch, Koeter, Stijnen, Verheul, & van den Brink (2005)

MBT: Bateman & Fonagy (1999; 2001), Vogt & Norman (2019)

TFP: Clarkin, Levy, Lezenweger, & Kernberg (2007); Doering, Hörz, Rentrop, Fischer-Kern, Schuster, ...Buchheim (2010)

SFT: Giesen-Bloo, van Dyck, Spinhoven, van Tilburg, Dirksen,...Arntz (2006); Sempértegu, Karreman, Arntz, Bekke (2013)

CAT: Clarke, Thomas & James (2013); Chanen, Jackson, McCutcheon et al. (2008); Golykina & Ryle (1999); Kellett, Bennett, Ryle, & Thake (2013)

STEPPS: Blum, St John, Pfohl, Stuart, McCormick, Allen, Arndt, & Black (2008); Harvey, Black & Blum (2010); Bos, van Wel, Apello, & Verbraak (2011)

GPM: Bernanke, McCommon (2018); McMain, Links, Gnam, Guimond, Cardish, Korman, & Streiner (2009); McMain, Guimond, Streiner, Cardish, & Links (2012); Levy, Meehan &, Yeomans (2012)

SCM: Bateman & Fonagy (2009); Bateman, & Krawitz (2013)

Alongside DBT, Schema-Focused Therapy (SFT), Systems Training for Emotional Predictability and Problem Solving (STEPPS) and General Psychiatric Management (GPM) are also based around CBT while others use mentalisation, self-reflection and psychodynamic principles (e.g., Mentalisation-Based Therapy MBT, Transference-Focused Therapy TFP). All of the therapies except for STEPPS utilise individual therapy sessions, with DBT, MBT and Structured Clinical Management (SCM) offering both group and individual sessions. For the intensive therapies (DBT, MBT, TFP and SFT) considerable commitment is required from the patient, twice weekly for beyond 12 months, although some shorter-term therapies are now available. These simplified therapies (e.g., STEPPS, SCM, GPM) are less intensive, more accessible across a range of settings, more cost effective, appear to yield similar results, and potentially enables the more intensive therapies to be reserved for those with the most extreme disorder (Choi-Kain et al., 2017). Despite the benefits of these treatments, patients often continue to exhibit high levels of functional impairment, highlighting the debilitating complexity of this disorder (McMain et al., 2012).

#### **1.5.7 Other helpful strategies**

Studies have identified strategies to help manage symptoms. Using ecological momentary assessment (EMA)<sup>6</sup> Chapman et al. (2017) found that use of avoidance techniques to distract from negative emotions resulted in reduced negative affect in those with BPD, suggesting this kind of short-term strategy could provide temporary relief for the individual. Regular self-assessment and recording emotions directly after life events and circumstances can help in identifying which interpersonal interactions trigger extreme mood shifts (Moskowitz et al., 2009).

Immediate psychoeducation soon after receiving a BPD diagnosis may be beneficial particularly with the severity of two of the core features of BPD (unstable relationships; impulsivity). Helping patients to understand their diagnosis was associated with greater reduction in impulsive behaviours and instability in close

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<sup>6</sup> A technique for participant self-report of symptoms, affect, behaviour, thoughts etc. close to the time of the event (often collected via digital technologies).

interpersonal relationships, and even one session was found to be helpful (Zanarini & Frankenburg, 2008).

Eye movement desensitisation and reprocessing (EMDR) is an eight-phase psychotherapy treatment aimed at alleviating the distress associated with traumatic memories (Shapiro, 1989), and therefore a possible therapy for those with BPD and a history of trauma. By accessing and reprocessing emotional disturbing memories whilst focusing on an external stimulus (usually involving lateral eye movements), new more adaptive associations and memories are made and external triggers desensitised (Shapiro, 2018). The removal of blocks then enables new associations such as a shift from terror and self-loathing to that of strength and survival.

#### **1.5.8 Barriers to therapy**

Multiple behaviours interfere with receiving therapy. Patients are known to call their therapist at unreasonable hours (Dimeff & Linehan, 2001), display challenging argumentative behaviours (Farrand et al., 2009), and have ineffective engagement on phone calls (Chalker et al., 2015), with drop-out rates of patients with BPD being typically high (APA, 2001; Ben-Porath, 2004; Chalker et al., 2015; Farrand et al., 2009). A meta-analysis found therapy completion varied from 36%-100% (Barnicot et al., 2010). Overall completion rates were 75% for interventions less than 12 months and 71% for longer treatments, however a high proportion of the studies reviewed were DBT (68%) and as such may be more representative of DBT. Factors affecting therapy drop-out include a lack of commitment to change, problems with the therapeutic relationship, and patient impulsivity (Barnicot et al., 2010). Frequent patient-therapist phone contact has been associated however with a decrease in drop-out rates and psychological symptoms and an increase in satisfaction levels suggesting that phone coaching would play an important role in sustaining therapy participation (Chalker et al., 2015).

Many treatments operate at an individual patient level, so while clients may appear competent in the therapy environment where the therapist is assisting with co-regulation of emotions, once out of therapy the individual may waver unless they

have social support. From a social baseline theory perspective (section 1.2.3), interpersonal support and dependency is required for healthy emotional functioning and without this the cognitively intensive task of implementing learned therapy strategies may be too great. Preventative interventions and strategies are also likely to be more effective where there is peer, family, teacher, or colleague social support (Hughes et al., 2012). STEPPS has a systems approach (see Bronfenbrenner's model chapter two), which involves and informs significant others of the therapy process. Clinicians who attended a one-day workshop for good psychiatric management reported increased understanding and greater perceived confidence in treating BPD and a positive shift in attitude towards BPD patients, highlighting the importance of BPD education for the significant others in the support networks of those with BPD (Keuroghlian et al., 2016).

Delayed diagnosis or focus on co-occurring disorders only (e.g., depression) can mean more intensive therapy is ultimately required, increasing personal debilitation and societal costs. Early diagnosis and intervention is reliable and warranted with young people responding well to treatment and prevention interventions (Chanen et al., 2008; Chanen & McCutcheon, 2013). Furthermore, due to the considerable debilitation associated with subsyndromal levels of BPD, Chanen and colleagues suggest 'clinical staging' as a pragmatic framework to guide prevention and intervention strategies. The staging would involve identifying where a patient lies along a continuum of the evolving course of the disorder in order to apply relevant and proportionate interventions (Chanen et al., 2016).

## **1.6 Summary**

This chapter has highlighted the many difficulties associated with BPD including the conflicts with the unhelpful nomenclature, nosology, and recognition by the DSM, issues with the DSM categorical system, heterogeneity of the disorder, and the stigma associated with BPD and thus a reluctance to diagnose. The condition is highly complex with multifactorial developmental aetiology, having both familial, neural, and biological underpinnings, and expression through a plethora of invalidating experiences and environments. Prognosis is now considered promising



through appropriate treatment and early intervention when help is sought and treatment maintained, however the discrepancy between prevalence rates at clinic and in the community highlights the number of individuals not seeking help. High suicidality, profoundly unstable emotions, turbulent relationships, and the long-term negative sequelae associated with BPD impacts greatly on the individual and their close relationships. For mothers with the disorder this is likely to have far reaching implications for both mother and child. The next chapter will consider what is important for parenting.

## CHAPTER TWO

### PARENTING AND THE MOTHER-CHILD RELATIONSHIP

#### *Overview and the importance of parenting*

Child rearing is a culturally normative occurrence with 86% of women becoming mothers (Bornstein, 2015). Being a parent is one of the most important jobs an adult will undertake (Rasmussen, 2014) having a formative role in child development (e.g., Collins et al., 2000; Patterson & Fisher, 2002), child self-esteem and wellbeing (Bornstein & Bradley, 2003; Harter, 2008; Shaffer & Kipp, 2010), and is fundamental also to the wellbeing of society (French, 2002; Smith et al., 2002). Most parenting theories indicate that it is what the child experiences in childhood that is the greatest contributor to development, with parenting practices identified through epidemiological and experimental studies showing salient influences on child development (Collins et al., 2000). Parents directly and indirectly impact their child in many ways by feeding, protecting, teaching, being emotionally available, promoting and supporting activities and interests, and even initially by determining who they socialise with (Bornstein, 2015).

A plethora of information has been written about parenting in the last few decades, in particular how the *quality* of parenting is potentially the most important variable in a child's life, and emphasis being placed on the symbiosis of mother-child interactions for child development and attachment (Smith, 2010). Research and theory have largely centred on mothers due to their predominance in primary caregiving; with this in mind, and with mothers being the focus of our research studies, this thesis will also focus on the maternal parenting role. This chapter covers the mother-child relationship, attachment theory (Ainsworth & Bell, 1970; Bowlby, 1969), emotional availability (Biringen, 2009; Biringen & Robinson, 1991), Bronfenbrenner's ecological system (Bronfenbrenner, 1994; Bronfenbrenner & Morris, 2006), child outcomes associated with optimal and maladaptive parenting, and significant factors that influence parenting.

## **2.1 The Mother-Child Relationship**

Infancy is a critical stage for laying foundations for a strong mother-child relationship and is a time when relationship attachment, affect regulation, impulse control, trust, and intellectual curiosity are fostered (e.g., Bowlby, 1969; Bowlby, 1988; Schore, 1996). In effective mother-child relationships, the mother shows mind-mindedness (Meins, 1997) whereby she understands and attunes to the child's internal state and needs from the cues the infant provides (Barnard & Solchany, 2002). By altering her emotional expressions, voice and gestures, the mother effectively engages with the infant, creating a rhythm of dyadic exchanges (Martin et al., 2002). This kind of intuitive parenting involves responding appropriately for the child's developmental stage, for example by using child-directed speech. Furthermore, maternal attunement requires adapting activities and interactions to the child's current mood and temperament; more stimulation is not always best. Such maternal flexibility builds synchronicity between the mother and child (Harrist & Waugh, 2002) developing a strong emotional relationship, secure attachment, and positive child development (Biringen & Robinson, 1991; Lovas, 2005).

### **2.1.1 Attachment**

Attachment is the 'lasting psychological connectedness between human beings' (Bowlby, 1969, p.194). It is considered that infants are predisposed to attachment as an adaptive process as attachment behaviours improve the infant's chances of survival. Bowlby (1969) posited that infants have inbuilt mechanisms (e.g., smiling, cooing, crying, eye contact etc.) to enable infants to elicit positive responses (especially in times of need or distress), and to help create a close relationship with the primary caregiver. Bowlby further suggests that the mother has an innate predisposition to care for and respond to their infant's signals. Such infant characteristics and behaviours elicit nurturing reactions from the mothers by activating the adult brain regions associated with empathy and responsiveness (Caria et al., 2012; Konner, 2004). The response received to their signals determines the extent to which the infant's needs are met. Moreover, it is not the survival aspect per se that the child craves but maternal responsiveness and comfort. This theory has been supported by both animal (Harlow, 1958) and infant studies (Schaffer &

Emerson, 1964) and has changed views of parenting practices from detached parenting styles to more responsive attached parenting.

This affective attachment relationship is considered to be the foundation of social, emotional and cognitive development. The emotional closeness formed in attachment relationships prepares the child for independence, with the attachment system balancing the opposing aims of enabling infant exploration while ensuring infant security through close proximity with the mother (Boris & Zeanah, 1999; Bowlby, 1969). Attachment typically begins to be shown at around two months when infants begin to discriminate between adults and show preference for one person over others (usually the mother). By seven months attachment is more established when separation and stranger anxiety are evident (Ainsworth & Bell, 1970; Bowlby, 1969; Schaffer & Emerson, 1964). Attachment relationships can also be formed with other close relationships/caregivers, moreover, it is possible for the child to have a secure attachment with one caregiver yet an insecure attachment with another (van IJzendoorn & Bakermans-Kranenburg, 1996).

The first three formative years are particularly important for developing trusting relationships, with early experiences influencing the ability to form later stable meaningful relationships with others. Early attachment relationships through repeated mother-child interactions create 'internal working models', which are long lasting cognitive schemas for assessing the value and reliability of all future relationships (Bowlby, 1969; Fraley & Shaver, 2000; Sroufe et al., 2005). In infancy, attachment provides a 'secure base' from which the child can explore, learn, develop self-regulation and negotiation skills, and gain confidence and autonomy (Bowlby, 1969; Bretherton, 2006). The attachment relationship is also important for developing stress regulation and resilience, providing the child with an initial coping system that can be called upon for comfort in times of distress. By the end of the child's first year the child-mother attachment is usually well enough established to reliably test attachment security in the context of the mother-child relationship.

Studies from the strange situation procedure<sup>7</sup> depict four infant attachment categories: secure, insecure-resistant, insecure-avoidant, insecure-disorganised (see table 2.1: Ainsworth et al., 1978; Main & Solomon, 1986).

**Table 2.1:** *Infant attachment categories*

	Secure	Insecure resistant/ambivalent	Insecure avoidant	Insecure disorganised
<i>Child's general wellbeing</i>	Secure Happy Autonomous	Insecure Anxious Clingy Angry	Emotionally distant Avoids closeness Low exploration	Depressed Approach avoidant Dissociating Angry
<i>Maternal responsiveness to child's needs/cues</i>	Sensitive Responsive Swift Consistent	Inconsistent Oscillating between sensitivity and disengagement	Distant Disengaged	Erratic Extreme Frightening or frightened
<i>Child's belief pattern</i>	Develops trust Confident needs will be met	Unsure whether needs will be met or not	Believes needs will not be met	Very confused No strategy for needs being met
<i>Transactional style</i>	Adaptable as required Contact maintained	Enmeshed Confused boundaries Role reversal	Disengaged avoids physical/emotional closeness	Chaotic Dissociative

Secure infant attachment is associated with close harmonious peer relationships (McElwain et al., 2011; Panfile & Laible, 2012) and openness in mutually beneficial romantic relationships (Englund et al., 2011). Studies show securely attached children typically score higher on positive self-image (Cooper et al., 1998), self-esteem (Roberts et al., 1996), independence, and problem-solving skills (Colman & Thompson, 2002). They tend to be more goal driven, perform better at school, have more successful peer relationships and are less prone to mental health difficulties such as depression & anxiety than children with insecure attachment patterns (e.g., Barber & Harmon, 2002; Crittenden et al., 1994).

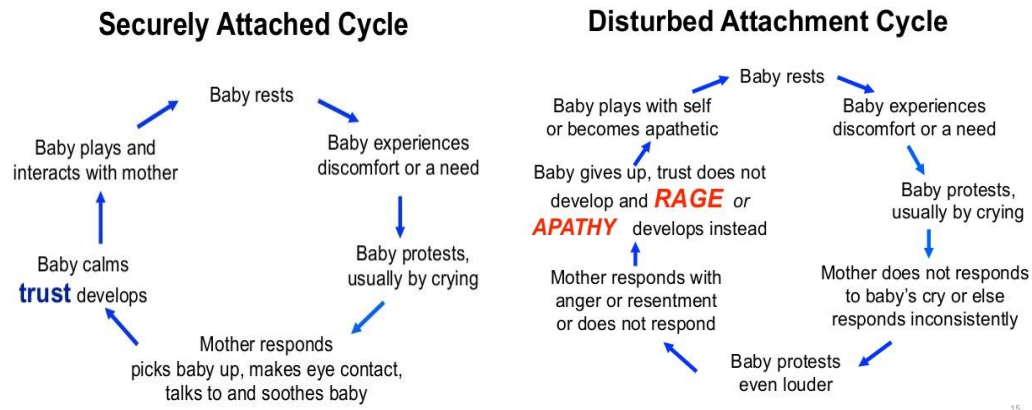
Conversely, those with insecure attachment types are at higher risk of becoming either emotionally detached, or clingy and overly emotional in relationships. Such

<sup>7</sup> The strange situation is a brief standardised observational procedure of the child's response to the separation and reunion of the mother, and their reaction to a stranger.

difficulties in early attachments can negatively impact child outcomes (Young et al., 2019). For instance, children with insecure attachment patterns are more likely to have internalising behaviour (Madigan et al., 2013), insecurity and externalising problems (Fearon et al., 2010), lower emotional understanding (Psychogiou et al., 2018), be rated lower on agreeableness, conscientiousness and higher on neuroticism personality traits (Young et al., 2019), and have behavioural problems, lack empathy, poor stress regulation, and experience relationship difficulties (Rees, 2007, 2008). Moreover, they are more likely to develop mental health difficulties including BPD (Carlson et al., 2009). Of particular importance is that right brain development is markedly shaped by early attachment interactions and emotional communications, which in turn influence the neural mechanisms involved in self-regulation (Schoore, 2005). As such insecure attachment can have a profound and enduring effect on the child's ability to regulate self and emotions both in childhood and adulthood. Furthermore, although more extreme, a disorganised insecure attachment type is typically associated with parental neglect and/or abuse (Lyons-Ruth et al., 2006). While it is sometimes possible to overcome early insecure attachment if subsequent sensitive responsive parenting is received or by forming a secure attachment with a significant other, the older the child the less their ability to adapt (Rutter et al., 2007). Furthermore, studies have consistently shown that children's attachment patterns are heavily influenced by the attachment patterns of their parents and are typically enduring (Miljkovitch et al., 2004), which is concerning given that individuals with BPD features are often categorised as insecure preoccupied or unresolved attachment types (e.g., Blatt & Levy, 2003).

As discussed above, the mother initially assumes the greater role in interactions, and therefore how a mother responds to her child's signals, communications, and distress helps determine the patterns of attachment that the child forms (see figure 2.1). Sensitive responsive caregiving is key and has been found to be the strongest predictor of secure attachment in infants. This 'felt security' is essential beyond infancy for healthy emotional development and prevention of later psychopathology (Davies et al., 2006).

**Figure 2.1:** *A well attuned mother building secure infant attachment*



Source: Oakwater (2016)

Research shows that maternal responsiveness predicts attachment at 12 and 18 months (Raby et al., 2012), with maternal sensitivity associated with attachment security (Bakermans-Kranenburg et al., 2003; De Wolff & van IJzendoorn, 1997). Infants whose mothers respond poorly or not at all, fail to understand and build trust and consequentially emotional dysregulation may develop. How a mother parents her child is therefore essential for the child's development of secure attachment (Sroufe et al., 2005).

### 2.1.2 Emotional Availability

Emotional availability (EA) significantly relates to child attachment (Altenhofen et al., 2013; Bretherton, 2000; Easterbrooks & Biringen, 2000) whereby high maternal EA is associated with secure infant attachment (e.g., Altenhofen et al., 2013; Biringen et al., 2012; Easterbrooks et al., 2000; Ziv et al., 2000). EA builds on attachment theory by expanding upon the behaviours associated with attachment and separation (i.e., infant security and comfort) to cover the full range of emotions experienced in the dyad relationship, including both the mother and child's reciprocal reactions, responses, and behaviours (Saunders et al., 2015). The term emotional availability was first used by Mahler et al. (1975), expanded on by Emde and Easterbrooks

(1985), and further developed by Biringen and Robinson (1991). It refers to the open, reciprocal communication that occurs between a mother and child under optimal parenting conditions, regardless of other systemic factors such as SES (Bornstein, Suwalsky, et al., 2012; Saunders et al., 2015). Studies have established EA as key in mother child-relationships (e.g., Bornstein, Hahn, Suwalsky, et al., 2011; Howes & Obregon, 2009; Lovas, 2005; Stack et al., 2012), with EA not just important in the child's formative years but underpinning interactions throughout childhood by providing structure, guiding learning, and supporting the child's autonomy (Saunders et al., 2015). As the child develops, they play a more active role in this reciprocal relationship, thus from a transactional perspective of development, parents and children influence each other over time (Bornstein, 2009).

As a construct, EA encapsulates the capacity of a mother and child to share a healthy connection, whereby emotionally available dyads recognise each other's signals and cues and respond appropriately to them (Biringen et al., 2014; Biringen & Robinson, 1991). The mother approaches the child in a manner that is respectful, accepting, and attuned to the child; the child enjoys the interaction and responds accordingly, and this reciprocity encourages further positive engagement from the mother and child. That is not to say that *every* child request should be responded to as studies show that there is an optimal point where enough response helps the child to self-regulate and develop coping skills and autonomy, whereas beyond optimal maternal responsiveness the infant may become less responsive to the mother (Bornstein & Manian, 2013).

Maternal EA includes behaviours such as talking to and engaging with the child, and sensitively responding to the child's cues, for instance the mother explicitly welcoming the child's approach via smiles and vocalisations. Whilst sensitive maternal behaviour is a measure in itself, it is also a key component of maternal EA underpinning all other aspects of emotional availability such as guiding the child in their development through structuring, being involved but not in an intrusive manner, and ensuring interaction is calm and positive with no signs of negativity or hostility (Biringen, 2008). For the child, being emotionally available includes



vocalising, making expressions, and exploring, such as moving towards the mother and smiling, responding to the mother's actions and vocalisations, and being both involved in and involving the mother in joint interactions and play. A child's emotional expressions are part of this feedback loop and can influence the mother's response (Biringen et al., 2014). Emotional availability thus is a bidirectional transaction whereby the signals and behaviours of both the mother and child affect each other and any subsequent reactions (e.g., Trevarthen & Aitken, 2001; Van Egeren et al., 2001).

Research shows that children who have emotionally available relationships with their parents have better peer relationships and are socially more positive, proactive, and confident (Biringen, 2009; Howes & Hong, 2008). They are more attentive in school with greater concentration levels, relate to their teacher more easily, show less dependence or conflict, and have a greater vocabulary and more expressive language (Moreno et al., 2008). Further, children who experience emotional availability are less aggressive, have more emotional control, and are less likely to experience bully victimisation (Biringen et al., 2005; Little & Carter, 2005).

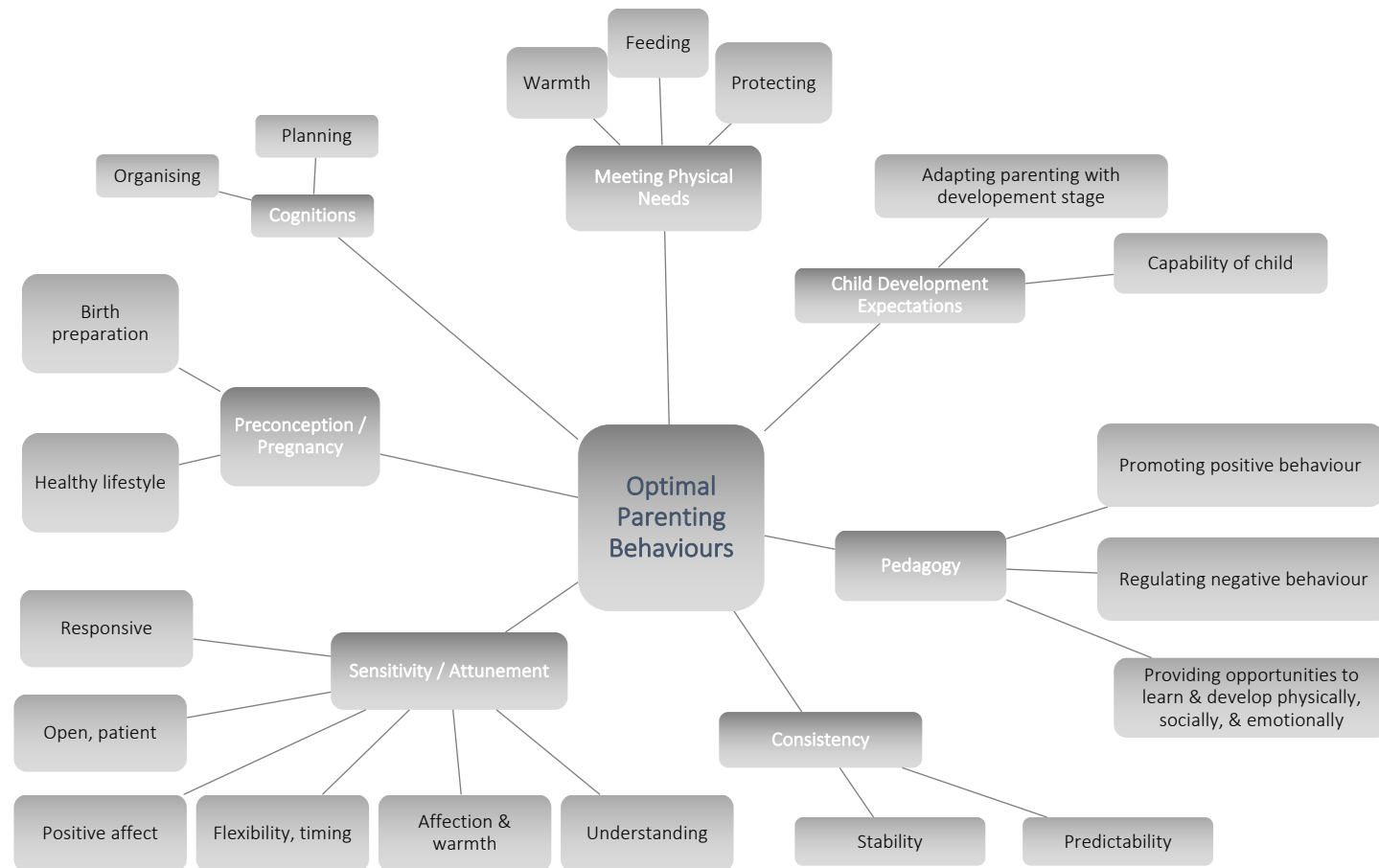
The effects of an emotionally unavailable mother have been captured as early as 4-months-old. The still-face paradigm is a well-established procedure that shows how infants react when their mother has no reaction or facial expression even when the child bids for attention (Tronick et al., 1978). The effect of this emotional unavailability (via still-face response) has a great impact on the infant, causing more distress than even when the mother is not physically present (e.g., Adamson & Frick, 2003; Field et al., 1986). The longer-term effects of having an emotionally unavailable mother can manifest in enduring difficulties such as unstable relationships, emotional detachment, insecure attachment, low self-esteem (Heller, 2016; Lyons-Ruth, 2015) and offspring psychopathology (Gökçe & Yilmaz, 2018).

## 2.2 Parenting Quality and Child Outcomes

Good parenting starts pre-conception and continues throughout pregnancy with healthy choices and behaviours (Enkin et al., 2000). Postnatally it requires a myriad of skills such as planning, organising, executing tasks, and having the ability to be flexible, patient, and consistent (Bornstein, 2015); it also requires appropriate parenting attitudes, expectations, and perceptions and knowledge of child rearing (Goodnow, 2002). Optimal mothers are warm, affectionate, open and responsive, who praise, encourage, and validate their child's emotions and behaviours. They help their children to interpret their world, through descriptions, demonstrations, and by providing opportunities to learn. Child emotion regulation and social skills are attained via the parent strengthening what they consider to be desired prosocial behaviours through praise while regulating undesirable antisocial ones (Bornstein, 2015).

Figure 2.2 shows an overview of the most optimal parenting behaviours. Of note is that maternal emotionally available behaviours underpin almost all of these parenting behaviours, highlighting the importance of the EA construct. In reality it is not always possible to be the most optimal parent, and the term 'good enough parent' (Winnicott, 1963) refers to the ability to be a good parent for the most part; indeed the most emotionally available scores of the EA scales and the Emotional availability and attachment screener (Biringen, 2008; Biringen et al., 2014) includes both optimal EA and good enough EA. Parenting is often deemed as a process of trial and error and relatedly emotional availability is not about being the perfect parent but more about having the ability to *repair* the relationship and emotional connection effectively and successfully with the child after conflict has occurred (Biringen, 2009). Consistent repair is required for children of all ages and is a normal aspect of emotional availability, which is assessed within the interpretation of mother-child EA using the emotional availability scales (EAS, see chapter six). The process of moving the relationship out of conflict subsequently helps to maintain more harmonious emotional states (Biringen, 2009).

**Figure 2.2:** *Overview of optimal parenting behaviours*



### 2.2.1 Child outcomes from parenting

Several studies have shown the impact and positive moderating effects of appropriate parenting on a wide range of child outcomes (e.g., Galambos et al., 2003; UdeU et al., 2011; Wood et al., 2004). For example, parents whose responses are warm and supportive and provide a positive family atmosphere help to shape self-esteem in children and adolescents (Shaffer & Kipp, 2010); children's language and cognitions scores are higher in pre-schoolers where parents are prompt and responsive in the infant's first 12 months (Nicely et al., 1999); parental support during early childhood protects against depression in adulthood (Shaw et al., 2004); and positive reinforcement and praise is important for social confidence and children's later attitudes towards challenges and hard work (Gunderson et al., 2013; Shinohara et al., 2010).

Where good parenting behaviours are not present, or unpredictably so, the picture for the child can be very different. Maternal intrusiveness and hostility are associated with invalidation and poor behaviour management, and lower maternal warmth is associated with internalising/externalising behaviours, low self-esteem, and poor sense of self (Belsky & Jaffee, 2006). Rejecting parenting style can also be problematic and is associated with poor child outcomes including emotional dysregulation, negative biases, and hostility (Hughes et al., 2005). Maternal under contingency (i.e., withdrawn, unresponsive behaviour) by failing to respond to infant cues can lead to non-optimal attachment and increased behavioural problems. For example, a lack of maternal responsiveness at 3 and 9 months predicted insecure attachment patterns at 12 months (Isabella & Belsky, 1991), and maternal unresponsiveness at 12 months predicted disruptive, aggressive behaviour at 2 years, internalising and externalising behaviour at 3 years (Shaw et al., 1994), and disruptive behaviour in middle childhood (Wakschlag & Hans, 1999). Further, unresponsive behaviour in the form of infrequent maternal communication, precludes opportunities for the child to learn and develop trust and therefore the child may also disengage from communications and espouse inflexible thinking, predisposing them to developing BPD (socially oriented model, Fonagy et al., 2017).

Maternal over contingency (i.e., hypervigilance and stimulating) and over responsiveness on the other hand can become intrusive (Beebe et al., 2008) resulting in over-stimulation for the infant and taking them beyond their tolerance level. Similarly, in adolescence harsh maternal verbal control increases the likelihood of adolescent behaviour problems and internalising difficulties. Subsequent misconduct behaviours in turn prompt increased harsh verbal control and discipline from the mother, creating a maladaptive transactional cycle (Wang & Kenny, 2014).

Unpredictable parenting can be particularly harmful to child development. Studies show fragmented, unpredictable maternal responses at 1 year were significantly associated with less optimal cognitive development at 2 years and lower memory responses at 6 years (Davis et al., 2017), and unpredictable/fragmented maternal care behaviour patterns increase the risk of child psychopathology through disturbing the maturation of the cognitive and emotional brain (Glynn & Baram, 2019). Furthermore, inconsistent parenting is more likely to trigger the use of the older vagal-nerve system through feeling fearful/unsafe. This creates physical and emotional difficulties by increasing heart rate, induces a heightened state, prompts defensive reactions, and creates a constant state of hypervigilance which over time forms a hard-wired autonomic response (polyvagal theory, Porges, 2011), behaviour commonly seen in those with BPD (Sieswerda et al., 2006). Although early experiences particularly influence attachment, it is the cumulative effect of repeated childhood experiences that shape child development over time (Belsky & Fearon, 2002).

### **2.3 Factors Influencing Parenting and Child Development**

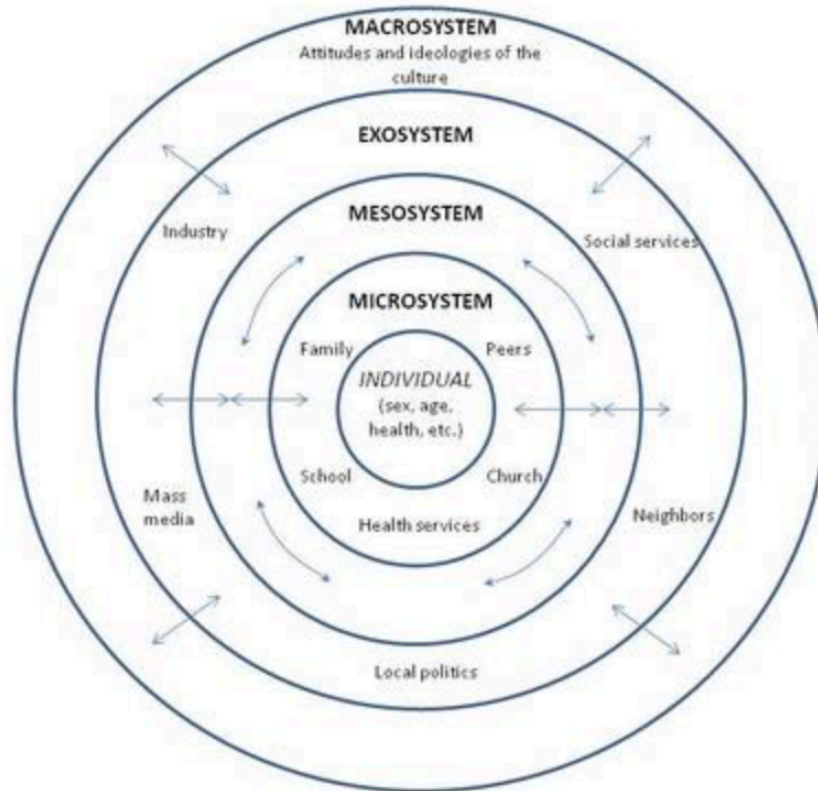
Mother-child relationships do not operate in a vacuum and parenting practices, child development and childhood experiences are affected by a myriad of other influencing factors. This next section introduces Bronfenbrenner's ecological child development model (Bronfenbrenner, 1994), and suggests systemic factors that have potential to impact on parenting and subsequent child developmental outcomes.

### **2.3.1 Bronfenbrenner's ecological systems model of development**

Bronfenbrenner's ecological systems model posits that a child's development is affected by everything in their surrounding environment, impacting on every aspect of life including thoughts, feelings, and emotions (Bronfenbrenner, 1994, 1999). The theory emphasises the importance of the interaction of various 'ecosystems' in which the individual is enmeshed. These ecosystems have five levels (see figure 2.3). The Microsystem is the most influential level with direct contact with parents, siblings, teachers, and friends where for example a nurturing, supporting mother relationship will positively impact on the child's development. The Mesosystem is the impact of the interaction of those in the child's microsystem and the influence they exert on each other that indirectly influences the child in a positive or negative way dependent on the relationship (e.g., mothers who openly challenge the child's friendships can cause conflict within the child and potential negative developmental outcomes). The Exosystem includes decisions and events that also have an impact on the child but into which the child has no direct input (e.g., parent losing their job, deciding to move house etc.). The Macrosystem involves other wider influences such as culture, religion, and finally the Cronosystem is how time and significant events relate to a person's development; for instance, a preschool child losing their parent will be differently affected to a teenager losing a parent (Bronfenbrenner, 1994).

Each of the ecosystems interact with and influence each other in all aspects of the child's development and will differently impact either positively or negatively on the child, dependent on their level of coping mechanisms and how the situation is managed by the parent. For example, should a whole class be punished for the actions of a few this could create a 'trigger' as the reaction is perceived as unjust; the child subsequently reacts at home and as a consequence the mother might either discuss with the child and help them implement a coping strategy (positive outcome), or alternatively directly confront the school where the teacher may then have a different, less favourable attitude and behaviour towards the child (negative outcome). For effective child development, any negative impacts and experiences need to be offset with positive ones, similar to the 'repair' aspect of emotional availability (Biringen, 2009).

**Figure 2.3:** Bronfenbrenner's ecological systems of child development (Bronfenbrenner, 1994)



**CRONOSYSTEM:** experiences over time (major life transitions, environmental, and historical events)

Bronfenbrenner revised his initial theory to a bioecological model to take account of the influences of the individual's characteristics on relationships within the individual's immediate environment. The suggestion was that human development occurs via gradually increasing reciprocal interactions over extended periods of time. These enduring systemic interactions are referred to as proximal processes, which include people, objects, or activities i.e., any mechanisms that have repeated influence and enduring affect (Bronfenbrenner & Morris, 2006). Child characteristics were included in the revised model to reflect the transactional responses of

significant others. These include attributes such as temperament and personality, gender, age and ethnicity, and the child's resources to the interaction e.g., maternal education, own education, lessons they are picking up at home regarding coping strategies etc. What Bronfenbrenner was describing was not only how the environment affects the child but also how the child's characteristics elicits different responses (either positive or negative) from their environment (see also Belsky's differential susceptibility model, Belsky & Pluess, 2009). As such, proximal processes can positively affect child development for example via elicited responses increasing the child's competency, or through significant others buffering any difficulties and dysfunction (Bronfenbrenner & Morris, 2006). On the other hand, children identified as vulnerable to negative environmental influences (e.g., those with high emotionality) may be more susceptible to eliciting negative responses from their environment (Belsky & Pluess, 2009; Bronfenbrenner & Morris, 2006; Merçon-Vargas et al., 2020). Furthermore, Bronfenbrenner's bioecological model acknowledges the potential influencers of the mother's own child development affecting the way in which she responds to situations, and subsequently affecting her child's development via her parental interaction. While the individuals observed in the subsequent studies of this thesis will have been influenced by each of Bronfenbrenner's systems, focus will be more towards the microsystem as this encompasses the direct contact between mother and child.

### **2.3.2 Systemic factors and other potential influential parenting determinants**

Parenting behaviour is influenced by multiple determinants, affecting the mother's mood state and responses to her child and the child's reciprocal reactions (Belsky, 1984). While potential parenting factors are varied and numerous, the following will elaborate on the proximal factors explored in the subsequent studies in this thesis including maternal demographics, the mother's experiences of being parented during childhood, and particular focus on maternal social support, parenting knowledge, and parenting self-efficacy.



### ***Education and SES***

The effects of maternal education and SES on parenting are acknowledged. Mothers with better attention and working memory are more sensitive when parenting their infants (Gonzalez et al., 2012), with mother's verbal intelligence increasing scaffolding effectiveness, which in turn predicts the child's cognitive abilities (Mulvaney et al., 2006). SES is consistently inversely associated with psychopathology. A longitudinal study showed low family SES was associated with offspring depression, anxiety, disruptive disorders, and personality disorders even when controlling for parental psychopathology and offspring IQ (Johnson et al., 1999). Children of families with lower SES have fewer resources to access and support their development compared with higher SES children (Bornstein & Bradley, 2003), parents with higher SES are typically more responsive, more likely to read books to their children, talk to them, and in more sophisticated language, and their children produce more words and sounds than lower SES children (Bornstein, 2015; Fernald et al., 2013).

### ***Intergenerational parenting practices***

The way in which a mother was parented has ramifications for her own parenting practices (as shaped by her own 'systems', Bronfenbrenner, 1994). A major influencer is the level of exposure to trauma that the mother experienced as a child. Adverse childhood experience (ACE) is the term used for the most intensive and frequently occurring stresses that a child may experience in their childhood (WHO, 2020). These stresses and potential traumas include abuse (sexual, emotional, physical), neglect (emotional, physical), violence between parents, serious household dysfunction (including substance abuse, parental psychopathology), and peer or community violence.

The pernicious effect of ACE on child development is well documented with associations found with poorer physical health (Chartier et al., 2010), emotional dysregulation (Loman & Gunnar, 2010), increased likelihood of depression (Chapman et al., 2004), suicidal attempts (Dube et al., 2001), and prolonged childhood stress disrupting early brain development and compromising immune and nervous system

functions (WHO, 2020). Such profound and enduring stress has lifelong negative consequences into parenthood. ACEs have been associated with parental distress (Steele et al., 2016), parenting stress (Lange et al., 2019), and decreased maternal sensitivity (Lovejoy et al., 2000), sexual abuse associated with withdrawn parenting, physical abuse with increased hostile-intrusive behaviour (Lyons-Ruth & Block, 1996), and maternal emotional abuse associated with child-reported lower levels of maternal child-acceptance and reliance on psychologically controlling parenting strategies (Zalewski et al., 2013). Mothers who report lower quality of maternal care in childhood have less grey matter and when hearing infant distress, they exhibit lower brain activations than those who perceived they had good maternal care (Kim et al., 2010). Further, parents with ACE consider their children to be more difficult (Lange et al., 2019), and less resilient (Heard-Garris et al., 2018) than those without ACE histories. Furthermore, with ACE being widely acknowledged in the development of various psychopathologies, it is likely to impact on parenting through mental health symptomatology (see chapter three).

Parenting children can exert long term effects on their children's children via interlocked genetic and experiential pathways that influence intergenerational parenting practices i.e., one generation influences the parenting beliefs of the next, which then shapes child development in the third generation (Belsky et al., 2009). Strong associations of parenting practices across generations have been found even when accounting for confounders such as harsh parenting (Capaldi et al., 2003).

### ***Support network***

Integration into social support networks positively facilitates parenting by providing stability, and self-worth, and supporting maternal mental health (Bird et al., 2002; Grych, 2002). Subsequently feeling less stressed and overwhelmed enables the mother to be more available to her child and therefore more sensitive and responsive (Crnic & Greenberg, 1990). Additional support within a mother's network include partners, mothers, grandparents, friends, and others considered as 'secondary parents' who can help buffer stress and provide a source of parenting information. Studies show support is important, particularly for primiparous

mothers, in helping with the transition to motherhood (Leahy-Warren et al., 2012). When support is low, parenting self-efficacy is also reported to be low; both social support and family functioning during pregnancy were found to be associated with greater perceived parenting competence (Angleley et al., 2015). Given also the association between parenting self-efficacy and parenting behaviours (Bornstein, 2015; Shumow & Lomax, 2002) particularly when faced with challenges (Jones & Prinz, 2005), the importance of social support becomes apparent.

### ***Maternal self-perceptions of parenting efficacy***

Parenting self-efficacy can be broadly defined as a parent's belief or expectation of their ability to parent successfully (Jones & Prinz, 2005), and the parent's belief in their capability to successfully organise and execute parenting tasks (Kohlhoff & Barnett, 2013). Parenting self-efficacy is also known interchangeably across the literature as 'parenting confidence' or 'perceived parenting competence' (Vance & Brandon, 2017); 'parenting competence' on the other hand typically represents judgements that others make regarding the parent's parenting abilities (De Montigny & Lacharite, 2005). Self-efficacy as a parenting domain includes areas such as the mother's capacity to understand and show emotion and affection, ability to set boundaries and maintain appropriate discipline, how frequent and enjoyable play is with their child, and self-acceptance of their abilities as a parent (Kendall & Bloomfield, 2005).

A variety of factors may negatively influence parenting self-efficacy. Contextual variables such as lower SES, challenging child temperament or behavioural problems (e.g., ADHD, autism), insufficient social support, and maternal mental health difficulties may each undermine a mother's self-efficacy and/or interfere with parenting competence (Jones & Prinz, 2005). Contributory factors of mothers spending more time at home (i.e., not working outside the home), being considered less neurotic (on personality scales), and having more parenting knowledge, result in mothers reporting themselves as more competent in parenting (Bornstein et al., 2003). Self-efficacy can operate transactionally in that mothers who perceive they have high parenting efficacy may achieve greater success in parenting, resulting in

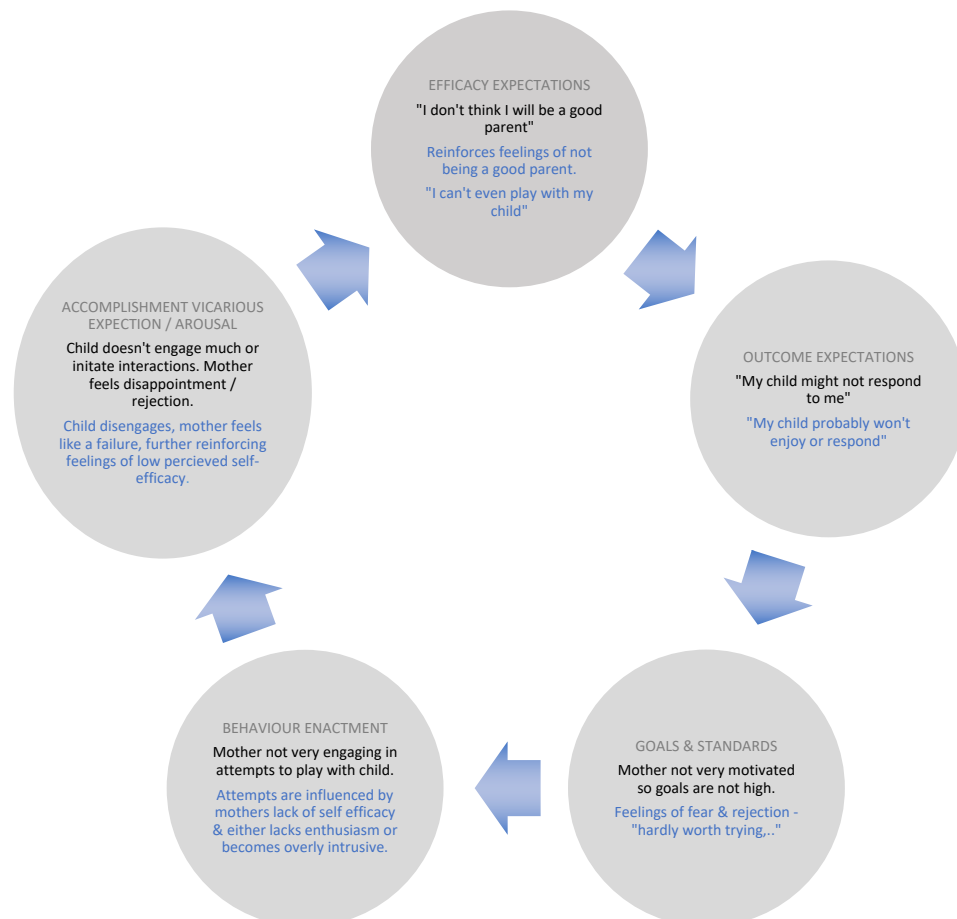
positive child outcomes, which subsequently creates a stronger perceived parenting efficacy. Those who think they are able to execute a particular behaviour are more likely to perform it, especially if it related to a positive outcome (Bandura, 1977). Conversely, a more negative feedback loop can occur whereby mothers with low perceived parenting efficacy have lower expectations of their parenting ability. Consequentially, they struggle with parenting, interacting with less favourable behaviours and responses, and eliciting fewer positive child behaviours, which further reinforces their poor self-perception of their parenting efficacy as their perceived chance of success diminishes (Ardelt & Eccles, 2001; Jones & Prinz, 2005). Repeated failure over time may subsequently lead to fewer attempts to engage in that parenting interaction and ultimately may lead to withdrawal (see figure 2.4).

The greater the parent's belief about their parenting efficacy the greater the degree of certainty of their parenting and the more likely a parent is to continue to persist with a particular behaviour (Coleman & Karraker, 1997). Furthermore, parenting confidence is considered a key attribute of self-efficacy, and for some parents confidence may come from having previous parenting experiences and knowledge of caring for an infant or child (Vance & Brandon, 2017).

Studies exploring parenting self-efficacy have found associations with child outcomes and other parenting domains. Parenting self-efficacy has been found to influence positive parenting practices, parenting competence, and child functioning (Jones & Prinz, 2005), more specifically, children's social skills and their ability to self-regulate (Murry & Brody, 1999). Mothers who consider themselves as competent parents and understand the consequences of their parenting behaviours are more likely to be involved in their child's development (Bandura, 1989), more likely to help their children with homework (Anderson & Minke, 2007), less likely to perceive their child as difficult (Coleman & Karraker, 2000), and more likely to engage with effective parenting practices (Vance & Brandon, 2017). They are also more able to sooth their infant (Leerkes & Crockenberg, 2002), tend to be more attentive, have greater empathy, discipline their children less, and have a greater understanding of the child's developmental capabilities (De Hann et al., 2009; Meunier et al., 2011).

**Figure 2.4:** *Conceptual model of Bandura's self-efficacy theory (Bandura, 1977): applied to parenting perceptions of a play scenario negative self-efficacy feedback loop*

(The black text denotes the mother's initial feelings and outcomes; the blue text indicates the consequences and downward spiral of negative self-efficacy)



Furthermore, those with high parenting satisfaction have greater emotional availability (Bornstein et al., 2018). When parenting efficacy is self-reported as low, there is an association between high infant distress and low observed maternal sensitivity (Leerkes & Crockenberg, 2002).

Associations have also been found with maternal psychopathology, maternal childhood factors and parenting self-efficacy. Early maladaptive parenting experiences, and remembered maternal care have been related to subsequent lower

levels of perceived efficacy (Caldwell et al., 2011; Leerkes & Crockenberg, 2002), and in a sample of first-time mothers parenting self-efficacy was found to be inversely correlated with maternal anxiety, maternal depression, and attachment insecurity (Kohlhoff & Barnett, 2013). Successful parenting requires both parenting knowledge, and self-belief from the mother that she is parenting well, not overpowered by self-doubt (Vance & Brandon, 2017).

### ***Maternal parenting knowledge***

The term parenting knowledge can be defined as a parental understanding of how to facilitate the biological, physical, social, and emotional needs of the developing child, recognising developmental norms and milestones, and with an awareness of the sensitivity required in mother-child interactions (Bornstein, Cote, et al., 2010; Huang et al., 2005). Having a sound knowledge of parenting and child development equips the mother with information to effectively interpret their child's needs and abilities and understand alternative discipline methods, and facilitates an awareness of their impact on the child's wellbeing and development (Bornstein, 2015). Relatively few studies have explored parenting knowledge in comparison to other parenting domains such as parenting behaviour, however the extant studies show associations between parenting knowledge and a variety of parenting practices, behaviours, and child outcomes (Barlow, 1997; Okagaki & Bingham, 2005; Sanders & Morawska, 2014).

Parenting knowledge is associated with enhanced parenting satisfaction, investment in parenting, and increased self-perceptions of parenting competence (Bornstein et al., 2003). Knowledge of effective parenting was also positively related to observed parenting competence (Winter et al., 2012), positively associated with maternal infant attunement, and indirectly associated with infant social competence (Zand et al., 2014). Mothers who are knowledgeable regarding child development have been found to engage in more positive interactions with their children than mothers with less knowledge (Bornstein & Bradley, 2003; Huang et al., 2005). They respond more sensitively to their child's initiations (Damast et al., 1996), show higher levels of parenting skills (Huang et al., 2005), more accurately interpret their child's behaviour

(Bugental & Happaney, 2002), and their children have higher cognitive skills (Benasich & Brooks-Gunn, 1996). Furthermore, mothers with a greater understanding of child development have more appropriate age-related developmental expectations of their children, and as such are more likely to have better quality of mother-child interactions, and are less likely to use inappropriate disciplinary procedures (Goodnow, 1988, 2002; Huang et al., 2005). Hess et al. (2004) explored the relationship between parenting knowledge of child development, parental self-efficacy and observed parenting competence in a group of mothers with high-risk infants and found that whilst neither self-efficacy nor knowledge predicted parenting competence independently, there was a positive association between self-efficacy and competence when knowledge was high. Confidence in parenting efficacy however only resulted in sensitive parenting behaviours when mothers had good knowledge of child development (see below).

Conversely, lower parenting knowledge can result in adverse outcomes. For instance, mothers with inaccurate child development expectations tend to be more harsh (Fry, 1985), and lower knowledge of effective parenting has been related to self-reported parental anxiety, parenting dysfunction, and internalising behaviour in children (Winter et al., 2012). Moreover in the Hess et al. (2004) study, where mothers' knowledge of child development was low, parental self-efficacy and observed parental competence were found to be inversely related, i.e., mothers reporting low knowledge but high self-efficacy were the least sensitive with their infants suggesting these mothers had a false confidence and naïve view of their parenting capabilities (Hess et al., 2004).

Parenting knowledge can be shaped by a number of circumstantial and systemic factors including children's characteristics (e.g., gender, temperament), the mother's own childhood experiences of being parented, and learned parenting expectations from others such as family and friends. Mothers rate written materials as helpful in contributing to parenting knowledge, older mothers score higher in parenting knowledge than younger mothers, and knowledge typically improves from first to second child; no differences are noted with varied employment status (Bornstein,

Cote, et al., 2010; Whitman et al., 2001). Given the importance of parenting knowledge, timely interventions can be beneficial, and programmes to improve parenting knowledge have been associated with improvements in child behaviour problems (Barlow, 1997).

## **2.4 Summary**

The importance of parenting for child development is well established, particularly the influence of the mother-child relationship, which has an enduring effect over the child's lifetime. Maternal interactions benefit from well-timed attuned responses that consider the child's emotional state and needs. The emotional availability of the mother is therefore paramount; it underpins the majority of parenting behaviours and is crucial for helping the child develop secure attachment patterns. The failure of the child achieving secure attachment has ramifications for emotion regulation development and for future relationships. Similarly, the child's EA is also an important aspect of the dyad's relationship as both mother and child shape each other's responses. The child's environmental systems and systemic factors may be important influencers positively or otherwise (e.g., support network, mother's parenting knowledge, self-perceptions of parenting), however it is the overall quality of parenting that largely determines the outcomes for the child. One key factor affecting parenting behaviours not yet discussed is maternal psychopathology, which is generally considered as one of the strongest influences impacting on both parenting and the potential creation of negative developmental sequelae for the child (Belsky, 1984; Belsky & Jaffee, 2006). The effects of maternal psychopathology on parenting will therefore be discussed in detail in the following chapter.



## CHAPTER THREE

### MATERNAL PSYCHOPATHOLOGY AND PARENTING

#### *Overview*

Parenting and mental health are individually considered as important topical government-acknowledged issues both in the UK and globally. Mental health is recognised by Public Health England (PHE) as being one of the most pressing public health issues, particularly considering that the majority of mental health difficulties are typically established before 25 years of age (PHE, 2018). The cost to the individual, their families, and wider society is far reaching. Data in England alone show that poor mental health accounts for a social and economic cost of around £105 billion a year. Over half a million people have severe mental illness e.g., bipolar disorder, schizophrenia, personality disorder, and 1 in 6 adults have a more common mental health disorder such as anxiety or depression. Together with substance misuse, mental health issues represent 21.3% of morbidity in England alone. Furthermore, these figures are likely to be an underestimate given that the data only represent those diagnosed and recorded on health professional's registers (PHE, 2018).

Another key public health concern is parenting. In recent years, parenting initiatives have been debated and policies such as *Supporting Families* and the *Troubled Families Programme* have been implemented. Being awarded £165m of additional funding in the spending review of 2020, highlights the perceived necessity and significance of supporting disadvantaged parents (Gov.UK, 2021). The Social Mobility Commission in their review *Helping Parents to Parent* however acknowledges that while public policy can impact parenting and positively support child outcomes, research and evidence of what may be appropriate and effective is limited (Clarke , & Younas, 2017). Research has consistently shown parenting is affected by maternal mental health and therefore the need for research and interventions that address these two issues together is paramount.

This chapter gives a brief introduction to parenting with psychopathology in general, discusses maternal depression and the implications for parenting and child outcomes, and introduces parenting with personality disorder.

### **3.1 Parenting and Psychopathology**

Chapter two highlighted parenting as a highly responsible, multifaceted and demanding role for all mothers, however for mothers also dealing with mental health issues and their own diminished resources, parenting is likely to be particularly challenging. In order to parent well a mother's own needs have to be first met; if their physical, mental, and/or social wellbeing are compromised, then their ability to parent their children can also become compromised. Specifically, maternal psychopathology is considered one of the most influential determining factors for maladaptive parenting (Belsky, 1984; Belsky et al., 2009; Belsky & Jaffee, 2006). Poor mental health increases the likelihood of mood swings, difficulty recognising a child's needs, and struggling with child routines such as mealtimes and bedtimes (NSPCC, 2020). Furthermore, mothers with psychopathology are more likely to display detached parenting, show less structuring and less affection (Champion et al., 2009). Observational studies have highlighted that maternal psychopathology can adversely affect parent-child relations and that this maladaptive relationship may be one of the mechanisms by which psychopathology is transferred from mother to child (e.g., Bellina et al., 2020; Goodman & Gotlib, 1999; Goodman et al., 2020).

Findings regarding specificity of mental health disorder and parenting are mixed. Across a range of mental health disorders (e.g., MDD, bipolar disorder, schizophrenia, substance misuse) some research finds little specificity in the association between parenting behaviours (e.g., contingency, responsiveness, sensitivity) and distinct mental health conditions, largely considered due to comorbidity across disorders (Belsky & Jaffee, 2006; Radke-Yarrow, 1998). Conversely, other studies show that parenting appears to be more greatly compromised in some disorders than others. For instance, substance misuse is associated with high level of involvement from child protection services (Hayden,

2004) and is associated with maladaptive parenting even after controlling for alternative coexisting psychopathology (Johnson et al., 2008). Additionally, mothers with bipolar disorder show more negativity with their children than mothers with depression (Inoff-Germain et al., 1992; Radke-Yarrow, 1998). Timing, duration, and severity of the mother's psychopathology may have differential effects dependent on the developmental stage of the child. For instance, mothers who are particularly unwell when the child is an infant may struggle to be sensitive and create a positive mother-child relationship resulting in the child not developing secure attachment (Zahn-Waxler et al., 2002). From a transactional perspective this is likely to foster difficult behaviours in the child as a result of their demands not being met, thus making parenting even more difficult for the mother.

Frequently reported maternal mental health difficulties include stress, anxiety, and depression. Maternal stress (i.e., not coping very well) predicts less maternal positivity, disrupts the parent-child relationship (Crnic & Low, 2002), and is associated with a more authoritarian style of parenting (strict, controlling), whereas low maternal stress is associated with more authoritative parenting (i.e., reasoning, negotiating; Baumrind, 1966; Baumrind, 1967; Tan et al., 2012). Parenting stress is also positively correlated with harsh discipline (Anjum & Malik, 2010). Anxiety in the mother predicts lower maternal warmth (Drake & Ginsburg, 2012), while rumination and worry compromise parenting abilities whereby mothers are more coercive and intrusive or have withdrawn uninvolved parenting (Lovejoy et al., 2000). Maternal depression has by far been the most studied mental health condition in relation to parenting and child outcomes. As this thesis examines the parenting of mothers with BPD by comparing to mothers with depression, maternal depression will be the main focus of the remainder of this chapter.

## **3.2 Depression**

### **3.2.1 Depression in females**

Clinical depression is a common but serious disorder characterised by negative feelings, thinking and behaviour that can lead to a loss of pleasure in activities, cognitive deficits, feelings of worthlessness, and suicidal thoughts (APA, 2013). The

condition varies considerably on aetiology, number and severity of symptoms, and duration of symptomatology (NHS, 2020; Wang et al., 2017). Accordingly, depression can be categorised as mild, moderate, or severe (WHO, 2018b) with comorbidity of other psychological or chronic physical disorders often high (Wang et al., 2017). More females than males are affected by depression (WHO, 2013), 6-17% of women have a major depressive episode (Goodman, 2007), with a lifetime prevalence of 20-25% (WHO, 2002). The main period for depression onset is during childbearing years, occurring in mothers with children of all ages (England & Sim, 2009; Marcus & Heringhausen, 2009). Some mothers experience persistent depression lasting beyond two years, some recover from a depressive episode, while others will enter a cycle of remission and recurrent depression (APA, 2013; Buckman et al., 2018). Risk of recurrence of a second depressive episode is around 50%, and 80% for a third episode (Goodman, 2007). Prevalence of depression in mothers with young children is between 8-12% (O'Hara, 2009); 10-40% of women have depressive symptoms post-partum (Beck et al., 2006; O'Hara, 1995, 2009); 7% experience a severe, major depression episode within three months post-partum (Gavin et al., 2005); and 10-16% of pregnant women fulfil diagnostic criteria for major depressive disorder (Beck et al., 2006; Gavin et al., 2005). Of those affected by depression, 25-50% of mothers have depressive symptoms lasting beyond 6 months (Beck et al., 2006). These data all show maternal depression as relatively common and potentially persistent.

### **3.2.2 Effects of depression on the self**

Literature shows well-established acknowledgement of negative biases in processing information regarding the self (i.e., self-criticism and self-devaluation), which has been recognised as a core feature in the development and maintenance of depression (Fennell, 2004). Those with depression often experience feelings of low self-esteem and poor self-concept (Fox, 2000). These symptoms may be associated with the current mood state and therefore only present and exacerbated by the condition when experiencing a depressive episode (i.e., depressed about being depressed). Alternatively, the negative statements of the self when depressed may reflect broad cognitions such as negative schemas and core beliefs, which remain present outside of the depressive episode (Fennell, 2004) and thus may be more

pernicious and enduring in parenting practices and behaviours. This may be displayed in self-efficacious beliefs with for instance poor parenting self-efficacy associated with maternal depression (Kohlhoff & Barnett, 2013). Furthermore, mothers with depression tend to hold negative perceptions of their child. Studies show depressed mothers perceive their child's social abilities more negatively than non-depressed mothers (Silverstein et al., 2010), are more likely to report higher child behavioural/emotional problems than non-depressed fathers (Luoma et al., 2004), and report their infant's behaviour more negatively than observers did (Field et al., 1993). These negative views may result in exacerbated depression symptoms and/or transmission of negative cognitions to their child.

### **3.2.3 Maternal depression and parenting**

Much research has been carried out on mothers with depression with studies consistently showing a number of parenting difficulties. Qualitative and meta-analytic reviews report a range of parenting characteristics exhibited by mothers with depression (Downey & Coyne, 1990; Lovejoy et al., 2000; Murray et al., 2003; Zahn-Waxler et al., 2002). More specifically, Lovejoy et al. (2000) found negative maternal parenting behaviour, (i.e., negative affect, hostility, irritability, and intrusiveness) to be associated with maternal depression and disengagement from their child (i.e., withdrawn, uninvolved behaviour). This type of disengaged unresponsive parenting has ramifications for child attachment, learning ability, and potentially increases the child's likelihood of emotional dysregulation and behavioural problems (Hughes et al., 2005; Isabella & Belsky, 1991). Similarly, fewer positive parenting behaviours (i.e., enthusiastic interactions and affection) were seen in depressed mothers compared to mothers with no depression symptoms (Lovejoy et al., 2000), whereby the resulting lack of support increases the child's risk of low self-esteem and depression in adulthood (e.g., Shaffer & Kipp, 2010).

Studies since Lovejoy's review concur, finding less maternal responsiveness and engagement with their child (e.g., Palaez et al., 2008), less warmth (e.g., Lanzi et al., 2009), lower maternal sensitivity (e.g., Field et al., 2009; Kaplan et al., 2009), fewer positive behaviours (Ewell Foster et al., 2008), problems with mother-child

communications (Öztop & Uslu, 2007), and difficulties conveying positive affect to their children (Dib et al., 2019). Studies of maternal intrusiveness were less conclusive in mothers with depression; some showed intrusive behaviours, while others were more withdrawn (Tronick & Weinberg, 1997). Of note, many of the areas of parenting where mothers with depression report difficulties align with the behaviours contributing to emotional availability, implying depressed mothers may have lower EA. Moreover, parenting interactions of mothers with depression appear consistent across culture and socioeconomic groups (Field, 2010). Maternal challenges for mothers with depression are not limited solely to emotional parenting behaviours but practical parenting issues are also implicated whereby maternal depression is associated with feeding difficulties, disrupted child sleep routines, and lower attendance at well-child clinics (Field, 2010). Such difficulties may negatively impact on the mother making further parenting more challenging.

With regards to the mechanisms underpinning the relationship between maternal depression and negative maternal behaviour, depression timing (i.e., when the mother experienced depression within the child's life course) moderates this association (Lovejoy et al., 2000). Effects were strongest in those with current depression rather than depression diagnosis only or remitted symptoms, suggesting that the negative parenting behaviours may improve if depression symptoms improve (Lovejoy et al., 2000). Mother's current depression symptoms were found to largely account for the difference between depressed and healthy mothers on measures of disengagement, sad affect, and antisocial parenting behaviours (Jaser et al., 2008), with chronicity of maternal depression found to be particularly pernicious for child developmental outcomes (Murray et al., 2019).

#### **3.2.4 Outcomes for children of mothers with depression**

Exposure to maternal depression has been associated with a myriad of negative offspring outcomes including poorer physical and psychological health (England & Sim, 2009), and attributed to a number of mechanisms (i.e., genetic, attachment, modelling, family dysfunction and parenting, Goodman & Gotlib, 1999). Of particular concern is that associations have been found between maternal depression and

child psychopathology (see Goodman et al., 2011, for a review). Family and twin studies suggest genetic factors contribute to risk of depression showing heritability of around 37% (Sullivan et al., 2000). Similarly to BPD, large genome-wide association studies have failed to locate specific genes responsible for depressive disorders and it is considered more likely that the interaction of many genes with each other and the environment determines depression risk (Ebmeier et al., 2006). Consequentially, vulnerabilities to negative cognitive schemas and interpersonal styles (i.e., negative bias, shyness, low self-esteem, negative affect, Goodman & Gotlib, 1999) may be transferred to the child via exposure to maternal negative cognitions from observing maternal behaviours (modelling) or via maladaptive parenting (Fennell, 2004), potentially leading to child psychopathology.

Even prenatally, maternal depression raises cortisol levels measured in newborn infants potentially predisposing the child to an increased sensitivity to stress, which is implicated in aetiological depression models (Sánchez et al., 2001). Depression is particularly pernicious for children of mothers who experience depression symptoms; early signs of depressive and anxious behaviours have been reported in preschool children, and rates of depression in school aged and adolescent children of mothers with depression range from 20-40% (Goodman, 2007; Goodman et al., 2011). Depression in these children is more likely to onset at an earlier age and for longer duration, and functional impairment is likely to be greater than children of mothers with no mental health difficulties; the likelihood of recurrence is greater and is associated with higher rates of anxiety (England & Sim, 2009). Furthermore, studies show children who experience a rejecting parenting style have increased risk of childhood depression (see McLeod et al., 2007, for a review), suggesting parenting as a potential transmission mechanism.

More internalising behaviours have been found in girls and more externalising behaviours in boys (see Murray et al., 2003 for a review), with parenting behaviours found to mediate the relationship between maternal depression and child internalising and externalising behaviours (Elgar et al., 2007). Greater externalising behaviours have been associated with high maternal negativity and low maternal

positivity (Ewell Foster et al., 2008). When depressed mothers show more warmth, less psychological control and less over-involvement with their children, more positive child outcomes are seen (Brennan et al., 2003). Moreover, offspring psychopathology is not limited to depressive symptoms; children of mothers with depression can also experience higher rates of social phobia, separation anxiety, disruptive behaviours, and ADHD compared with comparison children of healthy mothers (Biederman et al., 2001; Luoma et al., 2001).

Beyond offspring psychopathology, child outcomes of maternal depression include emotional, behavioural, cognitive, and brain functioning difficulties (Goodman & Tully, 2006). Similar to mother behaviours, children are less responsive (Field, 2010) and infants show more negative affect (Goodman & Gotlib, 1999). Infants also display more self-directed emotion regulation behaviours, and pre-schoolers have a greater resistance to maternal attempts at controlling their behaviours (Goodman & Gotlib, 1999). Further, maternal depression predicts higher rates of insecure attachment than healthy comparison children (Campbell et al., 2004) potentially via the lower maternal sensitivity, responsiveness, and engagement seen in mothers with depression (Bakermans-Kranenburg et al., 2003; Field, 2010; Isabella & Belsky, 1991; Raby et al., 2012). Consistent with the negative cognitions and self-schemas of mothers with depression (Fennell, 2004), their children are also more likely to have a negative attributional style, lower self-concept, blame themselves for negative occurrences, and less likely to recall positive descriptions of themselves (Goodman, 2007).

### **3.3 Maternal Personality and Personality Disorder**

While maternal depression has been heavily studied, in recent years attention has been given to personality disorders. Personality in itself is recognised as a potent predictor of parenting practices, directly influencing parenting through attitudes and behaviours (Bronfenbrenner & Morris, 2006). Personality traits may impact in both positive and negative ways. For example, a mother high on extraversion would be more likely to nurture and support their child yet would typically be more controlling with their parenting style, which is associated with greater internalising in children



(Clark et al., 2000). The effect of personality from a social perspective permeates extensively influencing all relationships including partners, friendships, and social support networks, highlighting the importance of personality stability for relationship stability (Bornstein, 2015; Bornstein, Hahn, & Haynes, 2011). If personality is unstable and disordered, this has far-reaching implications on parenting behaviours and systemic factors that may affect the mother's ability to parent well (e.g., partner choices, support networks etc.). Mothers with disordered personality may struggle with appropriate empathetic responses, and fluctuations in personality and emotion regulation may make managing interpersonal conflict challenging. Each potentially create difficulties for maintaining a stable, safe environment for the child (Steele et al., 2019).

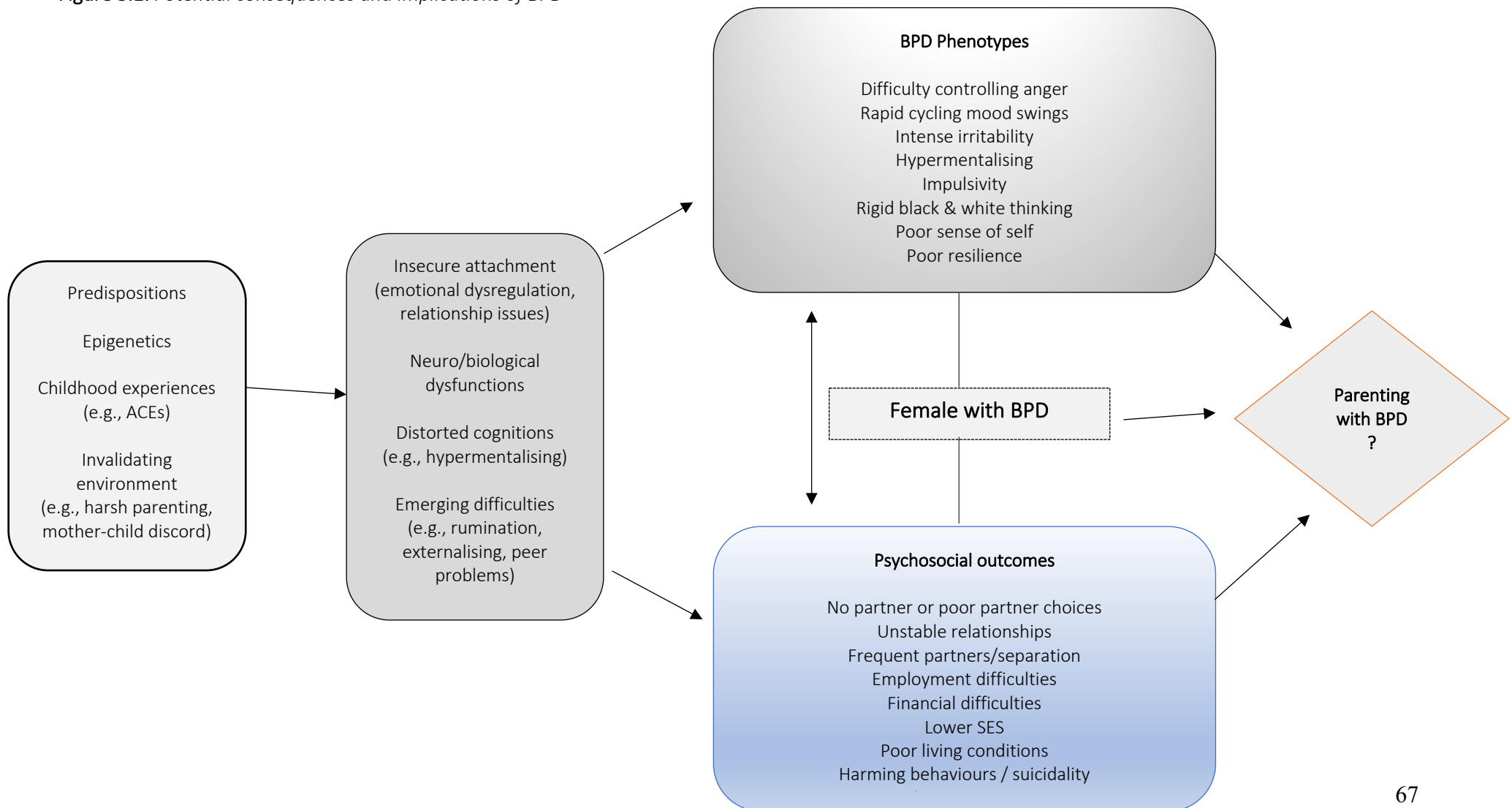
Personality disorder has received little attention in comparison to other psychopathologies despite higher prevalence than disorders such as schizophrenia and bipolar combined (Bipolar UK, 2020; National Institute for Clinical Excellence, 2009). Early research of maternal personality disorder focussed largely either on familial histories of PD (e.g., Riso et al., 2000), or links between general PD symptoms and parenting behaviour (e.g., Johnson, Cohen, Kasen, et al., 2006). Studies on personality disorder show lower infant care scores even when controlling for infant irritability, with the same effect observed with cluster B PDs (i.e., histrionic, borderline, narcissistic or antisocial PD) when analysing at a cluster level (Conroy et al., 2010). Focus has now turned more specifically to borderline personality disorder and parenting due to it currently being the most commonly diagnosed personality disorder (Mind, 2021), and with its prevalence and onset occurring during child-bearing years (for reviews see Macfie, 2009; Stepp et al., 2012).

### 3.4 Potential Implications and Consequences of Maternal BPD

Figure 3.1 shows the many potential phenotypes and psychosocial difficulties of BPD. The complexity of the disorder and associated factors impact on the mothers' resources to parent, for example trying to regulate an infant's emotions whilst themselves being profoundly dysregulated. Add into the mix the possibility of being a single parent or having an unstable partner, employment/financial struggles, impulsivity, and self-harm, the difficulties multiply and the outcomes are potentially catastrophic. Given the mother's own childhood experiences, predisposition to strong emotional responses, and her own emotional invalidation, maternal BPD and parenting should be understood within this context, and with consideration of the daily struggles those with BPD face with their BPD symptomatology (Macfie, 2009).

The reviews of Macfie (2009) and Stepp et al. (2012) acknowledge the complexity of the disorder with the domains of dysfunction being similar to those of early development such as self-regulation, attachment, and self-development (e.g., Macfie, 2009). It is suggested that these difficulties may result in inconsistent parenting oscillating between under-involved withdrawn avoidant behaviour, and over-involved intrusive parenting, displaying extreme types of control and aloofness (Stepp et al., 2012). The result of maternal inconsistency, and emotion control difficulties may create an environment for the child that is sufficiently invalidating to contribute to the offspring also developing the disorder (Crowell et al., 2009; Linehan, 1993; Sauer & Baer, 2010; Stepp et al., 2012).

**Figure 3.1:** *Potential consequences and implications of BPD*



### 3.5 Summary

Policies highlight the need for intervention in both parenting and mental health to reduce the associated costs to the individual and society. Poor mental health is associated with maladaptive parenting across a range of mental health disorders however, depression is the most common disorder associated with mothers presenting either postnatally, throughout their offspring's childhood, or as a coexisting condition with another mental health disorder. The effects of maternal depression on parenting are well documented, as are the maladaptive consequences for the child. Historically, the majority of research of mothers with psychopathology has concentrated on maternal depression with BPD not receiving the same scrutiny despite affecting a relatively significant proportion (c.6%) of the population (Grant et al., 2008; Trull et al., 2010). More recently attention has focussed on maternal BPD and the consequences for parenting, particularly given the far-reaching implications of the disorder. The next chapter (chapter 4, study 1) systematically reviews the extant literature of mothers with BPD summarising parenting perceptions, behaviours, and child outcomes, highlighting areas for future research direction.

## CHAPTER FOUR

### STUDY 1 – A SYSTEMATIC REVIEW OF MATERNAL BPD

#### *Overview*

This chapter includes the systematic review of mothers with BPD, offspring outcomes, potential mechanisms for transmission of vulnerability, and the clinical applications of the findings. It also includes an updated review since publication of the paper in *Clinical Psychology Review* (2016).

**A systematic review of the parenting and outcomes experienced by offspring of mothers with borderline personality pathology: Potential mechanisms and clinical implications**

#### **4.1 Abstract**

There is growing interest in whether the parenting strategies and offspring outcomes of mothers with borderline personality disorder (BPD) differ from those of mothers without BPD. We searched PsychINFO, PubMed, EMBASE, Web of Science, Scopus and ASSIA databases for studies examining parenting skills and attitudes among mothers with BPD/BPD symptoms and/or offspring outcomes. PRISMA reporting guidelines were followed. Of 10,067 abstracts screened, 101 full-text articles were retrieved and 33 met pre-determined criteria for qualitative synthesis. Overall, studies suggest that mothers with BPD/BPD symptoms are more likely to engage in maladaptive interactions with their offspring characterised by insensitive, overprotective, and hostile parenting compared to mothers without BPD/BPD symptoms. Adverse offspring outcomes include BPD symptoms, internalising (including depression) and externalising problems, insecure attachment patterns, and emotional dysregulation. Findings suggest that vulnerability from mother to offspring may be partly transmitted via maladaptive parenting and maternal emotional dysfunction. Conclusions were limited by study heterogeneity in methodology and construct definitions, as well as a paucity of clinical comparison groups. Prospective studies of mothers with BPD and their offspring from pregnancy onwards may further elucidate mechanisms of transmission and identify resilience factors across development. Parenting behaviour awareness, improving attachment

behaviours and emotional regulation strategies may be important intervention targets.

## **4.2 Introduction**

Borderline Personality Disorder is a complex mental condition characterised by extreme emotional, behavioural, and interpersonal dysregulation (American Psychiatric Association, 2013). Consequently, it is associated with a range of long-term negative sequelae, including relationship dysfunction (Daley et al., 2000), unemployment (Skodol et al., 2002), co-morbid psychopathology (Grant et al., 2008; Zanarini et al., 1998), self-harm and suicide (Black, Blum, Pfohl, & Hale, 2004), high levels of treatment utilisation (Bender et al., 2001) and imprisonment (Black et al., 2007).

BPD affects approximately 1-6% of the general population (Grant et al., 2008; Swartz et al., 1990; Trull et al., 2010). While some studies suggest that BPD may be equally distributed across males and females in community populations (Grant et al., 2008; Sansone & Sansone, 2011), a higher proportion of women with BPD are seen in clinical settings (American Psychiatric Association, 2000). Women with BPD are more likely to have disrupted relationships, engage in self-harm, and have greater overall symptomatology, depression and anxiety (Sansone & Sansone, 2011; Silberschmidt et al., 2015), which may partly explain the increased utilisation of psychiatric services (Gunderson & Hoffman, 2005; Sansone & Sansone, 2011; Skodol & Bender, 2003). As BPD is associated with pervasive functional impairment, and insecure attachment patterns (Agrawal et al., 2004), parenting may be particularly challenging for women who experience the symptoms of BPD. Individuals with BPD are likely to be separated, divorced or to have never married (Skodol et al., 2002), and those in relationships are at greater risk of experiencing partner conflict and abuse (Chen et al., 2004). As such, mothers with BPD may have limited levels of emotional, social, and financial support potentially exacerbating parenting difficulties.

A small number of narrative reviews of mothers with BPD have examined aspects of parenting and impacts on offspring (Macfie, 2009; Stepp et al., 2012; Wendland et

al., 2014). Stepp et al. (2012) hypothesised that certain parenting strategies exhibited by mothers with BPD (i.e., hostile control and passive aloofness) might be involved in the transmission of psychopathology from mother to child. However, at the time, there were limited studies pertaining to parenting and child outcomes, and only one study (Abela et al., 2005) explicitly tested potential mechanisms via which maternal BPD may increase risk of negative child outcomes.

The identification of parenting strategies (and potential associated adverse outcomes for offspring) of mothers with BPD could inform tailored interventions for both mother and child (Stepp et al., 2012). Additionally, an understanding of the mechanisms, beyond predisposition (Crowell et al., 2009; Distel et al., 2008; Gratz et al., 2015; Torgersen et al., 2000), underpinning links between maternal BPD and offspring outcome could inform theory regarding aetiological trajectories to BPD and other disorders from infancy onwards.

Recently, Petfield, Startup, Droscher and Cartwright-Hatton (2015) published a systematic review examining parenting behaviors in mothers with BPD and the impact on child outcomes. They identified 17 studies focusing solely on mothers with a diagnosis of BPD and their children and infants. In the current review, we expand on these findings by broadening our systematic search to include offspring of any age (including adults), and mothers with either a BPD diagnosis or BPD symptoms. We considered it important to include studies assessing sub-clinical BPD symptoms, as many researchers prefer a dimensional approach to the assessment of BPD due to concerns regarding appropriate thresholds and heterogeneity of the disorder (Skodol et al., 2002). We therefore took this approach to ensure coverage of all relevant studies. Furthermore, to move the literature forward we explicitly examined the potential mechanisms underpinning the associations between the parenting behaviors of mothers with BPD and offspring outcomes.

The aim of the current review was to systematically search and narratively synthesise all research examining the parenting behaviours and attitudes of mothers with BPD, mother-offspring interactions, and offspring outcomes. Specifically, we

addressed the following four questions:

- 1) What are the characteristic parenting behaviours of mothers with borderline personality pathology (i.e., BPD diagnosis or BPD symptoms)?
- 2) How do mothers with borderline personality pathology and their offspring interact?
- 3) What are the psychopathological and psychosocial outcomes for offspring of mothers with borderline personality pathology?
- 4) What are the mechanisms (parenting or mother/offspring characteristics) underpinning associations between maternal borderline personality pathology and offspring outcomes?

### **4.3 Methods**

We used the Preferred Reporting Items for Systematic Reviews and Meta Analyses (PRISMA; Moher et al., 2009) guidelines throughout this review.

#### **4.3.1 Data sources**

We searched titles and abstracts in PsychINFO, PubMed, EMBASE, Web of science, Scopus and ASSIA to identify articles examining samples of mothers with BPD pathology (i.e., BPD diagnosis or symptoms), and/or children of mothers with BPD pathology, published between 1980 and the 6<sup>th</sup> July 2015. We selected 1980 as the earliest date for inclusion to reflect when BPD was first delineated as a mental disorder in the DSM III. To enhance search sensitivity manual searches were conducted in the *Journal of Personality Disorders* and *Personality Disorders: Theory, Research and Treatment* from January 2010 to July 2015 and the reference lists of retrieved articles and review papers were inspected to identify additional potentially relevant articles.

#### **4.3.2 Search terms**

We used the following grouped terms: (borderline\* OR “emotionally unstable personality” OR BPD) AND (mother\* OR parent\* OR maternal\*) AND (child\* OR infant\* OR infancy OR offspring OR bab\* OR adolescen\* OR famil\* OR boy\* OR girl\* OR teenager\* OR youth\* OR young\* OR toddler\* OR daughter\* OR son\*).



#### **4.3.3 Eligibility criteria**

The review included retrospective, cross-sectional, and prospective quantitative studies meeting the following inclusion criteria:

- 1) The study included mothers with BPD or BPD symptoms (clinical or community samples) and/or offspring (of any age) of mothers with BPD or BPD symptoms (assessed via a standardised measure)
- 2) The study reported on maternal parenting, and/or offspring outcomes using a range of assessment methods (i.e., experimental, observational, interview, self-report questionnaires, and other-report questionnaires)
- 3) Samples in studies reporting on associations with parenting characteristics or child outcomes consisted mainly of mothers (i.e., at least 70% of the parenting sample).

Studies were excluded if they:

- 1) Were reviews, expert opinion commentaries, or individual case studies
- 2) Considered associations with maternal personality disorders generally rather than BPD specifically
- 3) Were not written in English language or were unpublished
- 4) Reported on extreme outcomes resulting in external intervention (i.e., abuse, filicide, etc.).

#### **4.3.4 Screening procedure**

J.E. and C.W. independently screened all titles and abstracts from the initial search to identify articles for full-text retrieval. If a title appeared relevant but no abstract was available, the full article was retrieved. All full-text articles were independently screened by J.E. and C.W. for final inclusion in the review.

#### **4.3.5 Data extraction and quality assessment**

We created a data extraction form based on PRISMA and Cochrane guidelines (Higgins & Green, 2011; Moher et al., 2009). This included information on first author, date and country of study, sample characteristics, BPD assessment tool, study aims, study design and methodology, measurement tool, comparison group and main findings. The quality of each study was assessed by J.E. using the

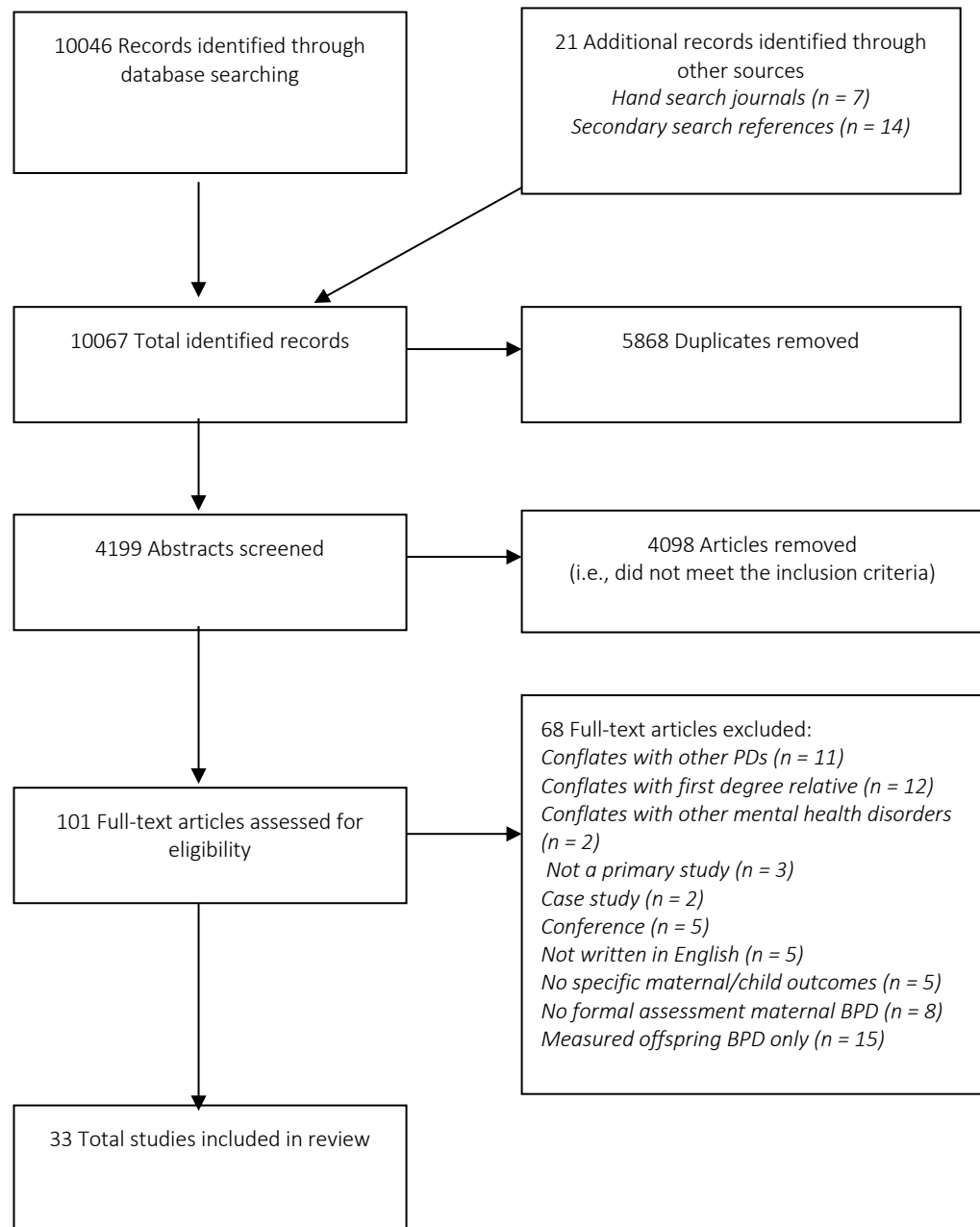
Newcastle-Ottawa Scale (Wells et al., 2000, see Appendix G). F.M. independently assessed 50% of the studies as a reliability check. This quality assessment tool comprises a star rating across various quality domains, can be used for case-control and cohort studies, and has been adapted for use with cross-sectional studies (Herzog et al., 2013). The quality domains of group selection, comparability and exposure were assessed for case control studies (maximum 9 stars awarded). For cohort studies, selection, comparability of cohorts, and outcome quality were assessed (maximum 9 stars). For cross-sectional studies, sample selection, comparability, and outcome were assessed (maximum 10 stars).

#### **4.3.6 Data synthesis**

All studies were qualitatively synthesised. A meta-analysis of the results was not feasible due to the heterogeneity across studies in terms of definitions of parenting and offspring constructs, study design (e.g., experimental, observational, self-report), sample frame (e.g., community, clinical, ranging from infants to adults), and assessment tools. For example, insensitive parenting across studies was variably defined as: “maternal sensitivity”, “insensitivity”, “intrusive sensitivity”, “intrusive negativity”, and within a composite variable (including “sensitivity”, “warmth/hostility”, “acceptance/rejection”, “responsiveness”, and “demandingness”).

To address the aims of our review, a narrative overview of the main findings is presented in four major sections: (1) Parenting behaviours (e.g., sensitivity, hostility, overprotection) and perceptions (e.g., maternal rating of parenting efficacy, perceptions of their offspring); (2) Mother-offspring interaction dynamics (e.g., interactions, communications, infant/child behaviour); (3) Offspring outcomes (psychopathological and psychosocial); and (4) Mechanisms underpinning associations between maternal borderline personality pathology and child outcomes. Whilst some outcomes naturally fall into more than one category (particularly regarding maternal parenting behaviours and interactions), to avoid repetition each outcome has been included in one section only.

**Figure 4.1:** Flowchart of the article search and selection process  
(Source: PRISMA, Moher et al 2009)



## **4.4 Results**

### **4.4.1 Included articles**

We retrieved 10,067 records: 10,046 from the database search and 21 from hand searching. From abstract screening, 101 articles were identified for full-text retrieval, with an excellent level of agreement between researchers (Cohen's Kappa,  $\kappa = .87$ ;  $p < .001$ ). After screening the full-text articles a total of 33 studies were selected. Inter-rater agreement for final inclusion in the review was again excellent ( $\kappa = .88$ ,  $p < .001$ ). Any disagreements were discussed and resolved between J.E. and C.W. The main reasons for exclusion included: only offspring BPD (not maternal BPD) assessed, studies referred to any relative with BPD and not the mother specifically, maternal personality disorders (not BPD specifically) was assessed, there was no valid measure of BPD (see figure 4.1).

### **4.4.2 Study characteristics**

We identified 21 case-control, 8 cross-sectional, and 4 cohort studies (see table 4.1). Two of the cohort studies were drawn from the same Greifswald Family Study sample (Barnow et al., 2013; Reinelt et al., 2014). Studies of offspring outcomes included a range of age groups: 13 reported infant (aged 2-36 months) outcomes, 11 reported child (aged 3-9 years) outcomes, 13 reported adolescent (aged 10-19 years) outcomes, and 4 reported adult (aged 19+ years) outcomes. Some studies utilised samples encompassing both childhood and adolescence (e.g., Abela et al., 2005; Feldman et al., 1995) or adolescence and adulthood (e.g., Cheng et al., 2011; Reinelt et al., 2014). Twenty studies reported on parenting characteristics (i.e., behaviours, perceptions, and mother-offspring interaction dynamics) of mothers with borderline personality pathology. A number of countries were represented (see table 4.1). In five of the reviewed studies, English was not the first language of the participants. Three were German in origin (Barnow et al., 2013; Barnow et al., 2006; Reinelt et al., 2014), one was French (Delavenne, Gratier, Devouche, & Apter, 2008), and one was Chinese (Cheng et al., 2011). An inspection of these studies did not indicate any obvious cultural differences (e.g., mothers with BPD from Germany appeared to demonstrate similar levels of overprotection to mothers from other countries), though direct comparisons were difficult due to variations across studies.

**Table 4.1:** *Summary of studies of mothers with BPD/offspring of mothers with BPD*

First author (year)	Country	Offspring sample & age	Mother sample & control group	BPD assessment (cut-point)	Sample frame	Design	Methodology	Main aims
Abela (2005)	Canada	120 children of parent with MDD 20 of parent with MDD/BPD 6-14 years	87 parents MDD 15 parents MDD/BPD (84% mothers)	SCID-II ( $\geq 5$ )	Community (High risk)	Case-control	Questionnaire Interview	To assess whether children of parents with comorbid MDD/BPD at greater risk for depressive symptoms and if increased risk due to higher levels of cognitive and/or interpersonal vulnerability
Barnow (2006)	Germany	23 of mothers with BPD 47 of mothers with depression 31 of mothers with cluster C PD 156 of healthy mothers 11-18 years	16 mothers with BPD 36 mothers-depression 28 mothers-cluster C PD 116 healthy mothers	SCID-II ( $\geq 4$ )	Community (from longitudinal cohort)	Case-control	Questionnaire Interview	Examined the psychopathology, individual characteristics and family environment and experiences of children of mothers with BPD
Barnow (2013)	Germany	323 offspring T <sub>0</sub> 15 years T <sub>1</sub> 20 years	247 mothers	SCID-II (Self-rated) DSM III & IV	Community (from longitudinal cohort)	Cohort (2 time points)	Questionnaire Interview	Investigated familial transmission of mother's borderline symptoms whilst controlling for depression
Bertino (2012)	Australia	30 children 4-8 years 29 adolescent 12-18 years	59 parents (80% mothers)	MCMI III	Clinical Sub-clinical	Cross-sectional	Questionnaire Interview	Investigation of the relationship between parent personality patterns and offspring internalising/ externalising behaviour
Blankley (2015)	Australia	42 Newborn infants of mothers with BPD 14313 of healthy mothers	42 mothers with BPD 14313 healthy mothers	DSM-IV-R mental health assessment	Clinical and community	Case-control	Retrospective case file review	To examine pregnancy and early infant outcomes of mothers with BPD
Cheng (2010)	China	7675 total high school students 30 BPD; 2605 control 18+ years	7675 student-parent pairs 35 BPD; 2737 control	PDQ-4 ( $>40$ index; $<20$ control) IPDE	Community	Case-control	Questionnaire Interview	To assess familial transmission of PDs (with specific BPD measures)
Conway (2015)	USA	T <sub>1</sub> 815 offspring age 15 T <sub>2</sub> 700 offspring age 20	700 mothers	SCID II ( $\geq 5$ )	Community (High risk)	Cohort (2 time points)	Questionnaire Interview	To investigate precursors of adult borderline personality pathology in a high-risk sample, including maternal psychopathology
Crandell (2003)	UK	Infants 2 months	8 mothers with BPD 12 mothers no mental health disorder	SCID-NP SCID II ( $\geq 5$ )	Community	Case-control	Still-face paradigm	To investigate mother-infant relations/interactions where mothers have BPD
Crittenden (2010)	Australia	32 Infants 3-36 months	15 mothers with BPD 17 mothers no mental health disorder	DIB ( $>8$ )	Clinical	Case-control	Questionnaire Interview	Compared mothers functioning, experience, dispositional representations and self-protection strategies to mothers with no mental health disorder

First author (year)	Country	Offspring sample & age	Mother sample & control group	BPD assessment (cut-point)	Sample frame	Design	Methodology	Main aims
Delavenne (2008)	France	34 infants 3 months	17 mothers with BPD 17 mothers no mental health disorder	SIDP-IV	Clinical	Case-control	Acoustic micro-analysis of verbal interactions	Compared the phrasal organisation of mother-infant vocal interactions of mothers with BPD with mothers with no mental health disorder
Elliot (2014)	Australia	Infants 3-14 months	13 mothers with BPD 13 healthy mothers	ZAN-BPD (≥8)	Clinical	Case-control	Interview Questionnaire Infant face-stimuli emotion recognition task	To investigate mothers with BPD ability to assess own infant and unknown infant happy, sad and neutral emotions. Response compared with healthy control mothers.
Feldman (1995)	Canada	21 children of mothers with BPD 4+ years (mean 12 years) 23 of mothers with other PDs 4+ years (mean 9.6 years)	9 mothers with BPD 14 mothers other PDs	DIB-R (current cut point of 6 or past score of 8 out of 10)	Clinical (part of larger BPD study)	Case-control	Questionnaire Interview	To assess family stability, satisfaction and environment of families of mothers with BPD with families of mothers with other PDs
Frankel-Waldheter (2015)	USA	28 adolescents of mothers with BPD 28 comparison adolescents (mean 15 years 5 months)	28 mothers with BPD 28 comparison mothers	SCID-II (≥5) PAI-BOR	Clinical and community	Case-control	Questionnaires Filmed mother-adolescent interactions	To examine BPD, autonomy and relatedness, and internalizing and externalizing symptoms in mothers with BPD and their adolescent offspring
Gratz (2014)	USA	23 infants of mothers with BPD (mean 17.4 months) 78 infants of mothers without BPD (mean 16.2 months) 12-23 months	23 mothers with BPD 78 mothers without BPD (94 with complete data)	BEST (>30)	Community	Case-control	Questionnaire Interview Lab-TAB assessment Strange situation	To examine the relationship between maternal emotion dysregulation (associated with borderline pathology) and infant emotion regulation difficulties
Harvey (2011)	USA	184 Pre-school children with behavioural problems 3-4 years	182 mothers of children with behavioural problems (126 fathers) BPD assessed	MCMI-III (≥75)	High risk (from longitudinal cohort)	Cross-sectional (first time-point of longitudinal study)	Questionnaire Mother-child interaction tasks	To assess associations between parental psychopathology, parenting practices and child externalising behaviours
Herr (2008)	Australia	110 youths with current or past diagnosis MDD or DD 15 years	189 mothers with MDD 83 mothers with DD 82 mothers with MDD & DD 461 never depressed mothers	SCID-Q (0-8 scale cut point 5)	Community High risk (from birth cohort)	Cross-sectional	Questionnaire Interview	To investigate associations between maternal BPD and offspring interpersonal functioning, attachment cognitions and depression and whether any association is independent of maternal or offspring depressive symptoms.
Hobson (2005)	UK	32 infants: 10 of mothers with BPD 22 of mothers with no mental health disorder (12 months: 47-57 weeks)	10 mothers with BPD 22 mothers no mental health disorder	SCID-NP SCID-II (≥5)	Community	Case-control	Set situation Strange situation Mother-infant play	To assess personal relatedness and attachment in year old infants and mother-infant interactions where mothers have BPD

First author (year)	Country	Offspring sample & age	Mother sample & control group	BPD assessment (cut-point)	Sample frame	Design	Methodology	Main aims
Hobson (2009)	UK	59 infants (12-18 months): 13 of mothers with BPD 15 of mothers with depression 31 of mothers with no mental health disorder	13 mothers with BPD 15 mothers with depression 31 mothers no mental health disorder	SCID-NP SCID-II (≥5)	Community (from previously diagnosed cohort and longitudinal study)	Case-control	Strange Situation	To investigate how mothers with BPD relate to their infants in separation-reunion situations
Howard (1995)	USA	51 infants of cocaine abusing mothers 6 months	51 cocaine abusing mothers (child in their care) Borderline cycloid * assessed	MCMI	High Risk Community	Cross-sectional	Questionnaire Interview Home observations	To investigate the effect of maternal personality disorder on the development of infants of cocaine abusing mothers
Jellinek (1991)	USA	100 children of parents with affective disorders 351 children of HC parents 19 children above PCS cutoff (6 of mothers with BPD) 18 children below PCS cutoff 6-12 years	74 families with affective disorders (78% mothers)	DSM-III-R diagnosis	High Risk	Cross-sectional	Questionnaire Interview	To determine whether parent psychopathology is associated with scores indicative with dysfunction on the Pediatric Symptom Checklist
Kiel (2011)	USA	22 infants of mothers with BPD 77 infants of mothers with minimal/no BPD pathology 12-23 months	22 mothers with BPD 77 mothers with minimal/no BPD pathology	BEST (>30)	Community	Case-control	Questionnaire Strange situation	To compare maternal affective and behavioural response to infant distress in mothers with clinically relevant levels of BP pathology to mothers with minimal BP pathology
Macfie (2009)	USA	30 children of mothers with BPD 30 of mothers without BPD 4-7 years	Mothers with BPD Mothers without BPD	SCID-II (≥5) PAI (continuous)	High Risk Clinical & Community	Case-control	Interview Story-stem completion task	To assess emotion regulation, representations of self and representations of the mother-infant relationship in children of mothers with BPD
Macfie (2014)	USA	31 children of mothers with BPD 31 children of comparison mothers 4-7 years	44 mothers with BPD 43 comparison mothers	SCID-II (≥5) PAI (continuous)	High Risk Clinical & Community	Case-control	Interview Play observation Story completion through play AAI	To examine relationships between mothers' attachment, observed maternal parenting and children's narrative representations in children of and mothers with BPD
Marantz (1991)	USA	16 boys with GID 17 boys without GID 8 years	16 mothers of boys with GID 17 mothers of boys without GID	DIB (continuous)	Clinical	Case-control	Questionnaire Interview	To compare the psychopathology and parenting attitudes and practices of mothers of boys with GID with mother of boys without GID
Newman (2007)	Australia	14 infants of mothers with BPD 20 infants of control mothers 3-36 months	14 mothers with BPD 20 community mothers	DSM-IV DIB-R (≥8)	Clinical	Case-control	Questionnaire Interview Mother-infant play	To investigate the parenting attributes of mothers with BPD by assessing parenting perceptions and mother-infant interactions
Reinelt (2014)	Germany	295 offspring T <sub>0</sub> 15 years T <sub>1</sub> 20 years	230 mothers assessed for BPD (in community sample)	SCID-II (≥5)	Community	Cohort Longitudinal	Questionnaire Interview	To test longitudinally whether maladaptive mother-child interactions mediate the relationship between maternal borderline symptoms and BPD symptoms in offspring

First author (year)	Country	Offspring sample & age	Mother sample & control group	BPD assessment (cut-point)	Sample frame	Design	Methodology	Main aims
Schacht (2013)	UK	39 children 3-5 year olds	20 mothers with BPD 19 mothers without BPD	SCID-II (≥5) at T <sub>i</sub> , T <sub>2</sub> or both	High risk/clinical (from longitudinal cohort)	Case-control	Questionnaire Interview Affective labelling & False belief tasks	To investigate associations between maternal mind-mindedness of mothers with BPD and mental state understanding their children with comparison mother-children dyads without PD
Stepp (2013)	USA	T <sub>1</sub> adolescents 14-18 years 360 depressive disorder, 284 non mood disorders, 457 no mental health history; T <sub>2</sub> 1507 T <sub>1</sub> adolescents 15-19 years T <sub>3</sub> 644 history mental health illness 457 without, 24 years T <sub>4</sub> 816 T <sub>3</sub> participants, 30 years	T <sub>4</sub> 701 mothers BPD assessed	K-SADS SCID-NP SCID-II (≥5) T <sub>1</sub> , T <sub>4</sub> IPDE T <sub>4</sub>	High risk (from longitudinal cohort)	Cohort Longitudinal	Questionnaire Interview	To determine associations between maladaptive family functioning, parental psychopathology, proband early onset psychopathology and BPD symptoms in adulthood.
Weiss (1996)	Canada	21 children of mothers with BPD 23 children of mothers with nonborderline PD 4+ years, mean BPD group: 12 years, control group: 9.5 years	9 mothers with BPD 14 mothers with nonborderline PD	DIB-R (≥8)	Clinical	Case-control	Questionnaire Interview	To compare the psychopathology of children of mothers with BPD with children of mothers with any other PD
Whalen (2015)	USA	98 infants of mothers with mood, relationship, and impulse control difficulties 12-23 months	23 mothers clinically relevant levels BPD 75 mothers low BPD	BEST	High risk community	Cross-sectional	Mother-report Lab observation	The investigate the mothers with BPD symptoms perception of infant emotion expressions (fear and anger) compared with observed infant expressions
White (2011)	USA	87 infants Mean 3.5 months	17 mothers with BPD 25 mothers with MDD 20 mothers with BPD/MDD 25 healthy control mothers	SCID-IV (≥5) IPDE DIB-R (≥8)	Clinical	Case-control	Questionnaire Interview Mother-child play	To compare mother-infant interactions of mothers with BPD with mothers with MDD, BPD/MDD and mothers with no mental health disorder
Wilson (2012)	USA	113 mother-child dyads 3 to 6 years	145 community parents 113 mother-child dyads BPD assessed	IPDE-S continuous	Community (as part of a larger study)	Cross-sectional	Questionnaire Mother-child tasks	To examine the effect of parental PD symptoms on parenting behaviours and parent-child interactions
Zalewski (2014)	USA	1598 adolescent girls 15-17 years	1598 mothers c.8% with IPDE ≥4 (in the clinically significant range for BPD)	IPDE (≥4) IPDE-BOR continuous	High risk (from a longitudinal cohort)	Cross-sectional from Cohort	Questionnaire Interview	To examine associations between maternal BPD symptoms and parenting behaviours and adolescent girls' temperament

Notes: AAI = Adult attachment Interview; BEST = Borderline Evaluation of Severity Overtime; BP = borderline personality; BPD = borderline personality disorder; DD = dysthymic disorder; DIB = Diagnostic Interview for Borderlines; DIB-R = Diagnostic Interview for Borderlines revised; DSM = Diagnostic Statistical Manual for Mental Disorders; GID = gender identity disorder; IPDE = International Personality Disorders Examination Screener; K-SADS = Schedule for Affective Disorders and Schizophrenia for School-age Children; MCMI III = Millon Clinical Multiaxial Inventory; MDD = Major depressive Disorder; PAI = Personality Assessment Inventory; PAI-BOR = Personality Assessment Inventory, borderline ; PD = personality disorder; PDE = Personality Disorder Examination; PDQ-4 = Personality Diagnostic Questionnaire; PSC = Pediatric Symptom Checklist; SCID-II = Structured Clinical Interview for Diagnostic and Statistics Manual-IV Axis II; SCID-NP = Structured Clinical Interview, non-patient version; SCID-Q = Structured Clinical Interview for DSM III, patient version; SIDP-IV = Structured Interview for DSM-IV; ZAN-BPD = Zanarini Rating Scale for Borderline Personality Disorder; \* = A term used in the Millon Clinical Multiaxial Inventory, for symptoms that closely correspond to BPD



#### 4.4.3 Quality assessment

The quality assessment showed substantial inter-rater agreement (Cohen's Kappa,  $\kappa = .77$ ;  $p < .001$ ), and indicated low risk of bias in sample selection, low risk of comparability bias, and low-moderate risk of exposure/outcome bias (see Appendix G).

### Findings

#### 4.4.4 Parenting behaviours and perceptions

Studies assessed several maternal parenting behaviours (i.e., sensitivity and intrusiveness, overprotection, emotional warmth, hostility, rejection) and perceptions (i.e., emotion recognition, parenting stress/distress, parenting efficacy, and representations of child). There were wide variations in the definitions and operationalisation of parenting constructs across studies (see table 4.2 for details).

***Sensitivity/intrusiveness.*** Seven studies assessed aspects of maternal sensitivity/intrusiveness. Two studies reported that mothers with BPD (or BPD symptoms) displayed (or reported) significantly lower “sensitivity/non-intrusive sensitivity” with their infants compared to healthy control mothers (HCs) (Crandell et al., 2003; Newman et al., 2007). Howard, Beckwith, Espinosa, & Tyler (1995) found a negative correlation between BPD symptoms and maternal sensitivity, and Hobson et al. (2005) reported significantly higher “intrusive insensitivity” in mothers with BPD. Controlling for anxiety and depression, Kiel et al. (2011) found that mothers with clinically relevant levels of BPD symptoms were significantly more “insensitive” with their infants when infant distress persisted for longer durations. Hobson et al. (2009) reported that mothers with BPD displayed more “intrusiveness/negativity” with their infants than healthy and depressed controls, but these differences did not quite reach significance. The only adolescent offspring community-based study did not find a significant correlation between offspring-reported maternal “intrusiveness” and maternal BPD symptoms (Zalewski et al., 2014).

**Table 4.2: Parenting behaviours of mothers with BPD**

Parenting measure	Author (year)	Measurement tool	Comparison groups	Statistical data	Overall findings for mothers
Sensitivity	Crandell (2003) Newman (2007) Howard (1995)	(Post)Still face paradigm Mother-child play: EA (Biringen, 2009) HOME inventory (Caldwell & Bradley, 1985)	BPD; HC BPD; HC Borderline-cycloid cocaine abusers	$M_{BPD}=7.2, M_{HC}=12.7, p<.025$ $M_{BPD}=5.14, SD=1.38; M_{HC}=6.47, SD=0.94, p<.05$ $r = -.28, p<.05$ (high BPD scores in pregnancy/ lower maternal sensitivity 6 months later)	Low maternal sensitivity
Insensitivity	Kiel (2011)	Strange Situation (Ainsworth et al, 1978)	High BP pathology; low BPD pathology	$Ns$ initial infant distress but insensitive when distress persisted: $\beta=1.13, t=4.22, p<.001$	
(Non) intrusiveness Intrusive/negativity	Crandell (2003) Hobson (2009)  Zalewski (2014)	Post) Still face paradigm Strange Situation: AMBIANCE (Lyons-Ruth et al, 1999) CRPBI (Schludermann & Schludermann, 1971)	BPD; HC BPD; depression; HC  BPD symptoms (assessed in community sample)	$M_{BPD}=7.9, M_{HC}=12.2, p<.05$ $M_{BPD}=5.77, SD=4.85; M_{dpm}=2.67, SD=2.77; M_{HC}=3.19, SD=4.45$ , higher but $ns$ $Ns$ correlation (maternal BPD/intrusiveness)	High intrusiveness
(Non) intrusive sensitivity Intrusive sensitivity	Crandell (2003) Hobson (2005)	(Pre) Still face paradigm Mother-child play (adapted from Murray et al, 1996)	BPD; HC BPD; HC	$M_{BPD}=7.3, M_{HC}=12.6, p<.05$ $M_{BPD}=6.0, SD=1.1; M_{HC}=4.1, SD=2.5, p<.01$	High intrusive insensitivity
Overprotection	Elliot (2014)  Barnow (2006)  Reinelt (2014)  Zalewski (2014)	PACOTIS  EMBU – adolescent report  EMBU – adolescent report  CRPBI	BPD; HC  BPD; depression; cluster c PD; HC BPD symptoms (assessed in community sample) BPD symptoms (assessed in community sample)	$M=6.42, SD=1.95; M_{HC}=3.45, SD=1.6, p<.001$ $r = .63, p=.02$ (BPD severity/ overprotection) $M=2.36, SD=0.43; M_{HC}=2.12, SD=0.42; M_{dpm}=2.12, SD=0.45; M_{c PD}=2.13, SD=0.39, p<.05$ $r = .14, p<.05$ (maternal BPD symptoms/ overprotection) $r = .13, p<.01; r = -.10, p<.01$ (maternal BPD/control through guilt; maternal BPD/acceptance of individuation)	More overprotective
Emotional warmth	Harvey (2011)  Herr (2008)  Reinelt (2014)  Barnow (2006)	Mother-child play, clean-up and forbidden objects observation tasks Perceived parenting quality questionnaire adolescent report (Ge et al., 1996) EMBU – adolescent report (Perris et al., 1980) EMBU – adolescent report	Mothers of children with behavioural problems MDD; DD; MDD/DD; HC (BPD symptoms assessed) BPD symptoms (in community sample) BPD; depression; cluster c PD; HC	$r = -.27, p<.001$ (BPD/emotional warmth) $Ns$ correlation (maternal BPD/warmth, controlling for family income/gender) $Ns$ correlation (maternal BPD/warmth) $M_{BPD}=2.79, SD=0.55; M_{HC}=2.83, SD=0.54; M_{dpm}=2.90, SD=0.46; M_{c PD}=2.91, SD=0.61, Ns$	Mixed results with emotional warmth

Parenting measure	Author (year)	Measurement tool	Comparison groups	Statistical data	Overall findings for mothers
Hostility	Elliot (2014)	PACOTIS (Boivin et al, 2005) self-report	BPD; HC	$M_{BPD}=2.24, SD=2.21; M_{HC}=2.18, SD=1.87, p=.08$ <i>Ns</i> $r = .71, p=.01$ (BPD symptom severity/hostility) $F(1, 52)= 5.63, p<.05$	Increased hostility
	Frankel-Waldheter (2015)	Adapted Relationship Problem Inventory (Knox, 1971); Autonomy and relatedness coding system (Allen et al., 2005)	BPD; HC		
	Herr (2008)	Perceived parenting quality questionnaire adolescent report	MDD; DD; MDD/DD; HC	$r = -.17, p<.001$ (maternal BPD/hostility)	
	Harvey (2011)	Mother-child observation tasks; home interaction, Parenting Scale (Arnold, 1993)	BPD symptoms	$r = .21, p<.05$ (maternal BPD/negative affect); $r = -.22, p<.01$ (BPD/overreactivity)	
	Newman (2007)	SCL-90-R (Derogatis, 1983)	BPD; HC	$M_{BPD}=63.77, SD=12.59; M_{HC}=48.50, SD=7.76, p<.001$ yet <i>ns</i> interaction style - non-hostility (EA)	
	Zalewski (2014)	Mother-child play: EA CRPBI	BPD symptoms (community)	$r = .15, p<.01$ (maternal BPD/harsh punishment)	
Rejection/laxness	Barnow (2006)	EMBU – adolescent report	BPD; depression; C PD; HC	<i>Ns</i> (rejection)	Mixed results for rejection
	Reinelt (2014)	EMBU – adolescent report	BPD symptoms (assessed in community sample)	$r = .12, p<.05$ (maternal BPD/rejection) $r = .22, p<.01$ (offspring BPD/rejection)	
	Harvey (2011)	Mother-child observation tasks;	BPD symptoms	$r = .40, p<.001$ (maternal BPD/laxness)	
Emotion recognition	Elliot (2014)	Infant emotion recognition task	BPD; HC	$F(1, 24)=14.39, p<.001; M_{BPD}=1.77, SD=1.36; M_{HC}=0.23, SD=0.60, p=.003$ (misattribution neutral faces); $M_{BPD}=1.54, SD=1.26; M_{HC}=0.23, SD=0.60, p=.004$ (perceive neutral as sad) $r = .7, p=.01$ (misattribution/duration of BPD) $\beta = 0.34, t = 3.56; p = .001$ (mother report, BPD, mean obs anger) $\beta = 0.34, t = 3.56; p = .001$ (high obs anger) <i>ns</i> (low obs anger) <i>ns</i> (fear interaction)	Lower infant emotion recognition
	Whalen (2015)	TBAQ (Goldsmith, 1996)	BPD symptom severity		
Parenting stress	Elliot (2014)	PSI-SF (Abidin, 1995)	BPD; HC	$M = 89.31, SD = 30.39; M_{HC}=52.46, SD =11.08, p<.01$ $r = .81, r = .88, p<.01$ (stress/emotion regulation)	Higher stress/distress
Parenting distress	Newman (2007)	PSI-SF	BPD; HC	$M = 84.57, SD=19.50; M_{HC}=66.20, SD =12.74, p<.001$	
	Elliot (2014)	PSI-SF	BPD; HC	$M = 37.85, SD= 11.44; M_{HC}=19.46, SD =6.5, p<.001$	
	Newman (2007)	PSI-SF	BPD; HC	$M = 36.50, SD= 8.56; M_{HC}=24.95, p<.001$ $r = -.79, p<.001$ (distress/dissatisfaction) $r = -.56, p<.001$ (distress/efficacy) $r = -.40, p<.05$ (distress/less sensitive parenting)	
Parenting satisfaction	Newman (2007)	PSOC	BPD; HC	$M = 30.28, SD= 7.89; M_{HC}=40.80, SD =4.89, p<.001$	Lower parenting satisfaction

Parenting measure	Author (year)	Measurement tool	Comparison groups	Statistical data	Overall findings for mothers
Perceived parenting efficacy	Elliot (2014)	PSOC	BPD; HC	$M = 7.24, SD = 1.62; M_{HC} = 8.83, SD = 1.08, p < .01$ $M = 6.95, SD = 1.85; M_{HC} = 9.54, SD = 0.77, p < .001$ (perceived effect of their behaviour on infant)	Lower perceived parenting efficacy
	Newman (2007)	PSOC	BPD; HC	$M = 25.93, SD = 6.34; M_{HC} = 32.10, SD = 4.54, p < .001$	
Perceptions of pregnancy	Blankley (2015)	Case record reviews	BPD	31% pregnancy traumatic; 12% anticipated traumatic delivery; 31% request early delivery; 38% low antenatal engagement	Poor perinatal experiences
Perceptions of child	Schacht (2013)	Maternal mind-mindedness brief interview (Meins & Fernyhough, 2010)	BPD; HC	46%, $SD = .25$ , versus 68% <sub>H</sub> , $SD = .22, p < .005$ (fewer mind-related descriptions)	Mixed representations of child
	Crittenden (2010)	WMCI (Zeanah & Benoit, 1995)	BPD; HC	<i>Ns</i> (balanced representations of child)	
	Elliot (2014)	PSI-SF	BPD; HC	$r = .64, p = .02$ (maternal ER/difficult child)	
	Newman (2007)	PSI-SF	BPD; HC	<i>Ns</i> (maternal BPD/difficult child)	

**Notes:** AMBIANCE = Atypical Maternal Behavior Instrument for Assessment and Classification; BP = borderline personality; BPD = Borderline personality disorder; CRPBI = Child Report of Parent Behavior Inventory; DD = Dysthymic disorder; EA = Emotional Availability scale; EMBU = 'own memories concerning upbringing' inventory; HC = healthy control; HOME = Home Observation for Measurement of the Environment; MDD = Major depressive disorder; PACOTIS = Parental Cognitions and Conduct Towards the Infant Scale; PD = personality disorder; PSI-SF = Parenting Stress Index-short form; PSOC = Parenting Sense of Competence Scale; SCL-90-R = Symptom Checklist 90-revised; TBAQ = Toddler Behavior Assessment Questionnaire; WMCI = Working Model of the Child Interview

**Overprotection.** Four studies converge in indicating that mothers with BPD/BPD symptoms are more overprotective (or overinvolved) with their offspring both in infancy (Elliot et al., 2014) and adolescence (Barnow et al., 2006; Reinelt et al., 2014; Zalewski et al., 2014). Elliot et al. (2014) found that mothers with BPD scored significantly higher on self-reported overprotection than HCs. Barnow et al. (2006) found that adolescents of mothers with BPD perceived them as significantly more overprotective than did adolescents of mothers with depressive disorder, cluster C personality disorder, or no mental health condition. Similarly, Reinelt et al. (2014) found that adolescent-reported overprotection was significantly correlated with mother's BPD symptoms. Finally, Zalewski et al. (2014) found that maternal BPD symptoms were significantly positively correlated with offspring-reported maternal attempts to "control through guilt" (after controlling for depression and alcohol use) and negatively correlated with "acceptance of individuation."

**Maternal warmth.** Four studies assessed maternal warmth yielding varying results across age groups. When mothers were observed interacting with their preschool children who had behavioural problems, a significant negative correlation between BPD symptoms and maternal warmth (i.e., enthusiastic, encouraging, cheerful, appropriately responding to needs) was reported (Harvey et al., 2011). However, maternal BPD symptoms did not uniquely predict low maternal warmth in multiple regression analysis controlling for comorbid psychopathology (including other personality disorders, anxiety, depression, and substance abuse). Relatedly, adolescents did not perceive their mothers with BPD as less "emotionally warm" (e.g., whether parents hugged them or whether they felt their parents wanted to be together with them) than did adolescents of control mothers with depression, cluster C personality disorders, or no mental health condition (Barnow et al., 2006). Similarly, in two community samples, adolescent-perceived maternal "warmth" (no specific description reported) was not significantly correlated with maternal BPD symptoms either in unadjusted associations (Reinelt et al., 2014) or following control for demographic variables (Herr et al., 2008).

***Hostility/negativity/over-reactivity/harsh punishment.*** Six studies largely converge in suggesting that mothers with BPD may be more hostile or negative than control mothers. Elliot et al. (2014) found that mothers with BPD did not show a significant group difference from HCs regarding hostility towards their infants; however, BPD symptom severity was significantly positively correlated with raised levels of maternal hostile/reactive behaviours. Newman et al. (2007) found that mothers with BPD scored significantly higher on the “hostility” subscale of a general psychopathology measure than HCs; however while they were more likely to display “slight” or “covert” hostility towards their infant, these differences did not reach significance. Harvey et al. (2011) reported a significant correlation between maternal BPD symptoms and displays of “negative affect” (i.e., irritability, annoyance, frustration, anger) and between maternal BPD symptoms and self-reported “overreactivity” (i.e., noticeably frustrated, or angry). However, maternal BPD symptoms no longer predicted negative affect or overreactivity in multiple regression analysis following control for comorbid psychopathology (including other personality disorders, anxiety, depression, and substance abuse). In two studies with adolescent offspring, maternal BPD (Frankel-Waldheter et al., 2015) and maternal BPD symptoms (Herr et al., 2008) were significantly associated with offspring-perceived “maternal hostility” (Herr et al., 2008), and researcher-observed (Frankel-Waldheter et al., 2015) “maternal hostility,” and this association remained following control for maternal depression (Herr et al., 2008). Similarly, in a high-risk community cohort study of adolescent girls, offspring-perceived “harsh punishment” was significantly associated with maternal BPD symptoms following control for depression and alcohol use (Zalewski et al., 2014).

***Rejection and laxness.*** Two studies assessed maternal rejection. Barnow et al. (2006) found that mothers with BPD did not significantly differ in adolescent offspring-perceived “rejection” from mothers with depression, cluster C personality disorders, or no mental health condition. Conversely, Reinelt et al. (2014) reported a significant positive correlation between maternal BPD symptoms and adolescent-perceived maternal rejection. One study assessed maternal laxness. Harvey et al. (2011) found that maternal BPD symptoms were positively associated with maternal self-reported

laxness. This association remained significant in multiple regression analysis controlling for comorbid psychopathology (i.e., other personality disorders, anxiety, depression, and substance abuse).

***Emotion recognition.*** Two studies assessed emotion recognition. Elliot et al. (2014) found that mothers with BPD were significantly poorer than HCs at “infant emotion recognition.” In particular, neutral infant expressions were more often perceived as sad (Elliot et al., 2014). Another study looked at discrepancies between mother-reported and researcher observed infant expressions (Whalen et al., 2015). Findings showed that as maternal BPD symptom severity increased, there was greater convergence between mother-reported and observed infant anger. This relationship increased in strength as observed infant anger increased. As healthy mothers typically under report infant negative affect, the authors suggest mothers with BPD may have heightened sensitivity to infant anger. This pattern of convergence was also seen for mother-reported, and researcher observed infant fear expression, but only with behavioural symptoms of BPD (e.g., fear of abandonment, impulsivity).

***Maternal representations and perceptions of offspring.*** Four studies assessing maternal perceptions of their offspring (in fairly divergent ways - see Table 2) yielded inconsistent findings. Elliot et al. (2014) reported that mothers with BPD rated their infants significantly higher on a “difficult child” measure in comparison to HCs. In contrast, Newman et al. (2007) found no significant difference between mothers with BPD and HCs on their rating of their infant as “difficult.” Crittenden and Newman (2010) reported that mothers with BPD had “balanced” representations of their perceptions, feelings, motives and interpretation of their relationship with their 3-36 month-old infants and did not significantly differ from healthy control mothers. Schacht et al. (2013) found that mothers with BPD were significantly less likely than HCs to use mind-related descriptors (e.g., interests, imagination) of their children, and suggested that this might indicate a reduced capacity for mentalisation in mothers with BPD.

***Perceptions of parenthood.*** In two infant studies, mothers with BPD reported significantly higher parenting stress and distress (Elliot et al., 2014; Newman et al., 2007), and significantly lower parenting satisfaction (Newman et al., 2007) and efficacy (Elliot et al., 2014; Newman et al., 2007) than HCs. Increased distress was significantly correlated with increased parental dissatisfaction and efficacy, less sensitive parenting (Newman et al., 2007), and mother's emotional dysregulation (Elliot et al., 2014). One study explored mothers' perinatal experiences (Blankley et al., 2015). Of the mothers with BPD, 31% reported pregnancy as traumatic, 12% anticipated the delivery as traumatic, and 31% made requests for an early delivery due to distress associated with the pregnancy. Additionally, 38% were reported as having low levels of antenatal care, by not following care recommendations or having erratic antenatal attendance (<70% attendance).

#### **4.4.5 Mother-offspring interaction dynamics**

This section includes studies assessing mother-offspring interactions, role-reversal, mother-infant communication, and infant/child behaviour (see table 4.3).

***Mother-offspring interactions.*** Eight studies converge in indicating maladaptive interactions between mothers with BPD and their offspring. Three infant studies reported that mothers with BPD had significantly less "satisfying/engaged," or more "difficult" or "dysfunctional" mother-child interactions according to observation (Crandell et al., 2003; Newman et al., 2007) and maternal self-report (Elliot et al., 2014) in comparison to HCs. White et al. (2011) found that mothers with BPD (without co-morbid major depressive disorder, MDD) demonstrated significantly less imitation, and mothers with BPD (and BPD/MDD) engaged in significantly less smiling, touching, and playing with their infants than mothers with MDD and HCs. Hobson et al. (2009) observed that mothers with BPD displayed significantly greater "frightened/disoriented" (i.e., fearful, hesitant) interaction with their infants than mothers with depression or HCs. They also displayed more "withdrawal" (e.g., interacting silently) with their infants than depressed and HC mothers, though these differences did not quite reach significance. Wilson and Durbin (2012) found a significant negative correlation between maternal borderline symptoms and mother's response to their child's "bids for attention" (the same was seen for



mothers with paranoid, antisocial or histrionic personality disorder but not for other personality disorders). In comparison to children of HCs, children of mothers with BPD had significantly lower (i.e., more negative) mother-child relationship expectations (Macfie & Swan, 2009). In the one study of mother-adolescent interactions, mothers with BPD were found to be lacking in “validation,” “engagement,” and “agreement” regarding their offspring’s opinions; were significantly more likely than HCs to over-personalise in disagreements; and significantly more likely to pressure their child to agree without a rational explanation (Frankel-Waldheter et al., 2015).

***Role-reversal.*** Three studies assessed mother-child role-reversal with mixed results. Macfie et al. (2014) found that maternal preoccupied/unresolved attachment pattern (70% of mothers had a diagnosis of BPD) was significantly correlated with children’s narratives of role-reversal. Similarly, controlling for maternal depression, Macfie and Swan (2009) found that the stories of children of mothers with BPD were significantly more likely to describe mother-child role-reversal than the stories of children of HCs. Hobson et al. (2009), however, found no significant difference between observations of “role/boundary confusion” with dyads of mothers with BPD, depression or HCs.

***Mother-infant communication.*** Three studies considering communication patterns between mothers with BPD and their infant offspring yielded mixed results (Delavenne et al., 2008; Hobson et al., 2009; White et al., 2011). White et al. (2011) reported that mothers with BPD did not significantly differ from mothers with depression or HCs in “vocalisations” (i.e., percentage of time spent vocalising) when interacting with their infants. Similarly, Delavenne et al. (2008) found no significant difference in overall frequency of vocalisations, however, mothers with BPD engaged in significantly fewer phrases and longer end-of-phrase pauses in interactions with their infants in comparison to HCs. Hobson et al. (2009) found that mothers with BPD displayed significantly greater “disruptive affective communication” (i.e., conflicting emotional cues, unresponsive to infant emotion) in interactions with their infants in comparison to depressed and HCs.

**Table 4.3: Mother-offspring interaction dynamics**

Interaction dynamic	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall interaction outcome
Mother-offspring interaction <i>Difficult interaction</i>	Elliot (2014)	PSI-SF	BPD; HC	$M_{BPD}=25.15$ , $SD = 11.76$ ; $M_{HC} = 15.62$ , $SD= 3.78$ , $p<.05$ ; $r = .65$ , $p=.02$ (maternal emotional dysregulation/difficult interaction)	Difficult mother-offspring interactions
<i>Withdrawal</i>	Hobson (2009)	Strange Situation (Ainsworth et al, 1978); AMBIANCE (Lyons-Ruth et al, 1999)	BPD; Depression; HC	<i>Ns</i> (maternal BPD/withdrawal)	
<i>Dysfunctional interaction</i>	Newman (2007)	Mother-child play: EA (Biringen, 2009); PSI-SF	BPD; HC	$M = 21.0$ , $SD = 7.58$ ; $M_{HC}=16.75$ , $SD =3.78$ , $p<.05$	
<i>Interaction satisfaction</i>	Crandell (2003)	Still-face paradigm, Global ratings for mother-child interactions (Murray et al, 1996)	BPD; HC	$M_{BPD}=7.8$ , $M_{HC} = 12.3$ , $p<.05$	
<i>Mother interaction behaviours</i>	Hobson, (2009)	Strange situation: AMBIANCE	BPD; Depression; HC	$M = 6.0$ , $SD = 4.67$ ; $M_{Dpn}=2.73$ , $SD = 2.94$ ; $M_{HC}=2.55$ , $SD =2.55$ , $p<.01$ (maternal frightened/disoriented)	Less responsive maternal interactions
	Newman (2007)	Mother-child play: EA	BPD; HC	$M = 3.89$ , $SD = 0.81$ ; $M_{HC}=4.35$ , $SD =0.63$ , $p<.05$ (less structured in organising activities)	
	White (2011)	Mother-child play, Interaction Rating Scale (Field, 1980)	BPD; BPD/MDD; MDD; HC	BPD 30.1%; BPD/MDD 31.7%; MDD 62.4%; HC 62.9%, $p<.05$ (touching); BPD 3%; BPD/MDD 3.7%; MDD 12.1%; HC 9.1%, $p<.05$ (game playing); BPD 7.7%; BPD/MDD 7.8%; MDD 16.1%; HC 33.1%, $p<.05$ (smiling); BPD 0.25%; BPD/MDD 3.9%; MDD 4.5%; HC, 6.9%, $p<.05$ (imitation)	
	Wilson (2012)	Mother-child play tasks	PD symptoms	$r = -.26$ , $p<.01$ (maternal responsiveness/child's bids for attention)	
<i>Mother-offspring role-reversal</i>	Macfie (2009)	The Narrative Coding Manual Rochester Version	BPD; HC	$M_{BPD}= 0.87$ , $SD=1.01$ ; $M_{HC}=0.37$ , $SD=0.49$ , $p<.05$ (child narratives)	Mother-offspring role reversal
	Macfie (2014)	Narrative Emotion Coding	BPD; HC	$r = .31$ , $p<.05$ (maternal BPD/child narratives role reversal)	
	Hobson (2009)	AMBIANCE	BPD, Depression, HC	<i>Ns</i>	
<i>Autonomy and relatedness</i>	Frankel-Waldheter (2015)	Adapted Relationship Problem Inventory (Knox, 1971); Autonomy and relatedness coding system (Allen et al., 2005)	BPD; HC	$F(1, 52)= 11.38$ , $p<.01$ (maternal engagement) $F(1, 52)= 4.81$ , $p<.05$ (promote relatedness) $F(1, 52)= 13.64$ , $p<.01$ (inhibit autonomy) $F(1, 52)= 4.02$ , $p<.05$ (inhibit relatedness)	Inhibits autonomy and relatedness; less likely to promote relatedness; less engaged
	Zalewski (2014)	CRPBI (Schludermann & Schludermann, 1971)	BPD symptoms	$r = -.10$ , $p<.01$ (BPD/acceptance of individuation)	

Interaction dynamic	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall interaction outcome
Communication <i>Maternal communication</i>	Delavenne (2008)	Mother-child free interaction	BPD; HC	$M_{BPD}=2668$ , $M_{HC}=2278$ , $p<.0001$ (phrase length) $M_{BPD}=2.65$ , $M_{HC}=0.47$ , $p<.005$ (non-vocal sounds) $M_{BPD}=2.65$ , $M_{HC}=0.77$ , $p<.004$ (pause length)	Poorer quality of maternal vocalisation
	Hobson (2009)	Strange Situation; AMBIANCE	BPD; depression; HC	BPD 85%; Depression 47%; HC 42%, $\chi^2=6.97$ , $p<.05$ (disruptive affective communication)	
	White (2011)	Mother-child play, Interaction Rating Scale	BPD; BPD/MDD; MDD; HC	Ns (vocalisation)	
Infant communication	Delavenne (2008)	Mother-child free interaction	BPD; HC	$M_{BPD}=3.29$ , $M_{HC}=11.17$ , $p<.0001$ (vocalisation) $M_{BPD}=548.7$ , $M_{HC}=759.8$ , $p<.027$ (duration)	Fewer infant communications
	White (2011)	Mother-child play, Interaction Rating Scale	BPD; BPD/MDD; MDD; HC	BPD 19.2%; BPD/MDD 19.8%; MDD 33.4%; HC 34.4%, $p<.05$ (vocalisation)	
Mother-infant communication	Delavenne (2008)	Mother-child free interaction	BPD; HC	$M_{BPD}=1.53$ , $M_{HC}=4.82$ , $p<.001$ (dyadic vocalisation)	Fewer simultaneous conversation
Infant/child behaviour <i>involvement/engagement</i>	Crandell (2003)	Still-face paradigm, Global ratings for mother-child interactions	BPD; HC	Ns (engagement during and post SFP)	Mixed results for infant engagement and responsiveness to maternal attempts to engage
	Hobson (2005)	Modified Set Situation (Murray et al, 1996)	BPD; HC	$M=3.2$ , $SD=2.0$ ; $M_{HC}=5.4$ , $SD=2.3$ , $p<.05$ (availability for positive engagement)	
	Newman (2007)	Mother-child play: EA	BPD; HC	$M=5.04$ , $SD=0.93$ ; $M_{HC}=6.10$ , $SD=0.70$ , $p<.05$ (involvement) $M=5.14$ , $SD=1.00$ ; $M_{HC}=5.82$ , $SD=0.78$ , $p<.05$ (responsiveness to maternal attempt to engage)	
	Wilson (2012)	Mother-child play tasks	BPD symptoms	Ns (infant responsiveness/mother's bid for attention)	
Infant eye contact	Crandell (2003)	Still-face paradigm, Global ratings for mother-child interactions	BPD; HC	$M_{BPD}=14.9$ , $M_{HC}=7.5$ , $p<.05$ (looking away during SF) $M_{BPD}=12.9$ , $M_{HC}=8.9$ , $p<.05$ ; $M_{BPD}=12.9$ , $M_{HC}=8.9$ , $p<.05$ (dazed looks during and post SFP)	Reduced eye contact
	Hobson (2005)	Modified Set Situation	BPD; HC	$M=27.5$ , $SD=17.4$ ; $M_{HC}=56.8$ , $SD=34.2$ , $p<.01$ (directed looks with stranger)	
	White (2011)	Mother-child play, Interaction Rating Scale	BPD; BPD/MDD; MDD; HC	BPD 27.4%; BPD/MDD 48.7%; MDD 43.3%; HC 22.1%, $p<.001$ (gaze aversion)	

Interaction dynamic	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall interaction outcome
<i>Infant affect</i>	Crandell (2003)	Still-face paradigm, Global ratings for mother-child interactions	BPD; HC	<i>Ns</i> (positive affect during SFP); $M_{BPD}=7.7$ , $M_{HC} = 12.3$ , $p<.05$ (positive affect post SFP)	Lowered infant affect
	Hobson (2005)	Modified Set Situation	BPD; HC	$M_{BPD}= 17.8$ , $SD=4.7$ ; $M_{HC}=22.9$ , $SD=7.0$ , $p<.05$ (mood state/behavioural organisation in interactions)	
	White (2011)	Mother-child play, Interaction Rating Scale	BPD; BPD/MDD; MDD; HC	BPD 12.2%; BPD/MDD 12.4%; MDD 39.5%; HC 41.1%, $p<.05$ (smiling)	

**Notes:** AMBIANCE = Atypical Maternal Behavior Instrument for Assessment and Classification; BPD = borderline personality disorder; CRPBI = Child Report of Parent Behavior Inventory; EA = Emotional Availability scale; HC = healthy control group; MCS = Mother Chronic Stress Interview; MDD = Major depressive disorder; PD = personality disorder; PSI-SF = Parenting Stress Index-short form; SFP = still face paradigm

**Infant/child behaviour.** Five studies considering infant/child engagement or interaction, whilst not fully converging, on the whole suggest less engaged infant behaviour. Two studies found that infants of mothers with BPD were significantly “less involved” (Newman et al., 2007), “less available for positive engagement” (Hobson et al., 2005), and “less responsive to their mother’s attempts to engage with them” (Hobson et al., 2005) than infants of HC mothers. In contrast, Crandell et al. (2003) report that infants of mothers with BPD were no different in their availability for positive engagement both during and after a still-face paradigm task compared with HCs. Similarly, Wilson and Durbin (2012) found that children of mothers with BPD symptoms were not significantly different to children of healthy mothers in their response to their mother’s bids for attention.

Infants of mothers with BPD appear to demonstrate significantly less eye contact than infants of HC mothers, especially during stressful situations such as the still-face paradigm (Crandell et al., 2003; Hobson et al., 2005). White et al. (2011) only reported greater gaze aversion in infants of mothers with BPD co-morbid with MDD compared with HCs (White et al., 2011). Significantly fewer instances of smiling (White et al., 2011), lowered mood state (Hobson et al., 2005), and lowering of affect (Crandell et al., 2003) have also been observed in infants of mothers with BPD in comparison to HCs.

#### **4.4.6 Offspring outcomes**

Studies assessed a range of psychopathological (i.e., BPD and BPD symptoms, depression, internalising and externalising problems) and psychosocial (i.e., self-esteem difficulties, interpersonal difficulties, home difficulties and stability) outcomes of offspring of mothers with borderline personality pathology (table 4.4).

##### **Psychopathology outcomes**

**Borderline personality disorder.** Five studies all indicated a significant association between maternal BPD/BPD symptoms and offspring BPD symptoms (Barnow et al., 2013; Cheng et al., 2011; Conway et al., 2015; Stepp et al., 2013) and disorder (Weiss et al., 1996). Weiss et al. (1996) reported that children of mothers with BPD

were significantly more likely to have a diagnosis of BPD than children of mothers with other personality disorders. In a community-based study, Barnow et al. (2013) found that maternal BPD symptoms (and sub-threshold BPD symptoms) significantly predicted offspring BPD symptoms five years later (at age 20). In a high-risk community cohort spanning 4 time-points (14, 18, 24 & 30 years of age), Stepp et al. (2013) found that maternal history of BPD predicted offspring BPD symptoms at age 30, following control for offspring gender, early offspring psychopathology, parental education and other parental psychopathology. However, this association no longer reached significance ( $p=.069$ ) following additional control for offspring MDD at Time 3 and Time 4. Also in a high-risk community sample, Conway et al. (2015) found that maternal BPD symptoms were significantly associated with offspring BPD symptoms at age 20 but did not influence offspring symptoms over and above other risk factors (e.g., maternal externalising, offspring internalising). Finally, in a large study of high school students, Cheng et al. (2011) found that maternal BPD traits significantly positively correlated with adolescent offspring BPD traits, following control for family income, parental relationship and parental rearing behaviour.

***BPD symptoms and related features.*** A number of studies assessed associations between maternal BPD and offspring individual BPD symptoms (e.g., emotion dysregulation, unstable self-image and identity, suicide ideation) or related features (i.e., features which have a strong association with BPD, such as insecure attachment).

Four studies suggest that maternal borderline personality pathology is significantly associated with offspring emotional dysregulation across age groups operationalized in various ways (see Table 4). “Low soothability” in infancy (White et al., 2011); “boundary confusion between self/fantasy or reality/fantasy” (Macfie & Swan, 2009) and “self-regulation” (Macfie et al., 2014) in childhood, were all significantly associated with maternal BPD, and “low self-control” and “negative affectivity” in adolescence (Zalewski et al., 2014) were significantly associated with maternal BPD symptoms. Alternatively, Gratz et al. (2014) did not find a main effect of maternal BPD symptoms on infant emotion dysregulation (but see later section on

mechanisms of transmission for explication of the indirect association between maternal BPD and infant emotion dysregulation in this study).

Two studies examined aspects of offspring's self-identity. Macfie and Swan (2009) reported that children of mothers with BPD had significantly poorer self-representations (incongruent and shameful) than children of HCs. In a study examining gender identity disorder (GID), Marantz and Coates (1991) found that mothers of boys with GID were significantly more likely to have a diagnosis of BPD than mothers of boys without GID. Children of mothers with BPD reported significantly more suicide ideation/plans and death wishes, and more suicide attempts (though this difference was non-significant) than children of HCs (Barnow et al., 2006).

Four studies indicated that maternal BPD/BPD symptoms (or BPD/MDD) is associated with offspring insecure attachment (compared to HCs) in infancy (Gratz et al., 2014; Hobson et al., 2005), childhood/adolescence (Abela et al., 2005) and adolescence (Herr et al., 2008). In particular, children's insecure attachment patterns were categorised as disorganised (Hobson et al., 2005), and fearful after controlling for maternal lifetime depression symptoms (Herr et al., 2008).

**Depression.** Three studies converge in indicating that children and adolescents of mothers with BPD are at greater risk of developing depression (Abela et al., 2005; Barnow et al., 2006; Herr et al., 2008). The extent to which this association is independent of maternal depression however remains unclear. Abela et al. (2005) found significantly increased depression in offspring of mothers with BPD/MDD compared to offspring of mothers with MDD alone. Barnow et al. (2006) reported offspring of mothers with BPD were more likely to have depressive symptoms than offspring of mothers with depression (although this difference did not reach significance,  $p < .10$ ). Herr et al. (2008) found that youth depression was significantly associated with maternal BPD symptoms, but not after adjustment for maternal depression.

**Table 4.4:** *Outcomes for children of mothers with BPD*

Offspring outcome	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall offspring outcome
Psychopathology BPD	Barnow (2013)	SCID II DSM-IV (First et al 1996)	Mother with BPD T <sub>0</sub> ; offspring T <sub>1</sub> (5 years on)	$R_{SR} = .18, p < .01$ ; $r_{INT} = .17, p < .01$ (Maternal BPD/offspring BPD from self-rated questionnaire and interview)	Significant association with maternal BPD and offspring BPD
	Cheng (2010)	PDQ-4	BPD symptoms; non-BPD	$pr = .086, p < .01$ (maternal BPD/offspring BPD traits)	
	Conway (2015)	SCID II DSM-IV	Mother BPD symptom T <sub>1</sub> ; offspring T <sub>2</sub> (5 years on)	$r = .10, p < .05$ (maternal BPD and offspring BPD symptoms)	
	Stepp (2013)	SCID II	Mother with BPD T <sub>1</sub> ; offspring T <sub>4</sub> (age 30)	$B = 1.23, SE = 0.04, p < .05$	
	Weiss (1996)	CDIB	BPD; other PD	$M_{BPD} = 33.3, M_{PD} = 8.7, \chi^2 = 4.50, p < .05$	
	Reinelt (2014)	SCID II; EMBU – adolescent report (Perris et al., 1980); CBCL; YSR	BPD symptoms in mother BPD symptoms in child	$A = -0.01, ns$ ; $B = 0.31 (p < .01)$ ; $C = 0.52, p < .01$ indirect path: $0.13, CI: 0.07-0.32, p < .001$ (mediator-maladaptive mother-child interactions)	
BPD Symptoms <i>Emotional dysregulation</i>	Gratz, (2014)	Lab-TAB exercises (Goldsmith & Rothbart, 1999)	BPD symptoms	$Ns$ (maternal BPD and infant emotional dysregulation)	Higher emotional dysregulation
	White (2011)		BPD; MDD; BPD/MDD; HC	$M_{BPD} = 2.14, SD = 0.81$ ; $M_{MDD} = 3.77, SD = 0.83$ ; $M_{BPD/MDD} = 3.87, SD = 0.79$ ; $M_{HC} = 3.62, SD = 0.71$ , $p < .05$ (soothability)	
	Macfie (2009)		BPD; HC	$M_{BPD} = 0.43, SD = 0.82$ ; $M_{HC} = 0.10, SD = 0.40$ , $p < .05$ (reality/fantasy confusion)	
	Macfie (2014)	The Narrative Coding Manual Rochester Version (Robinson, et al., 1996)	BPD; HC	$M_{BPD} = 0.40, SD = 0.72$ ; $M_{HC} = 0.00, SD = 0.00$ , $p < .01$ (self/fantasy confusion)	
	Macfie (2014)	Narrative Emotion Coding (Warren et al, 1993)	BPD; HC	$M_{BPD} = 1.03, SD = 1.87$ ; $M_{HC} = 0.17, SD = 0.38$ , $p < .05$ (fantasy proneness)	
	Whalen (2015)	Social Skills Rating System (Elliott et al, 1988)	BPD severity	$r = .25, p < .05$ (maternal preoccupied unresolved AAI/child self-regulation)	
	Zalewski (2014)		BPD	$r = .30, p < .05$ (maternal preoccupied unresolved AAI/self-fantasy confusion)	
		Emotionality, Activity and Sociability Temperament Survey (Bus & Plomin, 1984)		$r = .33, p < .01$ (maternal BPD/mother-report infant anger; infant fear $ns$ ) $r = .30, p < .01$ (maternal BPD/adolescent self-control) $r = -.13, p < .01$ (maternal BPD/adolescent negative emotionality)	



Offspring outcome	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall offspring outcome
Unstable self-image	Macfie (2009)	The Narrative Coding Manual Rochester Version	BPD; HC	$M_{BPD} = 0.20, SD = 0.41; M_{HC} = 0.0, SD = 0.0, p < .05$ (incongruent child) $M_{BPD} = 0.17, SD = 0.38; M_{HC} = 0.0, SD = 0.0, p < .01$ (shameful child)	Less stable self-image
	Marantz (1991)	DIB (Gunderson & Kolb, 1978)	Mothers of children with or without GID	$M_{GID} = 5.73, SD = 1.66; M_{HC} = 2.47, SD = 1.82, p < .01$	
Suicide ideation	Barnow (2006)	Three yes/no questions re suicide ideation	BPD, depression, cluster C PD; HC	Death wish 39%; suicide ideation/plans 26%; 3-9% in HC children $p < .05$	Higher suicide ideation
Attachment	Abela (2005)	IPPA (Armsden & Greenberg, 1987)	BPD/MDD; MDD	$pr = .19, p < .05$ (BPD/insecure attachment)	Insecure attachment profiles
	Gratz (2014)	Strange Situation (Ainsworth et al, 1978)	BPD symptoms; HC	48% BPD; 28% HC (insecure attachment)	
	Herr (2008)	Attachment Prototype Questionnaire (Bartholomew & Horowitz, 1991)	MDD; DD; MDD/DD; HC (BPD symptoms)	$r = -.10, p < .01$ (BPD/secure attachment) $r = .15, p < .001$ (BPD/fearful attachment)	
	Hobson (2005)	Strange Situation	BPD; HC	80% BPD; 27% HC, $p = .008$ (disorganised attachment)	
Depression	Abela (2005)	K-SADS (Kaufman et al, 1996) CDEQ (Abela & Taxel, 2001)	BPD/MDD; MDD	$pr = .36, p < .001$ (BPD/MDD; child depression) $r = .40, p < .01$ (Maternal BPD/child depression)	More likely to have depression symptoms and depression vulnerability factors
	Barnow (2006)	CBCL (Achenbach, 1994) YSR (Achenbach, 1994)	BPD, depression, cluster C PD; HC	CBCL: $M_{BPD} = 4.35, SD = 6.68, M_{Dpn} = 2.62, SD = 3.52, p < .10; M_{HC} = 1.51, SD = 2.24, p < .01$ YSR: $M_{BPD} = 8.55, SD = 7.15, M_{Dpn} = 6.04, SD = 4.47, M_{CPD} = 5.70, SD = 3.66, p < .10, M_{HC} = 4.61, SD = 4.17; p < .01$ $B = 0.25, SE = 0.12, p < .05$ (youth BDI age 15) $Ns$ when adding in maternal lifetime MDD	
	Herr (2008)	K-SADS; BDI (Beck et al, 1988)	MDD; DD; MDD/DD; HC (BPD symptoms)		
Internalising symptoms	Barnow (2006)	CBCL; YSR	BPD, depression, cluster C PD; HC	CBCL: $M_{BPD} = 9.92, SD = 11.23; M_{Dpn} = 5.95, SD = 6.29, p < .05; M_{CPD} = 6.41, SD = 4.84, p < .10; M_{HC} = 3.69, SD = 4.34, p < .01$ YSR: $M_{BPD} = 16.35, SD = 11.56; M_{Dpn} = 11.34, SD = 7.56, p < .05; M_{CPD} = 11.48, SD = 6.65, p < .10; M_{HC} = 9.16, SD = 6.88, p < .01$ (emotional problems)	Mixed results on emotional/internalising problems

Offspring outcome	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall offspring outcome
	Bertino (2012)	CBCL; YSR; ASR (Achenbach & Rescorla, 1997)	PDs	Ns (internalising)	
	Frankel-Waldheter (2015)	Teacher report form (TRF) (Achenbach & Rescorla, 2001)	BPD; HC	Indirect effect of maternal autonomy/relatedness through maternal BPD	
	Jellinek (1991)	PSC (Murphy et al, 1985)	BPD; axis II; no axis II	$\chi^2 = 15.0$ , $df=2$ , $p<.001$ (PCS score)	
Externalising symptoms	Barnow (2006)	CBCL; YSR	BPD, depression, cluster C PD; HC	CBCL: $M_{BPD} = 8.13$ , $SD = 6.38$ ; $M_{HC} = 3.95$ , $SD = 4.49$ , $p<.01$ (behavioural problems) YSR: $M_{BPD} = 13.20$ , $SD = 8.11$ ; $M_{HC} = 9.72$ , $SD = 6.37$ , $p<.10$ $r = .13$ , $p<.05$ (BPD/externalising)	Externalising/behavioural problems
	Bertino (2012)	CBCL; YSR; ASR	PDs	Indirect effect of maternal autonomy/relatedness through maternal BPD	
	Frankel-Waldheter (2015)	Teacher report form (TRF)	BPD; HC	Indirect effect of maternal autonomy/relatedness through maternal BPD	
	Jellinek (1991)	PSC	BPD; axis II; no axis II	$\chi^2 = 15.0$ , $df=2$ , $p<.001$ (PSC score)	
	Weiss (1996)	CDIB; CGAS (Shaffer, 1983)	BPD; other PD	$M_{BPD} = 77.8$ , $M_{PD} = 21.4$ , $p<.001$ (ADHD) $M_{BPD} = 88.9$ , $M_{PD} = 42.9$ ; $p<.05$ (disruptive behaviour including CD and ODD)	
General psychopathology	Barnow (2006)	CBCL; YSR	BPD, depression, cluster C PD; HC	CBCL: $M_{BPD} = 2.47$ , $SD = 2.30$ , $M_{Dpn} = 1.41$ , $SD = 1.97$ ; $p<.05$ ; $M_{CPD} = 1.53$ , $SD = 1.78$ , $p<.10$ ; $M_{HC} = 0.74$ , $SD = 1.24$ , $p<.01$ YSR: $M_{BPD} = 3.30$ , $SD = 2.45$ ; $M_{HC} = 1.89$ , $SD = 1.92$ ; $p<.01$ (physical complaints) $r = .18$ , $p<.01$ (Maternal BPD/general psychopathology)	Increased general psychopathology
	Barnow (2013)	SCL-90-R (Derogatis, 1977) Adolescent Severity Index of General Psychopathology	Mother with BPD T <sub>0</sub> ; offspring T <sub>1</sub> (5 years on)		
Psychosocial Self-esteem difficulties	Abela (2005)	CDEQ-S (Abela & Taxel, 2001); SEQ (Rosenberg, 1965)	BPD/MDD; MDD	$pr = .19$ , $p<.05$ (maternal history BPD/self-criticism); Ns (self-esteem)	Self-criticism; mixed results for self-esteem
	Barnow (2006)	Self-Worth Scale (Rosenberg, 1985)	BPD; HC; Depression, Cluster C PD	$C_{BPD} = 5.90$ , $SD = 2.9$ ; $M_{HC} = 8.55$ , $SD = 1.94$ , $p<.01$ ; $M_{Dpn} = 8.11$ , $SD = 2.51$ ; $M_{C-PD} = 8.38$ , $SD = 2.03$ , $ps<.01$ (self-esteem)	
	Barnow (2006)	Temperament & Character Inventory (Schmeck & Poustka, 2001)	BPD; HC; Depression, Cluster C PD	$M_{BPD} = 19.57$ , $SD = 5.96$ ; $M_{HC} = 15.35$ , $SD = 6$ , $p<.01$ ; $M_{Dpn} = 15.87$ , $SD = 5.32$ , $p<.05$ ; $M_{CPC} = ns$ (harm avoidance)	Increased harm avoidance temperament
	Zalewski (2014)	Emotionality, Activity and Sociability Temperament Survey (Buss & Plomin, 1984)	BPD symptoms	Ns (temperament moderating association between maternal emotional dysregulation and maladaptive parenting)	

Offspring outcome	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall offspring outcome
Interpersonal difficulties	Schacht (2013)  Barnow (2006) Herr (2008)	Affective-labelling task (Denham, 1986); Causes of emotion interview (Cassidy, 1992) YSR Self-perception profile for adolescents (Harter, 1988)	BPD; HC  BPD MDD; DD; MDD/DD; HC (BPD symptoms)	$M_{BPD}= 11.28, SD= 3.58; M_{HC}= 13.79, SD= 1.14, p<.01$ (emotion labelling) $M_{BPD}= 8.70, SD= 3.63; M_{HC}= 13.58, SD= 3.10, p<.01$ (understanding causes of emotion) $F=3.429; p=.017$ $r = -.10, p<.05$ (Maternal BPD/adolescent perception close friendships) $r = -.10, p<.05$ (Maternal BPD/adolescent perception social acceptance)	Interpersonal difficulties
Home difficulties	Feldman (1997)  Herr (2008)  Macfie (2009)  Macfie (2014)	FSS (Olsen & Wilson, 1982) FES (Moos & Moos, 1986)  MCS; YCS (Adrian & Hammen, 1993)  The Narrative Coding Manual Rochester Version (Robinson, et al., 1996) Narrative Emotion Coding (Warren et al, 1993)	BPD; other PDs  MDD/DD; MDD; DD; HC (assessed for BPD symptoms)  BPD; HC  BPD	$Ns$ (but low for both groups re family satisfaction) $M_{BPD}=31, SD = 21, M_{PD}=52, SD =11, p<.01; M_{BPD}=39, SD = 13, M_{PD}=49, SD =10, p<.05$ (cohesion; organisation - mother report) $Ns$ (but low for both groups re family cohesion, expressiveness, encourage individuality -child report) $r = .13, p<.001$ (family stress–youth report); $r = .23, p<.001$ (chronic stress in the relationship – mother report) $M_{BPD}= 2.43, SD=1.33; M_{HC}=3.43, SD=1.48, p<.05$ (negative mother-child relationship expectation – child narratives) $r = .44, p<.001$ (child report of mother-child relationship expectations/maternal parenting)	Low family satisfaction, cohesion, organisation; family stress; negative mother-child relationship expectations
Stability Change school Changes in household Parental alcohol/drug abuse Maternal suicide attempts	Feldman (1995)	FTRI FES (Moos & Moos, 1986)	BPD; other PD	$M_{BPD}= 2, SD=1.7; M_{PD}=1, SD=0.8, p<.05$ $M_{BPD}= 2, SD=1.8; M_{PD}=1, SD=1.3, p<.05$ $\chi^2 =4.11, p<.05$ $\chi^2 =6.50, p<.05$ (aware of) $\chi^2 =8.85, p<.05$ (witnessed)	Home/school instability and exposure to invalidating environments

Offspring outcome	First author (year)	Measurement tool	Comparison Groups	Statistical data	Overall offspring outcome
General impairment	Blankley (2015)	Retrospective case reviews	BPD; HC	Pre-term birth: Odds ratio 2.17, $p<.05$ Resuscitation: Odds ratio 2.00, $p<.05$ APGAR >7: Odds ratio 2.43, $p<.05$	Poorer general outcomes
	Weiss (1996)	CDIB; CGAS	BPD; other PD	$M_{BPD}=4.0$ , $M_{PD}=2.4$ , $p<.05$ (no. diagnoses & lower CGAS scores)	

**Notes:** AAI = Adult Attachment Interview; ADHD = attention deficit hyperactivity disorder; ASR = Adolescent Self-Report; BDI = Beck Depression Inventory; BPD = borderline personality disorder; CBCL = Child Behaviour Checklist; CD = conduct disorder; CDEQ = Children's Depressive Experiences Questionnaire; CDEQ-S = self-criticism subscale; CDIB = Child Diagnostic Interview for Borderlines; CGAS = Child Global Assessment Scale; DD = Dysthymic disorder; DIB = Diagnostic Interview for Borderlines; EMBU = 'own memories concerning upbringing' inventory; FES = Family Environmental Scale; FSS = Family Satisfaction Scale; FTRI = Family Trauma & Resilience Interview; GID = gender identity disorder; HC = healthy control group; IPPA = Inventory of Parent and Peer Attachment; K-SADS = Schedule for Affective Disorders and Schizophrenia for School-age Children; Lab-TAB = Laboratory Temperament Assessment Battery; MDD = Major depressive disorder; ODD = oppositional defiance disorder; PD = personality disorder; PSC = Pediatric Symptom Checklist; PDQ-4 = Personality Disorder Questionnaire-4; SCID-II DSM-IV = Structured Clinical Interview for Diagnostic and Statistics Manual-IV Axis II Personality Disorders; SCL-90-R = Symptom Checklist Revised; SEQ = Self-Esteem Questionnaire; YCS: Youth Chronic Stress interview; YSR = Youth Self-Report

***Internalising/emotional problems.*** Studies pertaining to offspring internalising/emotional problems suggest an association with maternal BPD (in clinical populations). Barnow et al. (2006) reported significantly increased “emotional problems” in adolescents of mothers with BPD compared to adolescents of mothers with depression or no psychopathology. Jellinek et al. (1991) found that significantly more parents (78% mothers) with BPD had children with high total paediatric symptom checklist scores (representing combined internalising/externalising problems: attention, emotion, behaviour, and somatic difficulties) than parents with other axis II disorders or HCs. In contrast, in a sample of children with internalising or externalising disorders, Bertino et al. (2012) found no significant association between parental (80% mothers) borderline traits and child’s “internalising” problems.

***Externalising/behavioural problems.*** Four studies indicated that offspring of mothers with BPD are at an increased risk of behavioural problems or externalising symptoms (Barnow et al., 2006; Bertino et al., 2012; Jellinek et al., 1991; Weiss et al., 1996). Barnow et al. (2006) reported significantly more attention, delinquency, and aggression problems in adolescents of mothers with BPD in comparison to adolescents of HCs. Bertino et al. (2012) found a significant positive correlation between maternal borderline personality symptoms and both child and adolescent externalising symptoms. In comparison to children of mothers with other personality disorders, Weiss et al. (1996) reported significantly more cases of attention deficit hyperactivity disorder and disruptive behaviour disorder in children of mothers with BPD.

***General psychopathology.*** Barnow et al. (2013) reported that maternal BPD symptoms (and depression), assessed when their offspring were aged 15 years old, significantly predicted offspring general psychopathology (assessed using the Symptom Checklist-Revised- SCL-90-R) 5 years later. Barnow et al. (2006) reported that adolescents of mothers with BPD demonstrate higher levels of physical symptoms compared to children of healthy mothers or mothers with depression.

## Psychosocial outcomes

***Difficulties with self-esteem.*** Abela et al. (2005) found that maternal BPD/MDD was significantly associated with offspring self-criticism, but not offspring self-esteem in children and adolescents of mothers with BPD. Conversely, Barnow et al. (2006) found significantly lower levels of self-esteem in adolescents of mothers with BPD compared to children of mothers with depression, cluster C personality disorders, or no mental health condition. One study reported that adolescents of mothers with BPD had significantly higher “harm avoidance” (i.e., fearful, excessive worrying) scores in comparison to children of mothers with depression or HCs (Barnow et al., 2006).

***Interpersonal difficulties.*** Three studies indicate that offspring of mothers with BPD have difficulties with mental state understanding and social interactions. Schacht et al. (2013) found that children of mothers with BPD demonstrated significantly poorer emotional labelling and understanding of causes of emotion in comparison to children of HCs, even following adjustment for maternal depression. Barnow et al. (2006) reported that scores on the social problem scale were significantly elevated in adolescents of mothers with a BPD diagnosis in comparison to adolescents of mothers with depressive disorder, cluster C personality disorders, or no mental health condition. Herr et al. (2008) found that maternal BPD symptoms remained significantly associated with adolescent offspring’s poor self-perception of the ability to make “close friendships” and be “social accepted,” even after controlling for maternal depression.

***Home difficulties and stability.*** Two studies show some evidence that family dynamics are affected in the families of mothers with BPD. Feldman et al. (1995) found that mothers with BPD reported significantly lower family “cohesion” and “organisation” than mothers with other personality disorders. Both adolescent-reported “family stress” and mother-reported “chronic relationship stress” were significantly correlated with maternal BPD symptoms in a community sample, even after controlling for maternal depression (Herr et al., 2008). Children and adolescents of mothers with BPD experienced significantly greater instability, such as

frequent changes in school and household composition, than children of mothers with other personality disorders (Feldman et al., 1995). They were also significantly more likely to witness maternal or paternal suicide attempts and be exposed to parental alcohol/drug abuse (Feldman et al., 1995).

**General impairment.** Two studies assessed general impairment: one with newborns (Blankley et al., 2015), the other with children/adolescents (Weiss et al., 1996). Blankley et al. (2015) found that newborn infants of mothers with BPD were significantly more likely to have been born preterm (<37 weeks), have required resuscitation at birth, or required referral to special care nursing facilities than control mothers without BPD. They were also significantly more likely to have APGAR scores of less than 7 (an assessment of appearance, pulse, grimace, activity, and respiration levels of newborn infants) than infants of control mothers. Weiss et al. (1996) found that children/adolescents of mothers with BPD had significantly higher general impairment in areas of home, school, and social life in comparison to children of mothers with non-borderline personality disorder.

#### **4.4.7 Potential mechanisms underpinning transmission of vulnerability from mother to offspring**

Six studies have utilised mediation (and/or moderation) analyses to statistically test potential mechanisms contributing to associations between maternal BPD (or core features of maternal BPD) and negative offspring outcomes.

##### ***Maladaptive parenting as a potential mediator or link in a causal chain.***

Two studies (Macfie et al., 2014; Reinelt et al., 2014) considered maladaptive parenting as a potential mediator of the transmission of vulnerability from mother to child. Using a prospective community-based family cohort, Reinelt et al. (2014) found that maladaptive mother-child interactions (represented by a latent variable comprising perceived overprotective and rejecting parenting style and high mother-child discrepancies regarding child's internalising problems) mediated the longitudinal transmission of BPD symptoms from mother to adolescent. Maladaptive mother-child interactions also mediated the relationship between maternal BPD and

individual symptoms of impulsiveness, difficulties identifying and describing feelings, and self-esteem.

In a cross-sectional study of young children, Macfie et al. (2014) examined the relationship between mothers' Adult Attachment Interview (George et al., 1984) representations (70% of the study mothers had a diagnosis of BPD), mother's observed parenting, and offspring narratives regarding fear of abandonment. Mother's parenting (i.e., a composite of sensitivity, autonomy support and hostility) significantly mediated the relationship between maternal preoccupied/unresolved attachment and offspring fear of abandonment (i.e., the association between mothers preoccupied unresolved attachment and offspring's fear of abandonment was partly explained by lower levels of parental sensitivity and autonomy support and higher levels of parental hostility).

Examining parenting as an exogenous (rather than mediating) risk factor in a causal chain, Frankel-Waldheter et al. (2015) investigated whether mother's lack of promotion and inhibition of autonomy (i.e., independence) and relatedness (i.e., close relationships) was associated with adolescent outcomes via maternal borderline pathology. Maternal borderline pathology mediated the relationship between lack of promotion of autonomy and relatedness (and inhibition of autonomy and relatedness) and adolescent affective instability and self-harm. Additionally maternal borderline pathology mediated the relationship between maternal inhibition of (and lack of promotion of) autonomy and relatedness, and adolescent internalising (e.g., anxious depression, withdrawn depression) and externalising symptoms (e.g., aggression). The authors concluded that a lack of maternal promotion of offspring independence and close relationships might underlie maternal borderline features and their effect on offspring outcome. It should be noted, however, that this study was cross-sectional, and whilst difficulties with autonomy and relatedness may contribute towards the development of BPD, it is perhaps more plausible to hypothesise that parenting behaviours mediate the association between maternal BPD and offspring outcome.



***Maternal emotional dysfunction as a mediator.*** In a cross-sectional study, Gratz et al. (2014) reported a significant indirect association between clinically relevant levels of maternal BPD symptoms and infant emotional regulation difficulties via maternal emotional dysfunction (i.e., mothers with BPD were more likely to experience emotional dysfunction, which in turn increased risk of infant emotional dysregulation). More specifically, maternal emotion regulation difficulties mediated the association between maternal BPD symptoms and expressivity-related indicators of infant emotion regulation difficulties (e.g., intense emotional expressions). Further, maternal emotional intensity/reactivity facilitated an indirect effect of maternal BPD symptoms on lower infant self-focused emotional regulation (e.g., self-stimulation) only in infants with an insecure-resistant attachment relationship.

***Offspring characteristics as mediators or moderators of parenting and offspring outcomes.*** In a cross-sectional study of 6-14 year-old offspring, Abela et al. (2005) demonstrated that offspring cognitive and interpersonal vulnerabilities (i.e., ruminative response style, negative attribution style, dysfunctional attitudes, self-criticism, excessive reassurance seeking and insecure attachment style) partially mediated the relationship between parental BPD (84% mothers) and offspring current depressive symptoms. As highlighted by the authors, cognitive vulnerabilities only partly mediated the association, indicating that other factors not assessed in the study, such as emotional dysregulation (Gratz et al., 2014), may play a role in the association between parental BPD and offspring depression.

Within a community sample of adolescent girls, Zalewski et al. (2014) explored whether adolescent temperament (i.e., negative emotionality and low self-control) moderated the association between maternal BPD symptoms and parenting behaviours (i.e., control through guilt, lack of acceptance of individuation, harsh punishment). No significant moderating effect was found (i.e., the parenting patterns of mothers with BPD did not vary according to the temperament of their adolescent offspring).

## 4.5 Discussion

This systematic review examines the parenting and outcomes experienced by offspring of mothers with borderline personality pathology. It adds to the extant literature by highlighting the difficulties faced by mothers with both subsyndromal and syndromal levels of BPD, by exploring the outcomes of offspring from infancy to young adulthood, and by elucidating the potential mechanisms underpinning the transmission of vulnerability from mother to child. Before we summarise the main findings and contextualise within the extant literature, we consider the methodological limitations of the included studies and hence the limitations of the current review.

First, there was a degree of heterogeneity across studies in the operationalisation of parenting constructs and offspring outcomes. For example, insensitive parenting was referred to variously as: “maternal sensitivity” (Crandell et al., 2003), “insensitivity” (Kiel et al., 2011), “intrusive sensitivity” (Hobson et al., 2005) and “intrusiveness/negativity” (Hobson et al., 2009). Some studies combined constructs in composite variables; for example, Crandell et al. (2003) amalgamated insensitivity, warmth/hostility, and rejection/responsiveness into one construct. In contrast, other studies reported associations with individual construct measures. As such, any observed variance in results across studies may be somewhat attributable to study methodology. There was also heterogeneity in study method design (i.e., observational studies, mother-reports, adolescent-report, experimental designs). Whilst this may account for some variance, there were several instances of consistent findings across study types. For example studies converged in finding “difficult mother-child interactions” when using the still-face paradigm (Crandell et al., 2003), mother-report (Elliot et al., 2014), and mother-child play observation (Newman et al., 2007). Notably, the heterogeneity across studies in terms of definitions of parenting constructs and study design precluded a meta-analytic synthesis of the results. This highlights the future need for a more systematic approach to the operationalisation of specific parenting behaviours emitted more or less often by mothers with BPD (Zalewski & Lengua, 2012).

Second, participant selection criteria differed across studies. Mothers with BPD were not always the index sample (e.g., Bertino et al., 2012; Marantz & Coates, 1991), making comparisons across some studies difficult. Bertino et al. (2012), for example, selected their sample on the basis of offspring emotional and behavioural difficulties, likely confounding the observed associations with maternal parenting behaviours. In addition, a number of studies used healthy control groups only as comparators. Consequentially, we could not always ascertain whether certain parenting characteristics (and offspring outcomes) were specific to mothers with BPD or reflective of maternal psychopathology in general. However, when clinical comparisons were made, BPD specific associations were often indicated. Furthermore, the method of assessment of mother's BPD diagnosis differed across studies. To ensure that we presented a comprehensive review of the literature, we included studies exploring BPD symptoms in addition to those examining BPD diagnoses. Thus, some of our study findings referred to BPD on a subsyndromal level reducing clinical relevance (e.g., Kiel et al., 2011). Nevertheless, it is noteworthy that findings across clinical and non-clinical samples often converged within constructs, e.g., overprotection (Barnow et al., 2006; Elliot et al., 2014; Reinelt et al., 2014; Zalewski et al., 2014), and offspring insecure attachment (Abela et al., 2005; Gratz et al., 2014; Herr et al., 2008; Hobson et al., 2005). The age of offspring also varied with some samples crossing developmental stages, such as childhood and adolescence (e.g., Abela et al., 2005; Feldman et al., 1995), making it difficult to interpret whether findings were generalisable or age specific. Future studies with repeated intra-individual assessments may help identify differential age effects.

Third, in some cases there were too few studies in respective domains (e.g., maternal emotion recognition, rejection) to make inter-study comparisons or draw firm conclusions. Given the potential mediating role of poor maternal emotion regulation (Gratz et al., 2014) and parental rejection (Reinelt et al., 2014) in the transmission of vulnerability from mother to offspring, further investigation of these domains is indicated.

Fourth, the quality assessment showed a low-moderate risk of outcome/exposure bias, in particular with respect to researchers and coders not being blind to the mother's diagnosis. Further, our results may have been subject to publication bias due to the "file drawer" problem, however, given that non-significant findings are also of interest in this study population the likelihood of a results bias is potentially reduced.

Fifth, the review excluded child outcomes that required external intervention, such as the child being removed from the home. Whilst some children of mothers with BPD will experience neglect and/or abuse (e.g., Kauppi et al., 2012; Perepletchikova et al., 2012) child maltreatment is not restricted to mothers with BPD, or indeed mothers with other mental health diagnoses, and additional risk factors may be involved such as partner/family violence, serious marital problem, low socioeconomic status or poor education (Chaffin et al., 1996; Department of Human Services, 2013).

Finally, the majority of the studies, with a few exceptions (Barnow et al., 2013; Reinelt et al., 2014; Stepp et al., 2013), were cross-sectional in design. Whilst some convergence of findings was seen between cross-sectional and longitudinal studies (e.g., offspring BPD), cross-sectional studies cannot take into account intra-individual development over time (Crone & Elzinga, 2015), making it difficult to draw conclusions regarding temporal precedence and aetiological mechanisms.

#### **4.5.1 The parenting characteristics of mothers with BPD/BPD Symptoms**

Accepting some inconsistencies across studies, we found that mothers with BPD/BPD symptoms appear less sensitive, more intrusive, more overprotective, more hostile, show less engagement, and are more likely to have maladaptive interactions (such as role-reversal, boundary confusion, fearful/hesitant behaviour) with their offspring than control mothers. This indicates that mothers with BPD may demonstrate inconsistent parenting characterised by over-involvement such as overprotection and inhibiting autonomy (e.g., Barnow et al., 2006; Elliot et al., 2014; Zalewski et al., 2014) on the one hand, and disengagement and hostility on the other

(e.g., Frankel-Waldheter et al., 2015; Herr et al., 2008; White et al., 2011). A similar pattern of under-and over involvement was previously hypothesised to be unique to mothers with BPD (Stepp et al., 2012), and has been observed in subsequent studies in this review (e.g., Frankel-Waldheter et al., 2015; Reinelt et al., 2014).

Furthermore, recent studies highlight a reluctance to promote independence as an additional parenting behaviour that may be characteristic of mothers with BPD (Frankel-Waldheter et al., 2015) or mothers with BPD symptoms (Zalewski et al., 2014).

While our review indicates various parenting problems for some mothers with borderline personality pathology, findings do not suggest that these mothers lack a desire to care for their child. Indeed, studies measuring overprotection found that mothers reported a concern for their child's health and safety (Elliot et al., 2014; Reinelt et al., 2014; Zalewski et al., 2014). This suggests that mothers want to parent well but may lack the necessary "tools" to effectuate optimal parenting. The parenting stress and lack of efficacy that mothers with BPD report (Elliot et al., 2014; Newman et al., 2007) further highlights the parenting difficulties mothers with BPD face. These likely arise from a combination of factors including (but not limited to) individual BPD symptoms such as emotional dysregulation (Gratz et al., 2014), symptom severity (e.g., Elliot et al., 2014), comorbid psychopathology (e.g., Abela et al., 2005), and mothers' own childhood experiences (Bandelow et al., 2005; Zanarini et al., 1997). Precisely how parenting strategies unravel between mother-offspring dyads (i.e., frequency, duration and magnitude of under/over involvement) requires further explication.

From the limited studies utilising clinical control groups (or statistically controlling for other psychopathology) there is some evidence that maternal borderline personality pathology is specifically associated with parenting behaviours including overprotection (Barnow et al., 2006), control through guilt (Zalewski et al., 2014), maternal hostility (Herr et al., 2008), and fearful/hesitant behaviour (Hobson et al., 2009). The potential ramifications of such parenting strategies are high, including offspring anxiety (van der Bruggen et al., 2010), behavioural problems (Gere et al.,

2012), social anxiety (Spokas & Heimberg, 2009) and BPD (Bezirgianian et al., 1993); many of which were observed within the review studies (see below). More studies with clinical control groups (e.g., depression, bipolar disorder) are now needed to further clarify the specificity of these and other parenting behaviours to maternal BPD.

#### **4.5.2 Offspring outcomes across developmental domains**

A range of psychopathological and psychosocial outcomes for offspring of mothers with BPD were observed across several stages of development, tentatively indicating that the negative effects on offspring may be enduring.

Studies, on the whole, reported associations between maternal BPD/BPD symptoms and offspring individual BPD symptoms/features (e.g., emotional dysregulation, insecure attachment, depression, internalising and externalising problems, and interpersonal problems) in infancy (Crandell et al., 2003; Gratz et al., 2014; Hobson et al., 2005; White et al., 2011), childhood/adolescence (Abela et al., 2005; Barnow et al., 2006; Jellinek et al., 1991; Macfie & Swan, 2009), and adolescence (Herr et al., 2008; Zalewski et al., 2014). This indicates that these difficulties may manifest across several stages of development, heightening risk of future psychopathology (Winsper & Wolke, 2014) and BPD in particular (Carlson et al., 2009; Crowell et al., 2009). Indeed, studies were consistent in reporting a significant positive association between maternal and offspring BPD diagnosis in children (Weiss et al., 1996), and also between maternal BPD/BPD symptoms and offspring BPD symptoms in adolescent (Barnow et al., 2013; Cheng et al., 2011) and adult (Stepp et al., 2013) populations. Despite ongoing controversy regarding the diagnosis of BPD in children and adolescents, recent literature demonstrates that the BPD diagnosis in youth is of comparable reliability and validity to the adult diagnosis (Kaess et al., 2014; Winsper et al., 2016), shows similar levels of stability (Winsper et al., 2015), and is of great clinical relevance (Newton-Howes et al., 2015). How psychopathological problems evolve in individual offspring of mothers with BPD, however, requires corroboration with prospective repeated assessment studies.

Collectively, studies demonstrate that offspring of mothers with BPD are a high-risk population who are at increased risk of developing psychosocial and mental health problems across developmental domains. Potential difficulties may even be evident at the perinatal stage (Blankley et al., 2015), though research pertaining to pregnant mothers with BPD is currently scant. The main findings from the review may be interpreted within a developmental psychopathology framework e.g., the biosocial developmental model (BDM; Crowell et al., 2009). Infants of mothers with BPD may inherit a biological vulnerability to emotionality/negative affectivity (Crandell et al., 2003; Hobson et al., 2005), which is potentiated across development by environmental risk factors (Crowell et al., 2009). Aside from potential heritability and other possible risk factors (e.g., in utero stress or substance exposure, sharing of a toxic environment), parental invalidation has been hypothesised as one mechanistic factor underpinning the transmission of BPD from mother to child (Crowell et al., 2009; Stepp et al., 2012). Recent mediational studies indicate that the transmission of BPD symptoms, either collectively or individually (e.g., emotional dysregulation) may be partly explained by an increased risk of insensitive, rejecting and hostile parenting (Macfie et al., 2014; Reinelt et al., 2014), and maternal emotional dysfunction (Gratz et al., 2014). In this way maladaptive transactions between offspring and mother, and other individuals such as peers (Barnow et al., 2006) and family members (Feldman et al., 1995) may continue. Over time these transactions may give rise to increasing levels of emotional (Barnow et al., 2006), interpersonal (Herr et al., 2008), cognitive (Macfie & Swan, 2009) and behavioural (Bertino et al., 2012) dysregulation, until they finally coalesce into a mental disorder (Crowell et al., 2009). One likely outcome is the development of BPD in childhood or adolescence (Cheng et al., 2011; Reinelt et al., 2014; Stepp et al., 2013; Weiss et al., 1996). As BPD in adolescence is predictive of BPD in adulthood (Winsper et al., 2015), the transmission of BPD (as described above) may continue across successive generations (Stepp et al., 2012). Other outcomes are also likely such as emotional and behavioural dysregulation (Barnow et al., 2006; Bertino et al., 2012), which have been found to predict multifinial outcomes (Abela et al., 2005; Crowell et al., 2009). Of note, resilience factors (e.g., secure attachment) may prevent transmission of symptoms from mother to child (Gratz et al., 2014). Recent research with

adolescents found attachment security served as a buffer by enhancing positive emotion regulation strategies, whilst decreased use of positive emotion regulation strategies mediated the relationship between attachment insecurity and adolescent BPD features (Kim et al., 2014).

#### **4.5.3 Research and clinical implications**

Not all children of mothers with BPD will go on to develop BPD or other psychopathology. However, offspring of mothers with BPD present an ideal cohort for studying the development of BPD, as these samples will yield a higher proportion of individuals actually developing the disorder (Stepp et al., 2012). This will allow for the prospective examination of processes underpinning the development of clinically relevant levels of BPD from pregnancy onwards (De Genna et al., 2012; Winsper et al., 2014). By investigating the perinatal period, findings could help elucidate early risk factors e.g., prematurity and poorer health of child at birth (Blankley et al., 2015), which may impact on child outcomes and/or mother-child relationships. Systemic factors, such as poverty, partner aggression and disordered extended family members, and factors that may provide resilience against offspring psychopathology (Bartsch et al., 2015; Kim et al., 2014) should also be explored. Concurrently assessing various offspring psychopathologies (e.g., BPD, depression, and substance use disorder) may help elucidate the determinants of multifinality of outcome across development.

We only identified 5 studies recruiting participants who did not speak English as their first language making it difficult to definitively ascertain whether there are cross-cultural variations in the parenting styles of mothers with BPD. In view of the potential impact of culture on what is perceived as “adaptive” or “maladaptive” parenting (Sorkhabi & Mandara, 2013) this may be a fruitful area for future research.

Prospective studies would also provide the opportunity to study intra-dyad transactional dynamics, parenting strategies (including potential frequency, duration and magnitude of over/under involved polarised parenting behaviours) and developmental differences in parenting and child outcomes over time. Observing



parenting behaviours within the framework of other factors such as the mother's specific BPD symptoms, symptom severity and comorbid psychopathology, would help target key areas for intervention.

Our review highlights several prevention and early intervention opportunities. Insecure attachment (Macfie et al., 2014) and emotional dysregulation (Gratz et al., 2014) are important targets for both mothers with BPD and their offspring. Intervention from pregnancy onwards including dyadic infant-parent psychotherapy (Macfie et al., 2014; Wendland et al., 2014), parent skills training (Perrin et al., 2014), and mentalisation-based treatment (Bateman & Fonagy, 2010) could help prevent the intergenerational transmission of insecure attachment patterns and self-regulation problems. Intervening early could help prevent offspring from embarking on a maladaptive developmental trajectory. As BPD symptoms often become apparent in adolescence (Chanen & Kaess, 2012) and may be more responsive to treatment than in adulthood (Lenzenweger & Castro, 2005), intervention at this point would be timely. Programmes that have limited exclusions for co-morbid psychopathology (common with BPD) and that combine subsyndromal and syndromal BPD symptoms, e.g., Helping Young People Early programme (HYPE, Chanen et al., 2009), could provide both intervention and prevention strategies (Chanen & McCutcheon, 2013). A degree of improvement of symptoms has been previously observed with treatments such as cognitive analytic therapy (Chanen et al., 2008), dialectic behavioural therapy, and mindfulness-based training (e.g., Rossouw & Fonagy, 2012) (for a detailed review see Sharp & Fonagy, 2015). Combined therapy with mother and offspring may also help by targeting dyadic interactions (e.g., joint therapy for managing emotion dysregulation). Similarly, interventions which increase the mother's awareness of how their BPD symptoms impact on parenting behaviours and offspring outcomes (Bartsch et al., 2015; Zalewski et al., 2015) may help further improve mother-offspring interactions. For example, a lack of promotion of offspring independence could be associated with mother's fear of abandonment difficulties (Frankel-Waldheter et al., 2015; Zalewski et al., 2014). There are no current interventions specifically designed for mothers

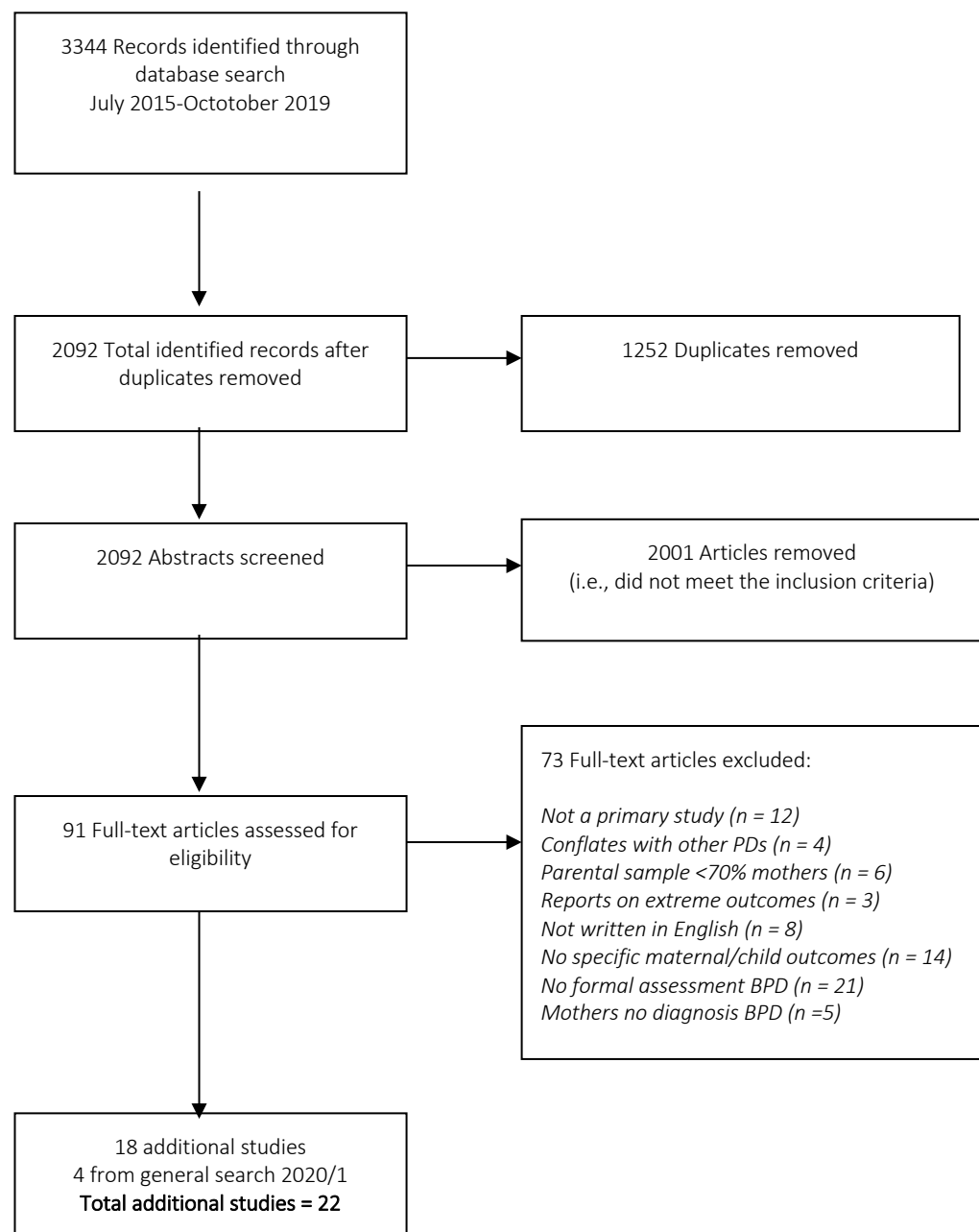
with BPD and their children, therefore, future endeavours could include the design and evaluation of tailored interventions for this cohort of mothers and children.

Whilst this review could not definitively cite many parenting behaviours as unique to mothers with BPD, the differences found between mothers with borderline personality pathology and healthy control mothers indicate many ineffectual parenting characteristics. With greater consistency of parenting constructs and BPD assessment, future research may continue to identify the specific parenting behaviours of mothers with BPD. Considering the poor outcome trajectory for some offspring of mothers with BPD, timely interventions for both mother and offspring to prevent distress and persistent functional impairment are warranted.

#### 4.6 Updated Review of the Studies of Mothers with BPD: Parenting and Child Outcomes and Potential Mechanisms

This section provides an updated review of the maternal BPD parenting and offspring literature since publication of the systematic review in 2016. A systematic search was undertaken from July 2015 to October 2019 using identical databases and search criteria as in the original review; a further general search was made covering the time from November 2019 to July 2021. The combined searches identified 22 new studies (see figure 4.2), which are summarised in table 4.5.

**Figure 4.2:** *Flowchart of the search and selection process for the updated review*  
(Source: PRISMA, Moher et al 2009)



**Table 4.5:** *Updated SR summary of studies of mothers with BPD and offspring of mothers with BPD*

First author (year)	Country	Offspring sample age	Mother sample & controls	BPD diagnostic tool	Design	Methodology	Main aims	Main findings of BPD mothers/offspring
Apter (2017)	France	Infants (3m)	19 BPD (clinics) 41 HCs (maternity wards)	SIDP-IV	Case-control	Still-face paradigm	To ascertain whether very young infants are at risk of early emotional dysregulation in stressful experiences	Infants of mothers with BPD had greater gaze aversion, less positive vocalisations and self-regulation behaviours were more affected Mothers with BPD showed less positive emotion, and were more intrusive at reunion, and had less positive vocalisation in play
Dittrich (2018)	Germany	School-age 5-12 yrs	19 BPD 71 rMDD Clinical and community	IPDE	Case-control	Questionnaires	Exploring emotion regulation as a mediator for abuse potential Effects on child psychopathology	Emotion regulation difficulties mediated the effects of BPD on abuse potential (BPD had no direct association with abuse potential). BPD associated with emotion regulation difficulties. Elevated abuse potential associated with higher psychopathology in the child
Dittrich (2020)	Germany	School-age 5-12 yrs	251 mothers 33 BPD 131 rMDD	IPDE	Case-control	Questionnaires	To disentangle the effects of BPD, rMDD, and ELM on empathy, and if empathy mediated the effects of BPD, rMDD, ELM on child psychopathology	Of the empathy subscales, elevated maternal distress in BPD & rMDD, lower levels of perspective taking in BPD, and indirect effect of maternal BPD and rMDD and child psychopathology via maternal distress. No direct or indirect associations were found with ELM
Dau (2021)	US	Pre-school, school-age, adolescents 3-18 yrs	214 community mothers 6 clinical BPD Mean symptoms 1.5	MSI-BPD	Cohort T1 clinical, self-report T2 repeat of self-report data	Questionnaires Online survey	To examine whether BPD symptoms are associated with parent-child relatedness factors and whether these factors contribute to child outcomes	Mothers with elevated BPD symptoms report more hostility towards their child, more child attributions for misbehaviour, and greater parent-child relationship dissatisfaction. Maternal BPD symptoms at time 1 did not predict child internalising / externalising 12m later
Haabrekke (2015)	Norway	Infants T1: in vitro T2: 3m T3: 12m T4: 24m	18 SMM 22 MH 30 HCs Clinical and community	MCMI-III (BPD assessed during pregnancy)	Cohort 4 time points	Questionnaires Semi-structured play Language skill assessment	To investigate the effects of maternal psychopathology, substance abuse and intrusiveness on early child language skills	No group differences found Maternal intrusiveness in mother-child interaction at 12m was significantly related to child less expressive language at 24m
Hatzis (2019)	Australia	Infants, preschool (12-42m)	17 SMM 17 SDM 17 HCs Clinical and Community	PAI-BOR	Case-control	Questionnaires Observation (EAS)	To assess child risk factors between groups, and underlying mechanisms	SMM and SDM had increased borderline pathology (BP) and lower EA. Environmental adversity (but not BP severity) mediated the relationship between maternal child trauma and observed EA BP severity associated with lower maternal sensitivity but not with child responsiveness

First author (year)	Country	Offspring sample age	Mother sample & controls	BPD diagnostic tool	Design	Methodology	Main aims	Main findings of BPD mothers/offspring
Hoivik (2018)	Norway	Infants (9-13m)	112 families With M-C rel problems 19 BP 15%	DIP-Q	Cohort T1: Clinical assessment T2: M-C obs	Questionnaires Observation (EAS)	To investigate the association between maternal personality disorder and mother-infant interactions	Maternal BP symptoms associated with increased hostility (marginal significance for lower sensitivity $p=.04$ ; adj $p=.08$ .09); BP predicted mother interaction behaviours only
Huntley (2017)	UK	Infants (31m)	251 dyads Community	SCID-II	Cohort T1: Clinical assessment T2: Questions	Questionnaires	Whether depressive symptoms in first 12m predict child externalising behaviours 2 ½ yrs, and if any association is explained by BPD	Maternal depression trajectory associated with elevated BPD symptoms in pregnancy. BPD symptoms mediated the relationship between depression and child externalising behaviours
Kaufman (2016)	US	School-age T1 : 11yrs T2 : 12yrs Depressed CD, or HCs	164 dyads Low SES community BPD/ASPD composite	SCID-II DISC-IV	Cohort T1: Child clinical assess T2 & T3: questionnaire	Questionnaires	To investigate the effects of child emotion regulation difficulties on the relationship between BPD/ASPD and child behaviour problems 1 yr on	Maternal BPD/ASPD associated with child internalising, externalising, and total symptoms. Child emotion regulation symptoms partially explained the relationship between maternal BPD/ASPD symptoms and child behaviour problems
Kim (2021)	South Korea	Preschool 4-5yrs	192 dyads community	PAI-BOR	Cohort Population - based	Questionnaires	To assess maternal personality features in preschool children with behavioural problems	Maternal borderline symptoms predicted child behaviour problems including internalising, externalising and dysregulation problems
Kiel (2017)	US	Infants (12-23m)	23 High BP 76 Low BP Community	BEST	Case-control	Questionnaires Lab-TAB observations	To examine punitive/minimising emotion socialisation strategies, infant anger and fear temperament and the moderating role of BPD symptoms	BPD symptoms were related to increased punitive/minimising maternal emotion socialisation strategies, mediated by maternal emotion regulation difficulties. Maternal BPD also strengthened the association between mother-reported infant anger and socialisation strategies
Kluczniok (2018)	Germany	School-age (5-12yrs)	8 BPD 28 BPD/rMDD 88 rMDD Clinical and Community	IPDE	Case-control	Questionnaires Observation (EAS)	To investigate the association between maternal EA and BPD/rMDD and the mediating effect on child behaviour problems	Mothers with BPD showed increased hostility rMDD was associated with decreased sensitivity. Maternal hostility mediated the association between BPD and child number of mental health disorders, and internalising, externalising behaviours
Kurdzial (2018)	US	56 Adolescents (14-18yrs)	28 BPD 28 HCs Clinical and Community	SCID-II PAI-BOR	Cross-sectional	Questionnaires	To explore the maltreatment experiences of adolescent offspring of mothers with BPD	93% offspring of mothers with BPD experienced maltreatment (compared to 69% HCs): more neglect, physical and emotional abuse (not sexual abuse) and higher borderline features. Maltreatment severity explained significant variance in borderline features

First author (year)	Country	Offspring sample age	Mother sample & controls	BPD diagnostic tool	Design	Methodology	Main aims	Main findings of BPD mothers/offspring
Lyons-Ruth (2019)	US/UK	Infants (12-18m)	10 + 3 BPD 22 + 9 HCs 15 Depression Community	SCID-II	Case-control 2 x Cohort	Questionnaires Strange situation	To explore the relationship between infant disinhibited attachment behaviour and maternal psychopathology, and associated mechanisms.	Infants of mothers with BPD more likely to be disinhibited in behaviour towards a stranger, and this was associated with the quality of m-c interactions. Maternal frightened/disoriented interaction partially mediated the relationship between BPD and infant disinhibited behaviour.
Macfie (2017)	US	School-age (4-7yrs)	36 BPD 34 HCs Low SES Clinical and Community	SCID-II PAI-BOR	Cross-sectional	Questionnaires Observation	To examine parenting of mothers with BPD with a goal-related task in relation to child disorganised attachment	Mothers with BPD were less sensitive, less likely to provide autonomy, more hostile, displayed more fearful/disoriented behaviour, and more role-reversal. Associations with parenting and borderline severity
Mahan (2018)	US	Adolescents (14-18yrs)	28 BPD 28 HCs Clinical and Community	SCID-II PAI-BOR	Case-control	Questionnaires Observation	To examine the relationship between maternal and adolescent borderline features and maternal psychological control in problem-solving interaction	Mothers with BPD used more psychological control in discussions. Maternal psychological control was associated with all maternal BPD features and adolescent affective instability (AI). Maternal AI mediated the relationship between maternal psychological control and adolescent AI.
Marcoux (2017)	UK/ Canada	Infants (12m)	10 BPD 20 + 8 HCs Community	SCID-II	Case-control 2 x study cohorts	Free play observation	To investigate how mothers with BPD mentalise when interacting with their infants	Mothers with BPD more likely to misinterpret their child's mental state cues and to make non-attuned comments. There was no difference in proportion of comments referring to infant's mental state.
Mena (2017)	US	School-age (4-7yrs)	36 BPD 34 HCs Clinical and community Low SES	SCID-II PAI-BOR	Case-control	Questionnaires Story-stem completion task	To explore validity of child temperament via mother report and child story-stem narratives	Mothers with BPD self-reported less effortful control and more negative affect. Infants of mothers with BPD showed more mother-reported negative affect when goals blocked, less ability to suppress inappropriate behaviour and more difficulty focussing on tasks (supported by story-stem)
Newman-Morris (2020)	Australia	Infants (0-12m)	27 high risk potential to infant 34 SM service (29 BPD) Community	BSL-23	Cross-sectional	Questionnaires Observation (EAS)	To investigate interrelationships between mother's distorted maternal representations (DMRs), trauma history, mentalisation, and interaction with their infants	BPD features mediated the relationship between maternal trauma history and DMR's predicting interaction difficulties. Maternal mentalisation buffered the effect of DMRs on maternal hostility. BPD features moderated mentalisation – DMRs

First author (year)	Country	Offspring sample age	Mother sample & controls	BPD diagnostic tool	Design	Methodology	Main aims	Main findings of BPD mothers/offspring
Pare-Miron (2016)	US	Foetus, neonates	989 BPD 8486,903 HCs	ICD-9 DSM-IV	Cohort 2003-2012	Data-set analysis of HCUP-NIS	To evaluate the effect of BPD on obstetrical and neonatal outcomes	BPD was associated with increased risk of almost all adverse maternal and foetal outcomes. After adjustment BPD was associated with gestational diabetes, premature rupture, chorioamnionitis, venous thromboembolism, caesarean delivery, and pre-term births
Trupe (2018)	US	School-age (4-7yrs)	36 BPD 34 HCs Low SES Clinical and Community	SCID-II PAI-BOR	Case-control	Observations (EAS; Person - centred analysis) Story-stem completion task	To examine patterns of EA rather than specific EA behaviours in mothers with BPD using person centred analysis including additional risk factors.	Results combined BPD and HC groups for EA measures and cluster analysis. 4 clusters: high-functioning, low-average, asynchronous (above average on non-intrusiveness/hostility; below average on sensitivity and structuring), low functioning. Children in the low-functioning group had increased risk factors for developing BPD and more concerning story narratives. Power too low for BPD specific conclusions
Zalewski (2018)	US	Preschool (3-4yrs)	68 dyads 49% had 5 or more BPD symptoms	PAI-BOR	Cross-sectional	Executive function (EF) and theory of mind (ToM) tasks	To investigate the association between maternal BPD features and EF and ToM measures	Maternal BPD features were associated with poorer offspring EF, and affect perspective taking (a component of ToM), but not associated with the overall ToM measure.

Notes: ASPD = anti-social personality disorder; BEST = Borderline Evaluation of Severity over Time; BP = borderline pathology; BPD = borderline personality disorder; BSL-23 = Borderline Symptom List-23; CD = conduct disorder; DISC-IV = Diagnostic Interview Schedule for Children and Adolescents; DIP-Q = ICD-10 Personality Questionnaire; DSM-IV = Diagnostic and Statistical Manual of Mental Health Disorders -IV edition; EA = emotional availability; EAS = Emotional Availability Scale; EF = executive function; ELM = early life maltreatment; HCUP-NIS = Healthcare Cost and Utilization Project, Nationwide Inpatient Sample; ICD-9 = International Classification of Diseases -9<sup>th</sup> edition; IPDE = International Personality Disorder Examination; M-C = mother-child; MCMI-III = Millon's Clinical Multiaxial Inventory-III; MDD = major depressive disorder; MH = mental health; MSI = McLean Screening for borderline personality disorder; rMDD = major depressive disorder in remission; PAI-BOR = Personality Assessment Inventory - borderline scale; PTSD = post-traumatic stress disorder; SDM = socially disadvantaged mothers; SMM = substance misuse mothers; SIDP-IV = Structured Interview for DSM-IV Personality; SCID-II = Structured Clinical Interview for DSM-IV Axis II Disorders; ToM = theory of mind

#### **4.6.1 Study characteristics**

Studies included 11 case-control, 4 cross-sectional, and 7 cohort studies. Offspring age range was varied, with some studies covering more than one developmental stage: infants ( $n=9$ ), preschool ( $n=4$ ), school-age ( $n=8$ ), adolescents ( $n=3$ ), during pregnancy ( $n=1$ ). A number of countries from 3 continents were represented, 7 where English was not the first language. Studies assessed several parenting behaviours (i.e., sensitivity, intrusiveness, hostility, negative affect, emotion socialisation strategies, maternal frightened interaction, role-reversal, autonomy promotion, psychological control, interpretation of child's mental state cues, vocalisations, empathy, and pregnancy outcomes), and various offspring outcomes (i.e., psychopathology, executive function, negative affect, task focus, theory of mind, interaction behaviours).

#### **4.6.2 Parenting behaviours and perceptions**

Maternal BPD was associated with reduced sensitivity (Hatzis et al., 2019; Høivik et al., 2018; Macfie et al., 2017), more intrusiveness (Apter et al., 2017), and increased hostility (Dáu & Milan, 2021; Høivik et al., 2018; Kluczniok et al., 2018) than healthy comparison mothers (mothers with major depressive disorder in remission [rMDD] for Kluczniok et al., 2018). These findings of parenting behaviours were very much in line with what was found in the 2016 systematic review. Mothers with BPD and rMDD had elevated maternal distress (i.e., emotional reactions to interpersonal situations), and lower levels of perspective taking (Dittrich et al., 2020). Moreover, mothers with BPD were more likely to use emotion socialisation strategies that were more punitive and minimising (Kiel et al., 2017), and more likely to blame their children for misbehaviour (Dáu & Milan, 2021). Communications were less positive with their infants (Apter et al., 2017). Greater psychological control in verbal interactions was found with the adolescents of mothers with BPD compared with normative comparisons (Mahan et al., 2018), and as with Frankel-Waldheter et al. (2015) mothers with BPD were less likely to promote autonomy with their children (Macfie et al., 2017). Consistent with Newman et al. (2007) increased BPD symptoms were associated with greater dissatisfaction in the mother-child relationship (Dáu & Milan, 2021).



#### **4.6.3 Mother-offspring interaction dynamics**

Mothers with BPD displayed more negative affect (i.e., fewer smiles, Apter et al., 2017) and self-reported negative affect (Mena et al., 2017), displayed more fearful/disoriented behaviours (Lyons-Ruth et al., 2019; Macfie et al., 2017), and more role-reversal in interactions with their offspring (Macfie et al., 2017). There were no differences in proportions of vocalisations, however mothers with BPD were more likely to misinterpret signals regarding their infant's emotional state and make comments that were ill-attuned (Marcoux et al., 2017). Infants showed greater gaze aversion, and less positive vocalisations (Apter et al., 2017). Children of mothers with BPD self-regulated more in the strange-situation mother reunion (Apter, 2017), and showed more disinhibited behaviour with a stranger (Lyons-Ruth et al., 2019). These interaction findings from both mother and child echo what was found in the previous review.

#### **4.6.4 Offspring outcomes**

Studies of offspring outcomes included pre-term/birth complications, reduced cognitive function, behavioural difficulties, and child psychopathology. As with the 2016 review, offspring of mothers with BPD experience more childhood adversities (Kurdziel et al., 2018), with maternal BPD associated with a range of gestational and neonatal complications, such as ruptures, embolisms and pre-term births (Pare-Miron et al., 2016). Mothers with BPD report their infants as having more negative affect, less task-oriented focus, and less ability for their infant to suppress inappropriate behaviour (Mena et al., 2017). Building on these findings of lower inhibitory control and attention focus (Mena et al. (2017), maternal BPD was also associated with poor offspring executive functions and a component of theory of mind known as affect perspective taking (Zalewski et al., 2018). Findings from a longitudinal study showed maternal intrusiveness at 12 months was significantly related to less expressive language in the child at 24 months (Haabrekke et al., 2015), reflecting the potential impact of poorer quality of vocalisations found previously in mothers with BPD (Delavenne et al., 2008). Furthermore, Maternal BPD was found to be associated with child internalising and externalising symptoms (Kaufman et al., 2016; Kim et al., 2021), and maternal psychological control

associated with greater affective instability in adolescents (Mahan et al., 2018). While maternal BPD symptoms did not directly predict internalising/externalising behaviours in their children over 12 months, parent-child relatedness variables interacted with BPD symptoms predicting increased internalising and externalising scores over time (Dáu & Milan, 2021). Findings are similar to studies in the 2016 review that reported behavioural difficulties in children of mothers with borderline personality pathology, particular externalising behaviour. Internalising behaviour had however previously been inconclusive, but the additional recent studies confirm that children of mothers with BPD are likely to be at higher risk for internalising difficulties.

#### **4.6.5 Potential mechanisms underpinning transmission of vulnerability from mother to offspring**

Eight studies used mediation or moderation analyses to assess possible mechanisms underpinning maternal BPD behaviours and the transmission of vulnerable behaviour from mother to child.

***Maternal BPD and BPD pathology as a mediator/moderator.*** The use of BPD as a mediator or moderator is new for this review update. One study utilising moderation analysis (Newman-Morris et al., 2020) found that maternal BPD features strengthened the relationship between mother's mentalisation and distorted maternal representations (i.e., disturbed thoughts/feelings about the infant and poor self-parenting perceptions). BPD features also potentially explained the relationship between mother's trauma history and distorted maternal representations, which in turn predicted interaction difficulties with the infant (Newman-Morris et al., 2020). Assessing the role of depression and BPD on child behaviour problems, Huntley et al. (2017) found maternal BPD mediated the association between mother's depression at 12 months and child externalising behaviours at 24 months (Huntley et al., 2017).

**Maternal adversity as a mediator.** Using multiple mediation analysis, a study of substance misuse mothers and socially deprived mothers reported that environmental adversity rather than borderline personality features mediated the relationship between maternal child trauma and maternal emotional availability (Hatzis et al., 2019). The authors concluded that the lack of association with BPD features and quality of caregiving was likely due to the considerable shared variance between environmental risk and BPD.

**Emotional dysfunction as a mediator.** Similar to Gratz et al. (2014), a case-control study (Mahan et al., 2018) explored the mediating effect of maternal emotional difficulties on adolescent emotional difficulties. The relationship between maternal psychological control (rather than maternal BPD as in Gratz et al., 2014) and their adolescent's affective instability was mediated by maternal affective instability (Mahan et al., 2018). Severity of maternal emotional regulation difficulties mediated the association between BPD and mother's self-report of child abuse potential (i.e., the adverse factors associated with child abuse and neglect) (Dittrich et al., 2018). Maternal personal distress (but not lower perspective taking) was also found to mediate the association between maternal BPD and child psychopathology (Dittrich et al., 2020). When looking at child emotion difficulties in a cohort study of low SES mothers, child emotion regulation partially explained the relationship between maternal BPD/ASPD symptoms and child behaviour problems (Kaufman et al., 2016).

**Maladaptive parenting as a mediator.** As with the 2016 review, maladaptive parenting was found to mediate the relationship between maternal BPD and child outcomes. An observational study of mothers with BPD and/or major depressive disorder in remission found that maternal hostility mediated the relationship between maternal BPD and child internalising symptoms, externalising symptoms, and total number of mental health disorders (Kluczniok et al., 2018). When combining the cohorts from two previous studies (Hobson et al., 2005; Lyons-Ruth et al., 1990), the association between maternal BPD and infant disinhibited behaviour was found to be partially explained by maternal frightened/disoriented behaviour (Lyons-Ruth et al., 2019).

#### **4.6.6 Summary and conclusions**

Where parenting behaviours and offspring outcomes replicated measures previously explored, each were consistent with the published systematic review findings. Some additional new findings were identified for parenting behaviours, e.g., punitive, minimising emotion socialisation strategies (Kiel et al., 2017), psychological control in discussions (Mahan et al., 2018), and lower perspective taking on the empathy subscale (Dittrich et al., 2020). Each of these suggest lower maternal sensitivity and higher intrusive parenting behaviours in mothers with BPD. Novel offspring outcomes were also found including disinhibition with a stranger (Lyons-Ruth et al., 2019), poor offspring executive functions (Zalewski et al., 2018), less expressive language in infants with increased maternal intrusiveness (Haabrekke et al., 2015), and gestational difficulties (Pare-Miron et al., 2016). All findings were not surprising and were typically consistent with what would be expected from the extant BPD literature. An increase was seen in the number of recent studies using moderation and mediation analyses, which has provided a greater understanding of the possible mechanisms that underpin the transmission of vulnerability from mother to child and highlighted key areas for future intervention.

## CHAPTER FIVE

### RESEARCH STUDY RATIONALE AND RESEARCH QUESTIONS

#### *Overview and study rationale*

The systematic review of the parenting of mothers with borderline personality disorder (chapter four) identified multiple parenting difficulties and offspring outcomes of mothers with BPD. Given that parenting was found to be a potential mechanism for the transmission of poor outcomes from mother to child, the difficulties identified with parenting and mother-child interactions are of particular importance. Notably, as the mother-child dyad relationship is paramount for healthy emotional development and future relationships, the emotional availability of mother and child were considered a pertinent area of investigation.

The following empirical studies in this thesis address some of the concerns identified in the review. First, it is not clear whether mothers with BPD have an understanding of what good parenting looks like or whether their typical childhood experiences have impacted on their parenting schemas. As such, the research aimed to address the question regarding levels of parenting knowledge and investigated the impact of knowledge on parenting perceptions and behaviours. Mother's perceived parenting self-efficacy, parenting knowledge of ideal parenting, and observations of their emotional availability behaviours were each explored. Childhood adversity and social support availability were also assessed given the influence of these factors on parenting behaviour and self-efficacy beliefs, and to enable exploration of any potential impact these have on parenting knowledge (Angleley et al., 2015; George & Solomon, 2008; Jones & Prinz, 2005; Shumow & Lomax, 2002).

Second, few prior studies of maternal BPD included depression as a clinical comparison, precluding diagnosis specificity. As such, data were collected from three groups of mothers: Mothers with BPD, a clinical comparison group of mothers with depression, and a healthy comparison group of mothers with no mental health difficulties. This permitted exploration of BPD specifically and psychopathology more

generally to gain an understanding of what is potentially driving the parenting perceptions, knowledge, and behaviour outcomes. Further, with a shift to conceptualising mental health in terms of severity rather than diagnosis alone, the aim was to analyse data from both a categorical and dimensional level to encapsulate diagnosis and severity respectively. Finally, the review highlighted potential difficulties regarding comparison of findings due to heterogeneity in methodologies and interpretation of constructs. To explore this issue two different observation coding methods were used.

The study research objectives and research questions follow below, with detailed methodology descriptions in chapter six. Chapter seven includes the findings from maternal self-perceptions of parenting and parenting knowledge (study two); chapter eight comprises the EA behaviours from the mother-child observations (study three); and finally, analyses exploring specific EA subscale behaviours and a comparison of mother-child behaviour constructs from the two coding methods are presented in chapter nine.

### **5.1 Maternal Self-Perceptions and Knowledge of Parenting (Chapter Seven)**

Findings from the systematic review showed mothers with BPD were more overprotective with their children than mothers with no mental health difficulties (Eyden et al., 2016; chapter four). However, further examination of the studies indicated a strong desire to parent well, prompting the question of whether mothers with BPD know what effective parenting looks like or whether previous parenting experiences have created maladaptive parenting schemas. Chapter two highlighted the impact of parenting knowledge on other aspects of parenting, such as parenting satisfaction and parenting competence (e.g., Bornstein, 2003). It also showed that parenting self-efficacy has strong associations with parenting practices, parenting perceptions, and appropriate child development expectations (Bandura, 1989; De Hann et al., 2009; Meunier et al., 2011; Repetti & Wang, 2014). As no studies have yet to examine the parenting knowledge acquired by mothers with BPD nor investigated the relationship between parenting self-perceptions and maternal

parenting knowledge in this group of mothers, both were explored in this study. Using a Q-sort task to measure mothers' knowledge of ideal sensitive parenting and a self-report questionnaire to assess mothers' perceived parenting self-efficacy, this study addressed the following key research questions.

### **Research questions**

- How does maternal knowledge of ideal parenting compare between mothers with BPD, depression, and mothers with no mental health difficulties?
- How do self-perceptions of parenting efficacy compare between mothers with BPD, depression, and mothers with no mental health difficulties?
- Which variables (childhood adversity, symptom severity, perceived social support) are most associated with group differences?

### **5.2 Observations of Mother and Child Emotional Availability (Chapter Eight)**

The systematic review of the literature (chapter four) found mothers with BPD are more likely to display less sensitive and more hostile, intrusive behaviours, with their children showing less engaged and less responsive interaction. Chapter two discussed the importance of the mother-child relationship for positive offspring developmental outcomes, in particular the emotional availability of the dyad being crucial to this relationship. The intention of exploring the EA construct was to encapsulate the degree to which the mother is accessible to the child whilst also capturing the extent to which the child responds to and involves the mother (Biringen & Robinson, 1991). This study is the most comprehensive to date investigating all maternal and child EA constructs (and the EA behaviours that underpin each construct) in mothers with BPD and is the first to explore the EA categories of these mothers and their children. By using an observational method and interpreting via the Emotional Availability Scales, and the Emotional Availability and Attachment Screener (see chapter six for details), the following research questions were addressed.

## Research questions

- How do mothers with BPD compare to mothers with depression and mothers with no mental health difficulties on observed EA behaviours and EA categories?
- How do children of mothers with BPD compare to children of mothers with depression and mothers with no mental health difficulties in observations of their EA behaviour with their mother and EA categories?
- Which variables are most strongly associated with maternal EA constructs and child EA constructs?

To explore the specific behaviours of the broader EA constructs two sub-questions (chapter nine) were addressed:

- How do mothers with BPD and mothers with depression (and their children) differ in behaviours on the EA subscales?
- How do clinical mothers and their children differ from healthy mothers and their children on the EA subscales?

## 5.3 Assessment of Mother-Child Interaction using Etch-A-Sketch:

### Comparison with an Alternative Observational Coding Method (Chapter Nine)

The systematic review found a degree of heterogeneity across construct descriptions and methodology of the included studies, and while this made comparison difficult and precluded meta-analysis, some convergence in study findings were seen (section 4.5). Correspondingly, to explore whether similar mother and child behaviours to the broad EA constructs were found when comparing two different coding methods, observations were coded using quantitative and qualitative coding methods. In addition to the EAS, the Etch-A-Sketch task section of the play observation was additionally coded using the Assessment of Mother-Child Interaction using Etch-A-Sketch (AMCIES; Wolke et al., 1995). The AMCIES scales provide quantitative count and proportional data in contrast to the EA scales which adopt a qualitative global approach to observation interpretation, enabling comparison of the two coding methods. The AMCIES measures of maternal verbal/non-verbal control, and



sensitivity, and the child measures of persistence and attention on task, and readiness for social interaction were used to parallel with the EA constructs of non-intrusiveness, sensitivity, child responsiveness and child involvement respectively. The aim was to investigate whether these two coding methods produced similar findings or whether construct heterogeneity (as found in the systematic review) precluded this. The following research questions were explored.

### **Research questions**

- Do mothers with BPD and their children differ from mothers with depression or no mental health difficulties (and their children) on the AMCIES scales?
- Are similar results to those using the EAS constructs found when using the constructs defined by AMCIES?

## CHAPTER SIX

### METHODOLOGY

#### *Overview*

The following studies used a quasi-experimental design incorporating multiple tasks to explore various angles of parenting including questionnaires, observations, and a Q-sort task. This approach was adopted to enable triangulation of data from these different sources thereby providing information on the mothers' current mental health circumstances, past childhood experiences, and level of social support, perceptions of their own parenting efficacy, understanding/knowledge of an ideal sensitive parent, and behaviours when parenting their child in a play task scenario. To ensure robust reporting the Strengthening the Reporting of Observational studies in Epidemiology (STROBE) guidelines (von Elm et al., 2007) were followed. The following sections detail the ethical procedure, recruitment process and sample, measures and instruments used, study procedures, data processing, and statistical treatment.

#### **6.1 Ethical Procedure**

As this research necessitated the recruitment of clinical groups, National Health Service (NHS) ethical approval and permissions were required. The ethics application included details regarding the study aims, methodology, statistical treatment, impact on the research participant, handling of potential adverse reactions, and storage of participant data (see Appendix H). The application and supporting documents (table 6.1) were submitted to the University of Warwick Research and Impact Service (RIS), NHS Research Ethics Committee (REC), Health Research Authority (HRA), and individual NHS Trusts.

The REC is an independent review board consisting of 18 individuals, a third of whom are lay people. Their role is to protect the rights, wellbeing, safety, and dignity of participants undertaking studies within the NHS, and to ensure the research is deemed ethical. The HRA is the governing body for health and social care research in the UK. In the ethics process the HRA assesses governance and ensures the quality,

transparency, and legal compliance of the research, allowing the individual NHS Trusts to focus on the assessment of capacity and capability (see Figure 6.1 for the ethical approvals process). Attendance at the REC meeting resulted in a ‘favourable opinion’ to proceed with the study. Subsequent approvals, permissions, and access from the HRA and participating NHS trusts were also granted. All study amendments were submitted to the RIS, REC, and HRA for approval via a similar, albeit briefer, process (see Appendix I).

**Table 6.1:** *Supporting documents for NHS, REC, and HRA applications*

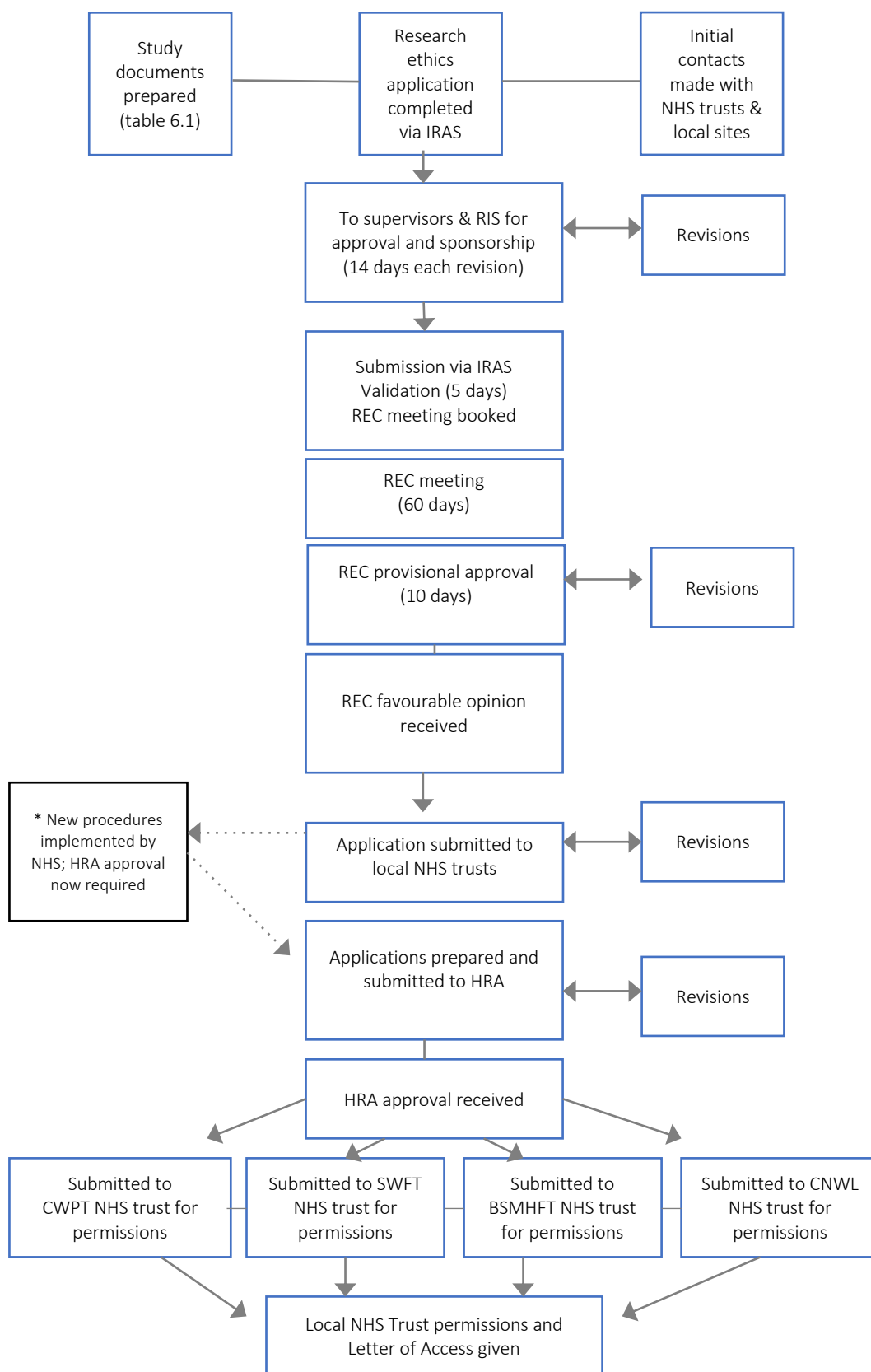
Document type	Description
Research governance protocol	Containing full study aims, design and procedures
Statement of activity (HRA)	Information of funding for research costs, proposed sites, support, and additional services required
Schedule of events (HRA)	Informs of proposed activity location and staff involved
Summary CVs	Principal investigator and supervisor CVs
Insurance certificate	Evidence of sponsor insurance and indemnity
Letter from sponsor	Sponsor confirmation of support of the study
Posters	5 versions <sup>†</sup> including: mothers with mental health difficulties, BPD, depression, BPD or depression, no mental health issues
Consent to contact form	4 versions <sup>†</sup> : Mothers with mental health difficulties, BPD only, depression, no mental health difficulties
Participant consent form	3 versions <sup>†</sup> : For all mothers, for adolescents, and children (assent)
Participant information sheet	6 versions <sup>†</sup> : Mothers with BPD, symptoms consistent with BPD, with depression, no mental health difficulties, adolescent, child
Participant screening	Questions to screen participants for inclusion in the study
Study questionnaires & materials	Participant demographics, PHQ-9, PAI-BOR, ACE-IQ, SOS, TOPSE, Mother behaviour statements for the Q-sort task
Useful contact details	Contact details for the participant to use if required post study and informative website addresses - 3 versions <sup>†</sup> : Mothers with BPD, with depression, no mental health difficulties

Notes: See appendices J-S for examples of study materials

Questionnaires are described in full in the Measures section 6.3

<sup>†</sup> For each NHS trust

**Figure 6.1:** *NHS ethics application and approvals process*



## 6.2 Training

A number of training courses and codes of practice were considered essential to undertake this research and comply with REC requirements. Training included:

- NHS NIHR Introduction to good clinical practice: Primary care
- NHS NIHR Introduction to good clinical practice: Secondary care  
(Both NHS courses covered topics such as, conducting research within the NHS, good clinical practice and standards in research, study set up and responsibilities, informed consent, data collection and documentation, safety reporting)
- NSPCC Introduction to child protection  
(Codes of conduct, recognition of possible child abuse, and how to respond appropriately, report concerns about a child, and record observations)
- St John Ambulance – Essential first aid all ages with automated external defibrillator (AED) demonstration  
(Dealing with serious conditions and incidents including bleeding, chest pain, and choking; emergency life support for adults, children, and infants; treatment of unresponsive casualties, AED operation)
- Managing conflict  
(Identifying conflict, emotional awareness, negotiation, conflict resolution)
- Understanding and implementing a number of processes and protocols to support my wellbeing and safety including NHS and University of Warwick lone working policies, child safeguarding procedures, and fast-track counselling process
- An Enhanced Disclosure and Barring Service certificate was also attained to enable face-to-face contact with minors

## 6.3 Recruitment

### 6.3.1 Eligibility

For inclusion in the study all mothers had to be:

- Over 18 years of age
- Fluent in English language
- The mother of a child up to age 12 years<sup>8</sup>, who was currently in her care and had been for the majority of the child's life (to ensure the child's behaviour was not due to the influence of an extended period of time with a primary caregiver other than the mother)
- Diagnosed with either BPD (primary diagnosis) or depression (primary diagnosis) and not in a current major exacerbation of their symptoms (and therefore considered too unwell to participate), OR no history of mental health difficulties whilst being a parent (for recruitment to the 3 study groups BPD, DPN and HC respectively).

### 6.3.2 Identification and recruitment of participants

A number of sources were contacted for potential identification of participants including Perinatal psychiatrists, IPU 3-8 teams<sup>9</sup>, clinical psychologists, personality disorder services<sup>10</sup>, mother and baby units, NHS Improving Access to Psychological Therapies (IAPT) services, Mind mental health charity, mothers with mental health networking groups, attendance at Research & Innovation networking events, baby weigh-in centres, mother and toddler groups, nurseries, and schools.

Advertisements were also made via e-bulletins to NHS trust staff and University of Warwick staff, primary school newsletters, social media, and posters placed in clinic waiting rooms and mother and baby centres. Regular weekly visits were made to perinatal psychiatry clinics, IPU 3-8 psychiatry clinics, and baby weigh-in centres.

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<sup>8</sup> The child age limit in the NHS ethics application was initially up to 18 years to maximise the recruitment pool of mothers, however as sufficient dyads with younger children were recruited, this age limit was capped at 12 years.

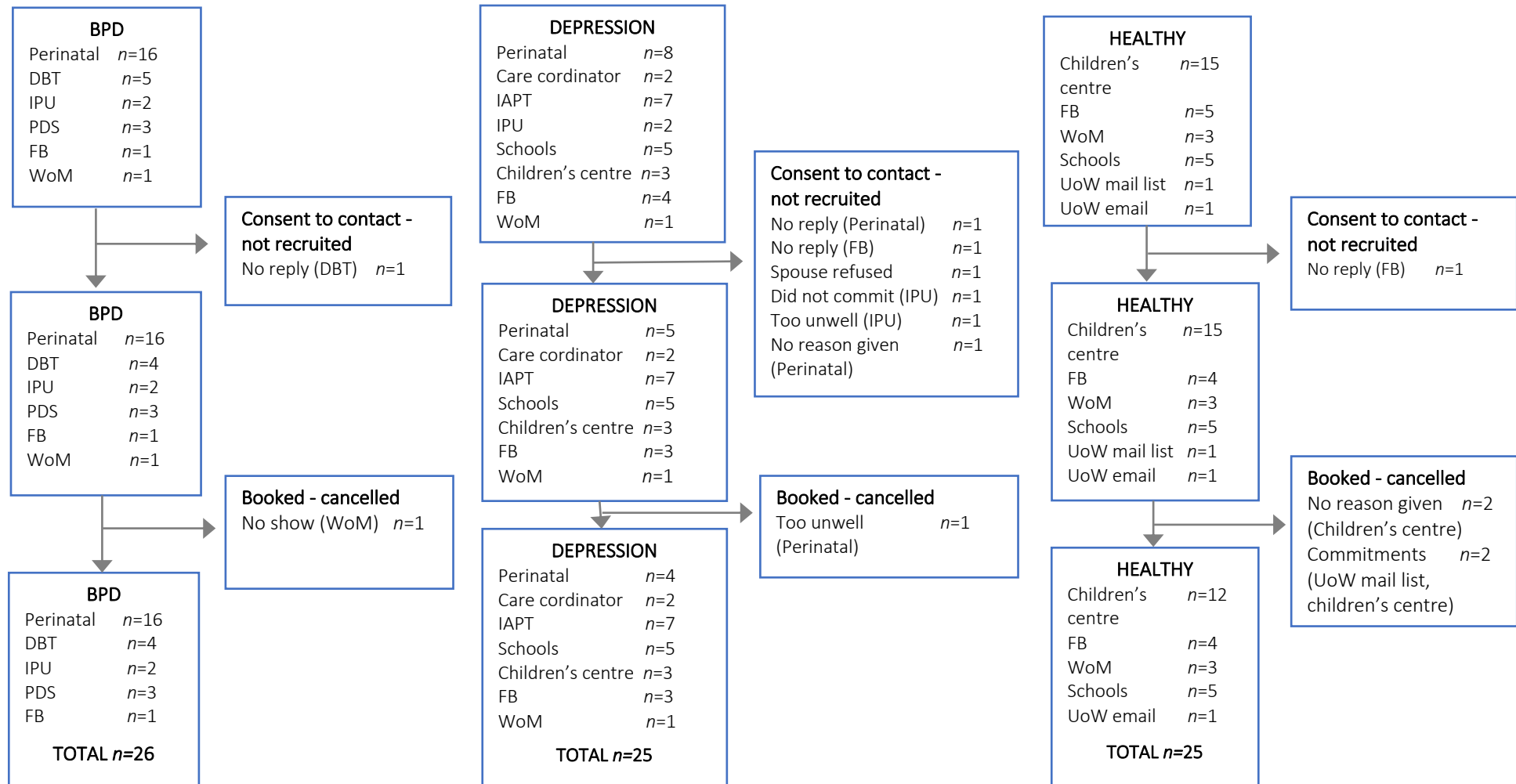
<sup>9</sup> IPU 3-8 teams are the adult community mental health services within the NHS trusts dealing with the non-psychosis care clusters.

<sup>10</sup> After extensive communications, this research study was the first to be allowed to approach/recruit potential participants from The Olive Tree Personality Disorder Service in Coventry.

Recruitment took place from January 2017 to September 2018 in Warwickshire, West Midlands, East Midlands, and Buckinghamshire. Mothers were recruited via several routes including face-to-face introductions (e.g., from perinatal psychiatrists), direct approach (e.g., at mother and baby clinics), follow up of consent-to-contact forms (e.g., after initial approach from psychiatrists or therapists, see Appendix J), or direct contact from the participant (e.g., in response to an advertisement). The advertisement posters simply asked for contact from mothers who would like to take part in a research study (see Appendix K) and were personalised according to the participant group being recruited (i.e., BPD, depression, mental health difficulties, or no mental health difficulties). The consent to contact forms were similar to the posters but also included a reply form for the mother's contact details and permission to be contacted. Recruitment was a difficult and protracted process however attendance at permitted clinics yielded the most success.

All potential participants who gave their consent to be contacted were contacted by phone or spoken to directly (i.e., in clinics). During the conversation the participants were screened for eligibility and the details of the study explained. Opportunity was given for the potential participant to ask any questions and for those who agreed to take part, an appointment time was agreed. All participants were either handed a participant information sheet (Appendix L) directly or received one by email ahead of the scheduled study date. Participants were clearly informed that they could opt out at any stage prior to the arranged study date and could withdraw their data up to 6 months after the data was collected (prior to anonymisation). Some of those seen had to re-schedule due to illness or commitments and a few cancelled/opted out prior to the appointment. Figure 6.2 shows all recruitment numbers, sources, and dropouts.

**Figure 6.2:** Diagram of recruitment and dropouts (source STROBE)





### 6.3.3 Sample matching

Where possible the mothers in the depression and the healthy control groups were matched to the BPD group for age of child and maternal education. Maternal education was considered important to match given the significant impact of maternal educational level on parenting outcomes (e.g., Bornstein & Bradley, 2003; Bornstein, Cote, et al., 2010). The age range of the child was kept intentionally broad in the inclusion criteria to maximise the recruitment pool of BPD mothers. Due to varying demands of different child developmental stages, it was essential to match the number of children in each developmental stage across the three participant groups. Infants and toddlers were grouped together as one stage consistent with studies in the systematic review (Crittenden & Newman, 2010; Newman et al., 2007). The additional three groups were categorised according to school developmental key stages in the UK (Gov.UK) (see table 6.2).

**Table 6.2:** *Child groups by age/developmental stage*

Developmental stage	Age in years	Age in months
Infancy/toddler	0 – 3	5 – 36
Early years	3 – 5	37 – 60
Early childhood (Key stage 1)	5 – 7	61 – 84
Middle childhood (Key stage 2)	7 – 11	85– 143

### 6.4 Participants

Recruitment can be limited in clinical populations, particularly with complex mental health conditions due to the associated symptomatology. Factors such as the systemic lack of trust and emotional dysregulation associated with BPD, the profound negative affect and withdrawal associated with depression, along with current symptom severity of the conditions (i.e., experiencing crisis/exacerbation) can all impact on recruitment potential. An *a priori* power analysis for ANOVA using G-Power (Erdfelder et al., 1996) indicated a total of 75 participants would result in 87% power for detecting a large effect size when employing the traditional .05 criterion of statistical significance. This equated to recruiting 25 participants for each group, which was not only comparable to previous studies but also exceeds the

number of participants recruited in 69% (18 out of 26<sup>11</sup>) of the studies included in the systematic review.

#### 6.4.1 Participant characteristics

A total of 76 participants were recruited: mothers with BPD,  $n=26$ ; mothers with depression,  $n=25$ ; mothers with no mental health difficulties,  $n=25$ . All participants in the BPD group had received a formal BPD clinical diagnosis made by a mental health professional via repeated clinical interviews and using diagnostic criteria from ICD-10 (WHO, 1992), or DSM-IV or DSM-5 (APA, 2000, 2013). Mothers with depression had all received a diagnosis of depression from their GP or therapist; the time since diagnosis, depression severity, and therapy received (current, previous, or none) varied. All were the biological parent apart from one mother with depression who had been the legal guardian of her nephew for most of his life. All children in the study had lived with their mother for all their life except for the previously mentioned legal guardian dyad and three other dyads. One mother with BPD was parted from her infant whilst in psychiatric care for one month, another mother with BPD was currently separated from her child (four months at time of study), and one child of a mother with no mental health difficulties had lived with grandparents for six months.

Maternal demographic characteristics, comorbid diagnosis information, and child characteristics are shown in table 6.3. Variables rated on continuous scales were compared using one-way analysis of variance (ANOVA) and categorical variables compared using Pearson's Chi Square analysis. Mothers' age ranged from 20 years to 54 years and was significantly different between groups whereby mothers with BPD were the youngest; Bonferroni post hoc tests showed a significant difference between mothers with BPD and mothers with no mental health difficulties ( $p=.033$ ).

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<sup>11</sup> Studies that either specifically recruited mums with BPD or recruited community sample mother populations and assessed for BPD. For the community samples where BPD numbers were not cited by the authors, we have used the highest likely prevalence of 6% as the calculation for BPD participants (i.e., 1-6% prevalence in community populations).

Table 6.3: *Mother and child demographic characteristics*

Characteristics	BPD <i>n</i> = 26 ( <i>n</i> = 25 child) Mean ( <i>SD</i> )		Depression <i>n</i> = 25 Mean ( <i>SD</i> )		No mental health <i>n</i> = 25 Mean ( <i>SD</i> )		<i>F</i>	<i>p</i>
Age of mother (years)	30.4	(6.8)	33.6	(7.5)	35.8	(7.7)	3.45	.037
Number comorbid diagnosis	2.15	(.78)	.84	(.62)	n/a	n/a	42.30	.000
	<i>n</i> (%)		<i>n</i> (%)		<i>n</i> (%)		$\chi^2$	<i>p</i>
<b>Marital status</b>							4.31	.116
Married/living with	15	(57.7)	18	(72)	21	(84)		
Single	11	(42.3)	7	(28)	4	(16)		
<b>Employment status</b>							7.81	.020
Not currently working	19	(73.1)	11	(44)	9	(36)		
Working/studying	7	(26.9)	14	(56)	16	(64)		
<b>Qualification level</b>							6.64	.156
GCSE (equiv)/none	12	(46.2)	9	(36)	7	(28)		
A-level diploma (equiv)	11	(42.3)	6	(24)	9	(36)		
Degree/post grad (equiv)	3	(11.5)	10	(40)	9	(36)		
<b>Ethnicity</b>							2.42	.298
White	25	(96.2)	21	(84)	21	(84)		
Other	1	(3.8)	4	(16)	4	(16)		
<b>Duration of diagnosis</b>							.267	.966
0-1 years	7	(26.9)	8	(32)	n/a			
1-2 years	7	(26.9)	6	(24)	n/a			
2-3 years	4	(15.4)	3	(12)	n/a			
> 3 years	8	(30.8)	8	(32)	n/a			
<b>Therapy for MH</b>							2.83	.243
No therapy	8	(30.8)	4	(16)	n/a			
Current therapy	11	(42.3)	9	(36)	n/a			
Previous therapy	7	(26.9)	12	(48)	n/a			
	Mean ( <i>SD</i> )		Mean ( <i>SD</i> )		Mean ( <i>SD</i> )		<i>F</i>	<i>p</i>
Age of child (months)	54.7	(39.6)	45.6	(36.5)	55.3	(39.9)	.495	.612
Number of siblings	1.2	(1.4)	.72	(.84)	1.0	(.96)	1.01	.369
	<i>n</i> (%)		<i>n</i> (%)		<i>n</i> (%)		$\chi^2$	<i>p</i>
<b>Developmental age group</b>							1.45	.963
Infant/toddler (5-36m)	10	(40)	13	(52)	10	(40)		
Preschool (37-60m)	4	(16)	3	(12)	5	(20)		
Early childhood (61-84m)	6	(24)	4	(16)	5	(20)		
Mid childhood (85-143m)	5	(20)	5	(20)	5	(20)		
<b>Gender</b>							2.03	.363
Boys	10	(40)	15	(60)	13	(52)		
Girls	15	(60)	10	(40)	12	(48)		
<b>Child learning/mental health difficulties</b>	2	(8)	2	(8)	0	(0)	2.11	.348

Notes: MH = mental health

Similarly, there was a significant difference regarding employment status whereby a greater number of mothers with BPD were not in employment compared with the other two groups. Findings regarding age and employment status are not surprising and are representative of those with BPD (De Genna et al., 2012; Gunderson, Zanarini, et al., 2011; Lenzenweger et al., 2007; Paris, 2018; Zanarini et al., 2015). No significant group differences were found for mother's living status, qualification level, ethnicity, duration of diagnosis, whether received therapy, child's age, gender or developmental stage, child number of siblings, or the presence of child learning or mental health difficulties. Mother's age and employment status were included as covariates in subsequent analyses.

## 6.5 MEASURES

### 6.5.1 Borderline personality disorder severity

The presence and severity of borderline personality disorder pathology for all participants were measured using the Personality Assessment Inventory - Borderline subscale<sup>12</sup> (PAI-BOR, Morey, 1991; Morey, 1996). The PAI-BOR has concurrent validity with DSM-IV (APA, 2000), SCID-II (First et al., 1997), and BPD criteria (Jacobo et al., 2007) and numerous studies concur reliability and validity of the PAI-BOR to other personality disorder and affect disorder measures (e.g., Bell-Pringle et al., 1997; Kurtz & Morey, 1999; Morey, 1996; Trull, 1995). Furthermore, the PAI-BOR is considered appropriate for use in studying BPD features in population-based samples, and to screen for BPD features in women of varying ages (De Moor et al., 2009).

The PAI-BOR is a 24-item self-report objective test comprising behaviour statements of four key BPD domains: *Affective instability* (BOR-A), poor control over emotions and anger e.g., 'my mood can shift quite suddenly'; *Identity disturbance* (BOR-I), confusion regarding identity and self-worth e.g., 'sometimes I feel terribly empty inside'; *Negative relationships* (BOR-N) experiencing intense often combative relationships e.g., 'my relationships have been stormy'; and *Self-harm/impulsivity*

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<sup>12</sup> Under the licensing conditions of this measurement tool, full replication is not permitted.

(BOR-S), often resulting in self-destructive behaviours e.g., ‘when I’m upset, I typically do something to hurt myself’. The borderline scales were designed to encapsulate the typical behavioural manifestations of BPD and to reflect different aetiological pathways to the disorder. Responses are recorded as ‘not true at all’ (scored as 0), ‘slightly true’ (scored as 1), ‘mainly true’ (scored as 2), or ‘very true’ (scored as 3).

Using the PAI-BOR profile form, the raw scores are converted to *T* scores<sup>13</sup> for each of the four BPD domains (i.e., affective instability, identity disturbance, negative relationships & self-harm/impulsivity), and an overall PAI-BOR *T* score. Those scoring low on the PAI-BOR are likely to experience few to no personality difficulties, whereas elevated scores (likely on three or more of the subscales) indicates classic borderline personality difficulties. The total *T* score ranges from 32 to 104 (by section: BOR-A, 36-92; BOR-I, 36-90; BOR-N, 34-92; BOR-S, 37-108). A total score of < 60*T* reflects an emotionally stable individual, moderate elevations of 60-69*T* suggests an individual with emerging personality difficulties such as being moody and sensitive with possible increasing anger and relationship difficulties, and scores of 70*T* and above, suggests borderline personality disorder (Morey, 1991). The PAI manual specifies 60*T* as a cut point delineating elevated levels of BPD related symptoms/behaviours and ≥70*T* determining individuals with likely borderline personality disorder (Morey, 1991; Tolpin et al., 2004; Trull, 1995; Zeigler-Hill & Abraham, 2006). Thus, the PAI-BOR enables analyses along categorical and continuous measures. Cronbach’s alpha for the total sample was  $\alpha=.92$ .

### 6.5.2 Depression

Depression severity across the whole sample was measured via the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001). This tool for screening, diagnosing, and measuring the severity of depression is used by the NHS IAPT service to repeatedly

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<sup>13</sup> *T* scores are transformed scores based on a comparison to a normative sample population. In the normative sample the PAI scales have a mean score of 50*T* with a standard deviation of 10*T*. A score >50*T* indicates an individual has scored to a greater degree than is typical in the general population. A score of 60*T* represents an individual in the 84<sup>th</sup> percentile and a score of 70*T* represents the 96<sup>th</sup> percentile.

assess depression symptoms amongst patients (see Appendix M). The PHQ-9 is a 9-item self-report questionnaire, which scores each of the 9 DSM-IV depression criteria, including statements such as: 'having little interest or pleasure in doing things', 'feeling down, depressed or hopeless', 'feeling tired or having little energy'. Each question is answered using a scale of 'not at all' (which has a score of 0), 'several days' (scores 1), 'more than half the days' (scores 2), and 'nearly every day' (scores 3). A further question assesses the degree to which the depressive symptoms have affected the patient/participant's level of functioning. Diagnostic validity and reliability have been well established as a diagnostic and severity assessment tool in several studies (e.g., Löwe, Spitzer, et al., 2004; Löwe, Unützer, et al., 2004; Spitzer et al., 1999; Williams et al., 2002) including a variety of racial/ethnic populations (Huang et al., 2006). Kroenke et al. (2001) found a score of  $\geq 10$  had high specificity (88%) for major depression. PHQ-9 scores represent the following depression severity: 0-4, no depression symptoms; 5-9, mild depression; 10-14, moderate depression; 15-19, moderately severe depression; 20+ severe depression. The overall PHQ-9 score was used as a continuous measure for depression severity, with higher scores denoting more severe depression symptoms. A further variable was created for the difficulties in functioning scale. Cronbach's alpha for the total sample was  $\alpha=.93$ .

### **6.5.3 Adverse childhood experiences**

Childhood adversity was measured using the Adverse Childhood Experiences International Questionnaire (ACE-IQ; WHO, 2018a, 2020), which has well-established reliability and validity and has been used in numerous studies (e.g., Ford et al., 2014; Kazeem, 2015; Murphy et al., 2014; Spatz Widom et al., 2004). The ACE-IQ contains 31 questions on adverse experiences (e.g., bullying, abuse, neglect, and household dysfunction) in the first 18 years of an individual's life. To specifically explore childhood adversity for this study, questions relating to parenting, peer difficulties, family household related difficulties, and abuse were used, and questions on more global problems such as community violence and war/collective violence were excluded. This adaptation left 23 items (see Appendix N for adapted ACE-IQ) with questions such as: 'Did you ever see or hear a parent or household member in your

home being, slapped, kicked, punched or beaten up?', 'Were your parents/guardians too drunk or intoxicated by drugs to take care of you?', 'Did someone touch or fondle you in a sexual way when you did not want them to?'. Participants answered *always, most of the time, sometimes, rarely, or never*, for questions ascertaining the frequency of an event e.g., 'Did your parents understand your problems or worries?' and responded *yes* or *no* to the questions requiring a binary answer e.g., 'Did you live with a household member who was depressed, mentally ill or suicidal?'. For each item a 'prefer not to answer' response was also included.

The ACE-IQ is typically administered by the researcher but to provide added privacy, on this occasion participants self-reported. ACE scores were calculated using binary and frequency scoring methods using the ACE-IQ score calculation guide (WHO, 2018a). The binary scoring measures whether each adversity has occurred, giving a score from 0-11. The frequency scoring measures the frequency of occurrence of each experience and again provides a score between 0-11. The higher the ACE-IQ score the more childhood adversities an individual has experienced. Consistent with the ACE-IQ coding template, ACE-IQ variables for neglect, abuse, family adversity and bullying were created (WHO, 2018a). Cronbach's alphas for the total sample were  $\alpha=.82$  (ACE-binary) and  $\alpha=.83$  (ACE-frequency).

#### **6.5.4 Mother's rating of received support and desired support**

The Significant Others Scale (SOS) (Power et al., 1988; see Appendix O), is a self-report tool which enables information to be gathered of both the received and desired support of significant others in a person's life (e.g., spouse/partner, relative, close friend). It has been found to have good six-month test-retest reliability with significant between-group distinction when used with depressed and non-depressed mothers (Power, 1988; Power et al., 1988). The SOS scale includes four questions (with perceived and desired ratings) for up to four significant others chosen by the participant, for example: 'Can you trust, talk to frankly and share feelings with this person?' or 'Do they give you practical help?' with each question followed by: 'What rating would your ideal be?'. Scores are given from 1 (*never*) to 7 (*always*). Outcome variables were created to include the number of significant others for support,

actual/received support (mean of questions 1a, 2a, 3a, 4a), ideal/preferred support (mean of 1b, 2b, 3b, 4b), and an SOS discrepancy score was created by subtracting the actual/received support score from the ideal/preferred support score.

Cronbach's alphas for the total sample were  $\alpha=.90$  (received support) and  $\alpha=.91$  (preferred support).

## **Maternal Parenting: Perceptions and Knowledge**

### **6.5.5 Mother's self-perceptions of parenting**

The initial study design incorporated the Parent Awareness Skills Survey (PASS; Bricklin, 1990), to assess the sensitivity and effectiveness with which a parent would respond to their child in typical childcare situations. However, when piloted the PASS was too time consuming and was considered more effective for assessing the parenting of older, teenage children rather than younger children. It was therefore replaced with a more appropriate and simple to administer parenting questionnaire: the Tool to Measure Parenting Self Efficacy, (TOPSE, Kendall & Bloomfield, 2005).

The TOPSE is a 48 item self-report questionnaire used to measure a parent's perception of their own parenting ability and efficacy (Appendix P). It assesses eight parenting domains: *emotion and affection; play and enjoyment; empathy and understanding; control; discipline and setting boundaries; parenting pressure; parenting self-acceptance; and parenting knowledge and learning*. Within each domain there are six parenting self-efficacy statements containing both positive and negatively worded items. For example: 'I am able to stay calm when my child is behaving badly', 'playing with my child comes easily to me', 'I find it difficult to cuddle my child'. Each is scored on an 11-point Likert scale from completely disagree (scoring 0) to completely agree (scoring 10) with negative statements reverse coded. Each section is summed to give a domain score, which when totalled give an overall TOPSE score: The higher the score, the higher the perceived parenting self-efficacy. TOPSE has been tested for validity via a panel of experts in parenting efficacy, and previous studies show good internal and external reliability (Bloomfield & Kendall, 2007; Kendall & Bloomfield, 2005). The TOPSE Baby questionnaire was used for mothers with children under 12 months. This adapted version omits the questions



on 'control' (e.g., 'I can't stop my child behaving badly'), and 'discipline and setting boundaries' (e.g., 'I am able to reason with my child'). To enable comparison with the mothers who had completed all sections, an overall TOPSE percentage score was given. Cronbach's alpha for the total sample was  $\alpha=.97$ .

#### 6.5.6 Mother's knowledge of ideal parenting

A Q-sort task was used to measure the mothers' perceptions of optimal parenting behaviours. Q-sort methodology is a rank ordering procedure, which explores the different viewpoints of individuals (Brown, 1980). Participants are 'forced' to decide which statements are more important than others by ranking them. For this study the qualities of an *ideal sensitive mother* were assessed via a Maternal Behaviour Q-set (MBQS) developed by Pederson and Moran (1995), later adapted by Mesman et al. (2015). The original MBQS was designed for use by clinicians/professionals as a practical way to assess the quality of an interaction between mother and child based on Ainsworth's concept of maternal sensitivity (Ainsworth et al., 1978). It contains 90 items each focusing on attachment relevant aspects of mother-child interactions, and general information regarding child development and maternal sensitivity (Mesman et al., 2015; Pederson & Moran, 1995; Pederson et al., 1999). Mesman et al (2015) subsequently adapted the MBQS to assess mothers' understanding of what makes an ideal, sensitive mother. To make the items applicable for self-report some statements were altered e.g., '*provides child little opportunity to contribute to the interaction*' was amended to '*gives her child little opportunity to respond or play along to*'. Further, when pilot testing for this study a few of the Mesman-adapted mother behaviour statements were misinterpreted, therefore, to provide greater clarity a few adjustments were made e.g., '*speaks to her child directly and not just about her child*' was replaced with '*gets child's attention before talking to him/her*'. On each occasion Pederson & Moran's original descriptions were reviewed to ensure the intended essence of the maternal behaviour was captured<sup>14</sup>. A copy of the revised Q-set of mother behaviour statements can be found at Appendix Q. For the

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<sup>14</sup> In this instance the intended Pederson & Moran observed maternal behaviour was the mother gaining the child's attention before communicating in order for the child to attend to the mother.

scoring of the Q-sort, correlations coefficients were computed to compare each mother's rankings to the Pederson & Moran's MBQS criteria of an ideal sensitive mother to create a 'maternal sensitivity belief score' (MBQS). A high MBQS score indicates an understanding of what behaviours denote a highly sensitive mother. A 'Q-sort discrepancy score' was also created to denote rankings three or more deviations from the MBQS criterion scores, and therefore scored in a different category (i.e., an ideal behaviour ranked in the non-ideal behaviour category).

### 6.5.7 Mother-child behaviours via observation

Although observational measures only provide a snapshot of parenting, they can help to show *capability* of optimal parenting. The mother child dyads were observed together in a play scenario. Tasks were chosen to reflect the developmental age of the child including puzzles and games which involve both mother and child to interact and co-operate with each other (see table 6.4). Etch-A-Sketch is a drawing game whereby one dial draws vertical lines and the other horizontal lines; both dials require simultaneous turning to draw diagonal lines. For the purpose of this task the child operated one dial and the mother the other. Labyrinth is a maze game whereby a small metal ball is navigated around a maze avoiding several holes. The maze can be tilted in both directions using controls on two sides of the board. As with Etch-A-Sketch, the mother operated one control and the child the other so that collaboration was required for success.

**Table 6.4:** *Play task by age of child*

Age of child	Type of task	Example toys used
5m- 18m	Free play, semi structured	Stacking cups, shape sorter puzzle, activity mobile
19m - 3yr	Free play, semi structured	Puzzles, building blocks, shape sorter clock puzzle
3yr 1m - 5yr	Semi structured, co-operation task	Etch-A-Sketch, puzzles
5yr 1m - 12yr	Semi structured, co-operation task	Etch-A-Sketch, Labyrinth game

### ***Emotional Availability Scale (EAS)***

All observations, regardless of child age or nature of task, were coded using the Emotional Availability Scale (EAS) (Biringen, 2008; Biringen et al., 1998). The EAS is a multidimensional framework measuring the affect and behaviour of the parent-child relationship. It not only assesses the mother's emotional availability (EA) to the child but also the child's emotional availability to the mother, as both are considered important and necessary for a secure and healthy connection (Biringen, 2008). It is a robust observational measure and has well-established reliability and validity for use across varying age ranges, countries, and cultures (e.g., Bornstein, Gini, et al., 2006; Easterbrooks & Biringen, 2000, 2005; Lok & McMahon, 2006). The EAS can be used to assess mother-child interactions with children aged from 0-14 years. The scales focus on an individual's behaviour whilst taking account of the other's behaviour thereby capturing a global rating of the dyad's interactional style.

The four mother scales measure the constructs of *sensitivity*, *structuring*, *nonintrusiveness*, and *nonhostility*<sup>15</sup> and the two child scales measure *child responsiveness* to the mother and *child involvement* of the mother. The mother-child interaction is rated with an overall EA 'direct score' for each of these constructs scored from 1-7 (1 being the lowest). Within each EA construct are 7 subscale behaviours (see table 6.5). The first two are scored from 1-7 to reflect the weight of their relative contribution to the construct, and the others from 1-3. These subscale scores are taken into account when rating the overall constructs but consistent with coding training, total subscale scores were not used in analyses (Biringen, 2008; Easterbrooks & Biringen, 2005).

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<sup>15</sup> All EA dimensions are depicted in the positive or with the absence of a negative quality (ie., *non* hostility) so that the higher scores are always the most optimal behaviours.

**Table 6.5:** *EA dimensions and subscales*

EA dimensions	EA subscales						
<b>Sensitivity</b>	Affect	Clarity of perceptions	Timing	Flexibility	Acceptance	Amount of interaction	Conflict
<b>Structuring</b>	Guidance	Success	Amount of structuring	Limit setting	Firm in pressure	(Non) verbal structuring	Peer vs adult
<b>Non-intrusiveness</b>	Following child's leads	Ports of entry	Commands	Talking	Didactic teaching	Interferences	Feels intrusive
<b>Non-hostility</b>	Lack of negativity	Lack of ridiculing	Lacks threats of separation	Loses cool	Frightening	Silence	Themes
<b>Child responsiveness</b>	Affect	Responsiveness	Autonomy	Physical positioning	Role-reversal	Lack of avoidance	Task oriented
<b>Child involvement</b>	Simple initiative	Elaborative initiative	Use of adult	Lack of over-involvement	Eye contact	Body positioning	Verbal involvement

Notes: The first two subscales of each EA dimension are scored from 1-7 (where 7 equals the highest score), the remaining five are scored from 1-3 (where 3 equals the highest score)

*Sensitivity* refers to the mother's ability to be not just warm but also sensitive and responsive to her child's cues. The mother needs to be emotionally connected to the child in an appropriate, timely and authentic manner. This construct is a measure of global behavioural style rather than the counting of discrete behaviours. A highly sensitive mother (i.e., direct score 5.5-7) clearly enjoys the interaction and is appropriately positive in affect (i.e., not just smiling at everything the child does), with the child enjoying the interaction also. Inconsistency in sensitivity or 'apparent sensitivity' (e.g., positive statements said with a bored tone, or warmth but lacking sensitivity) receives a mid-range score (4-5). Whereas those who are either harsh and overbearing, passive, or affectively flat and non-interactive are rated somewhat insensitive (3.5 or lower).

The *structuring* construct assesses the extent to which the mother guides and scaffolds the child, providing a frame by which the child can achieve a higher level both emotionally and with the play tasks. Structuring should be age appropriate allowing sufficient space for the child, whilst making subtle suggestions and setting appropriate behavioural limits. The mother should be actively present in the interaction. Adequate structuring is not considered unless there is a correct level of guidance and the mother's attempts to structure are successful. As such a parent who occasionally fails to structure may score around 5.5-6; those with inconsistently structuring (i.e., over structuring yet at other times giving little structure, or caving in on previous limit setting) would score 4; with scores of 3 and below reserved for those who back off and become increasingly unavailable or appearing to be 'elsewhere'.

*Non-intrusiveness* is the level by which the mother over-controls the child and is influenced by the reaction of the child. For example, rough play that the child is enjoying is nonintrusive whereas over stimulating a child who is giving clear signals that this is not being well received, is more intrusive behaviour, as is treating the child as younger than their age. This construct assesses the degree to which the mother lets the child lead the interaction, rather than over-suggesting or over-leading, and the smoothness with which she enters into the interaction. Some

intrusiveness which is well intentioned and benign is rated as 4-5, whereas when the mother tips towards more physical intrusion this would be rated towards the lower end of the scale.

*Non-hostility* measures the degree to which hostile negative behaviours are present, ranging from no hostility to covert hostility (i.e., fleeting signs of boredom, impatience etc.) to overt hostility (i.e., harsh, angry, threatening behaviour). To score high in non-hostility the mother should be calm and lack overall negativity in dialogue, tone, and facial expression. A mother would score in the mid-point range (4-5) if a lot of covert hostility was present and would score towards the lower end of the scale if being particularly harsh and critical and overtly hostile.

*Child responsiveness* considers two main aspects of the child's behaviour: their affect and emotion regulation, and their willingness and eagerness to engage with their mother. Emotions should be well regulated (not under or over regulated), and the child should appear happy, robust, content, and secure rather than anxious, clingy, or under-connected. Responses should be appropriate, and not over-pleasing or avoidant and unresponsive. The child might be very focused on the play but not to the exclusion of the mother. For an optimal rating there is unlikely to be signs of 'role reversal' with the child showing parenting-type behaviours. Children showing complicated responsiveness (rated 4) are likely to be under-regulated and use negative affect for maintaining the connection, whereas over-regulated children showing little response to the mother would be at the lower end of the scale.

*Child involvement* focuses on the child's ability to bring the adult into play with a balance between autonomous and involving play, and plenty of positive involving behaviours (e.g., looking, smiling, talking, turning towards the mother). For the most optimal score (5.5-7) the child elaborates on the initial involving behaviours to maintain contact rather than just simple exchanges. At the mid-range (4-5) the child might be showing complicated involvement, involving the mother in some clearly negative ways through anxiety, distress, or over-involving behaviours. A child who is

largely uninvolved or moving away from the parent would be scored towards the lower end of the scale.

The mother and child were also evaluated on the Emotional Attachment and Emotional Availability Screener (EA-2)<sup>16</sup>, which is a tool to individually categorise the parent and child on their emotional availability and emotional attachment (Biringen, 2008; Biringen et al., 2014). The categories relate to the whole interaction but are more akin to the sensitivity of the mother and the responsiveness of the child. Of note, the mother and child do not need to be in the same category of the EA-2. The EA-2 categories are broadly based on Ainsworth's attachment categories (Ainsworth & Bell, 1970; Ainsworth et al., 1978; Main & Solomon, 1986) (see table 6.6).

**Table 6.6:** *EA categories, and Attachment categories*

EA category	Attachment category	
	Child	Adult
Emotionally available (High EA)	Secure	Secure
Complicated	Insecure-resistant	Anxious-preoccupied
Detached	Insecure-avoidant	Dismissive-avoidant
Problematic	Disorganised	Fearful-avoidant

The EA-2 includes the categories: *Emotionally Available/High EA* (those exhibiting a good enough or highly emotionally available parenting style or child responding style, with a healthy emotional connection), *Complicated* (inconsistency in emotional connection but at least warm), *Detached* (cool, mechanical or avoidant emotional connection, not warm), and *Problematic* (extreme or neglectful interactional

<sup>16</sup> Several alternative terms have been used to describe this tool including Emotional Attachment & Emotional Availability clinical screener (EA-2); EA Zones evaluation; Emotional Availability Zones (EA-Z); Emotional Attachment Zones (EA-Z) (Biringen et al., 2008; Biringen et al., 2014; Saunders et al., 2017; EA website: <https://emotionalavailability.com>); categories are also described as zones. To avoid confusion, for the purpose of this thesis this tool will be referred to throughout as 'Emotional availability and attachment screener (EA-2)' and the categorisations as 'EA categories'.

maternal behaviours, and for the child, highly emotionally dysregulated behaviours). Extensive training and accreditation for use of the 4<sup>th</sup> edition of the Emotional Availability Scales, and Emotional Availability and Attachment Screener were given by Zeynep Biringen for both infancy/early childhood, and middle childhood.

For the emotional availability coding, the interactions were watched several times, conceptualisations were written of each interaction and an EA category assigned (i.e., high EA, complicated, detached, or problematic). Direct scores were given for each mother and child construct (e.g., sensitivity, structuring, non-intrusiveness etc.) and scores for each of the individual subscale behaviours for each construct. EA measures were reported at the construct level (e.g., sensitivity, structuring etc.) and the EA-2 was reported at a broad category level to map onto Ainsworth's attachment categories.

### ***Assessment of Mother-Child Interaction using Etch-A-Sketch (AMCIES)***

The Etch-A-Sketch element of the observation was additionally coded using the Assessment of Mother Child Interaction using Etch-A-Sketch (AMCIES) (Schneider, Houweling, et al., 2009; AMCIES; Wolke et al., 1995). The AMCIES scales use a quantitative coding method with frequency and proportional counts for the constructs. It has previously established reliability ( $\kappa$ ) of between 0.76 & 0.89 (Schneider, Houweling, et al., 2009). The mother rating scales used in this study were *verbal control*, *non-verbal control*, and *sensitivity* and for the child, *persistence on task and attention span* and *readiness for social interaction*.

Maternal verbal control measures the proportion of directive or prohibitive comments comparative to general non-directive feedback and comments, scored from 1 (very high) to 9 (highly minimal). Non-verbal control measures the frequency of physical intervention and is scored from 1 (very high) to 9 (highly minimal). Maternal sensitivity rates the degree to which the mother gives the child space and picks up on the child's cues and is scored from 1 (lacking sensitivity) to 5 (highly sensitive). Child persistence on task and attention span rates the degree to which the child pursues the task and is scored from 1 (very low) to 9 (very high), and



readiness for social interaction reflects how much the child is engaged in social interaction with their mother, scored from 1 (ignoring) to 9 (actively engaged). All Etch-A-Sketch recordings were watched a minimum of three times, and the measures scored in conjunction with the AMCIES manual (Wolke et al., 1995).

## 6.6 Procedure

Data collection took part in the participant's family home, apart from one participant who visited the University of Warwick lab. Visits took around two and half hours ( $M_{\text{mins}} = 152, SD = 33.23$ ) with no group differences in time taken ( $M_{\text{BPD}} = 160, SD = 40.29$ ;  $M_{\text{DPN}} = 152, SD = 30.98$ ;  $M_{\text{HC}} = 145, SD = 26.06$ ;  $F = 1.32, p = .274$ ). The study commenced with rapport building, discussing the participant information sheet, and gaining written consent (Appendix R). Mothers were informed that they did not have to answer any questions they did not want to, that all information would be grouped with information of other mothers with a similar diagnosis to look at patterns of answers (rather than looking at their parenting specifically), and reassured of confidentiality and anonymity (with confidentiality only ever broken if it was deemed that the mother was at risk of harming herself or another). General demographic information was obtained, and the mothers completed the standardised questionnaires for depression severity, borderline personality disorder symptoms, adverse childhood experiences, parenting self-efficacy, and level of perceived social support.

For the PHQ-9 participants were asked to rate how they had felt specifically over the last two weeks and the degree to which this had affected their ability to carry out day-to-day tasks. For the PAI-BOR they were asked to rate how true the statements were of their behaviour in general (rather than just recent weeks). The questionnaire regarding adversity in childhood (ACE-IQ) was introduced as containing more sensitive questions covering topics such as abuse, neglect, bullying and witnessing abuse in the home. It was reiterated that they did not have to answer any questions they preferred not to. Mothers were then asked to think about their own parenting (specifically in relation to the child participating in the observation task) and rate whether they agreed or disagreed with each statement - on a scale of 0-10 (TOPSE).

In addition, mothers were asked to complete a social support questionnaire (SOS) rating both the level of support they felt they received and the level of support they would prefer to receive from various significant persons in their lives (up to a maximum of four).

Next, the observation play task was conducted. A child version of the participant information sheet was shared (Appendix L), children were explained what would be required of them, informed that they did not have to take part, and that they could stop if they wanted. An assent form was completed for those able to write their name (Appendix S). Each mother-child dyad was observed and video-recorded for around 20-25 minutes ( $M = 22.3$ ,  $SD = 3.89$ ; Range = 10.5 – 33 minutes), with no significant difference in time taken between groups:  $M_{BPD} = 23.04$  ( $SD = 4.13$ ),  $M_{DPN} = 21.38$  ( $SD = 4.63$ ),  $M_{HC} = 22.52$  ( $SD = 2.57$ );  $F(2, 72) = 1.199$ ,  $p = .307$ . The play task varied according to the child's age. Mothers with infants and toddlers were given puzzles and toys and asked to play with their child as they would normally. For those using the Etch-A-Sketch, both the mother and child were asked if they had seen or used an Etch-A-Sketch before and were given some practice time to get used to the dials (this part of the interaction was also recorded and coded with the EAS). They were then asked to copy/draw a picture of a house (see Appendix T). Once this was completed, the Labyrinth game (or puzzle for the younger children) was introduced. Again, the mother and child had a chance to practice and a few attempts to complete the task.

Finally, mothers completed the Q-sort task. Mothers were asked to think about what they considered would be the most ideal behaviours when parenting a 0-3 year-old given ideal circumstances/conditions. All mother behaviour statements were printed in point size 12, Calibri black font, on white laminated 10cm x 5cm cards. In the first sort mothers place the mother behaviour cards into one of three piles according to whether they thought the behaviours were the *most ideal behaviours*, *least ideal behaviours*, or *neither most ideal nor least ideal*. At any point the mothers could resort any mis-sorted cards. The second sort was more specific, ranking the statements from 1-9 (1 being the least ideal and 9 being the most ideal behaviour).

The mothers began with the ones they had placed in the most ideal pile. The mothers ranked their top ten of these behaviours as 9, then the next best ten as 8 and then the following best ten as 7. Any leftover cards were placed in the middle pile of neither ideal nor least ideal. The next sort was to rank the least ideal behaviours from 1-3 starting with the ten least ideal behaviours (ranked as 1), then the ten ranked as 2 and the ten behaviours ranked as 3, again with any remaining cards placed in the neither/nor pile. The final sort was those placed in the neither ideal nor not ideal pile. Behaviour statements were ranked from 4-6 with ten in each with 4 being the least ideal out of these behaviours and 6 being the most ideal. The completed task showed the complete ranking from 1-9 of the least to most ideal mother behaviours.

To conclude the visit, the mothers were invited to ask any outstanding questions, given a £10 voucher as a thank-you, and a list of contact details (see Appendix U) signposting contacts regarding the study, helpful websites, support service contact details (e.g., Mind, Relate, Samaritans), and where to call in the event of a crisis. Confirmation that the mothers with BPD had the number of their community mental health crisis team was also made.

## **6.7 Data Processing and Statistical Treatment**

### **6.7.1 Missing data**

Seventy-six mothers were included in the questionnaire and Q-sort data, and as one of the children had recently been taken into care, 75 mother-child dyads were included for the observations. Unanswered questions on the TOPSE questionnaire ( $n=2$ ) were excluded from the overall percentage score. On the PAI-BOR, where a single item of data was missing, the item was replaced with the mean value for the sub section ( $n=1$ ), and on the ACE-IQ, where participants selected 'prefer not to answer' ( $n=7$ ) these were omitted from the total ACE scores. Missing data was completely at random. Visual inspection of the profiles and scores from each of these participants suggest there were no obvious differences from their group means (see Appendix V for further information).

### 6.7.2 Biases

To help control for response bias the researcher took time to establish a rapport with each participant and employed a non-judgemental and active listening approach to help participants to feel comfortable with disclosure. Confidentiality of their responses was reiterated throughout the study as was informing mothers that they could refrain from answering any questions they wished, thereby enabling them to opt out of anything they felt uncomfortable disclosing. In reality there were very few missing data, and the mothers were very open in their disclosure.

Every attempt was made to avoid selection bias in the participant samples. The clinical groups were recruited from various clinical and therapy settings in order to be representative and were demographically matched where possible. As is inevitable with voluntary research there is an element of self-selection.

Inter-rater reliability was carried out to control for observer bias. A second coder, also trained and accredited on the EAS coding system and blind to participant diagnosis, independently coded 40% of randomly selected interactions. Of those not selected for interrater reliability, a further 12% of difficult cases were also rated by the second coder totalling 39 (52%) of cases blind coded. Weighted Kappa analysis was used for the EA direct scores as simple Kappa analysis does not take account of the degree of discrepancy between coders (Warrens, 2013). Cohen's kappa showed a substantial agreement on all reliability measures (see table 6.7). Any disagreements were discussed and resolved between the two coders.

Similarly, all Etch-A-Sketch interactions were fully coded by the author, and a second coder blind to participant diagnosis coded 45% of randomly selected recordings. Both coders were trained for using AMCIES by Prof. Dieter Wolke. Any discrepancies were discussed in the first instance between the two coders with any unresolved issues settled by Prof. Wolke. Weighted Cohen's Kappa showed initial substantial agreement between the two coders for sensitivity and verbal control, moderate agreement for non-verbal control and readiness for social interaction, and slight agreement for child persistence/attention on task (see table 6.8).

**Table 6.7:** *Cohen's Kappa results of interrater agreement for the EA observations*

EA Measures (n=30)	Cohen's Kappa score	<i>p</i>
EA category mother	.939	<.001
Sensitivity	.845	<.001
Structuring	.675	<.001
Non-intrusiveness	.719	<.001
Non-hostility	.711	<.001
EA category child	.892	<.001
Responsiveness	.764	<.001
Involvement	.823	<.001

**Table 6.8:** *Cohen's Kappa results of interrater agreement for the AMCIES observations*

AMCIES measures (n=19)	Cohen's Kappa score	<i>p</i>
Maternal sensitivity	.756	<.001
Verbal control	.735	<.001
Non-verbal control	.417	.011
Child persistence/attention	.170	.168
Child readiness for interaction	.464	<.001

### 6.7.3 Quality control

The Newcastle-Ottawa Scale (Wells et al., 2000) was followed to ensure study quality. This scale offers a star rating system of which this study scored 7 out of 9 stars. See table 6.9 for scoring details.

**Table 6.9:** *Newcastle Ottawa Quality Assessment Scale for Case Control Studies*

Quality assessment	Description of quality assurance	Star rating
<b>Selection</b>		
Is the case definition adequate?	Independently diagnosed by a clinician, a priori specified eligibility criteria	*
Representativeness of the cases	Representative cases - obtained from various sources	*
Selection of controls	Clinical and community comparison groups used	*
Definition of controls	No history of BPD (for mothers with depression); no history of mental health for healthy comparison group	*
<b>Comparability</b>		
Main factor	Depression	*
Additional factor	Child's age; maternal educational level	*
<b>Exposure</b>		
Ascertainment of exposure	Data collection was structured but researcher not blind to diagnosis. Second coder employed for coding the observations who was blind to diagnosis. Participants independently diagnosed by a clinician	
Same method of ascertainment for case and controls	Same method/procedures used throughout	*
Non-response rate specified	Drop-out rates from booked appointments were similar for all groups and are specified. However, it was not possible to directly compare non-response rates as different methods were employed for each group's recruitment, as such the star rating was not awarded.	
<b>Total</b>		7 out of 9 stars

Notes: Ascertainment of exposure missed the star rating due to all coders not being blind to diagnosis, all other ratings were met for this measure. Non-response rate was not awarded a star rating due to the methodological logistics and differences precluding direct measure of non-responders (i.e., impossible to ascertain the number of people who read the advertisements). Drop-out rates were recorded and reported to ensure transparency of reporting.

#### 6.7.4 Composites

**Q-sort.** Attempt was made to group similar mother behaviour statements into Q-sort composites using Principal Component Analysis (PCA) however this was not possible as the Kaiser-Meyer-Olin measure of sampling adequacy (KMO) could not be calculated due to the correlation matrix being 'non-positive definite' (i.e., there were too many variables for the number of participants).

**Mental health severity.** As there was multicollinearity between borderline severity (PAI-BOR) and depression severity (PHQ-9),  $r(76) = .84, p < .001$ , a mental health severity composite was created using the PAI-BOR, PHQ-9, number of comorbid conditions, and difficulty in daily functioning measures (Field, 2009; Song et al., 2013). Using principal components analysis, the Kaiser-Meyer-Olkin measure of sampling adequacy exceeded the minimum recommended value ( $>.5$ ):  $KMO = .69$ , and Barlett's test of sphericity was significant:  $\chi^2(6) = 167.47, p < .001$ . No rotation method was required as only one composite was extracted with an Eigen-value  $>1$ ; this composite explained 68% of the variance. Loadings for the PAI-BOR, PHQ-9, comorbidity, and functioning difficulty loadings were .928, .910, .839, .561 respectively. Standardised Cronbach's alpha = .83.

#### 6.7.5 Normality of data

All outcome variables were checked for normal distribution using the Shapiro-Wilks test. As future analysis involves group comparisons, distribution was checked within group rather than checking for the overall distribution (Field, 2009). Unsurprisingly, as it is well documented that normality is difficult to determine in small sample sizes (Field, 2009; Games, 1984), some group variables followed a normal distribution whilst others did not, and with no consistent pattern. Data transformation was considered but not implemented due to the following reasons. First, transformation should be successfully applied to all variables, and this was not feasible<sup>17</sup>. Second, outliers should only be removed if there is sufficient evidence for incorrect group

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<sup>17</sup> Further, transforming data could have implications for data interpretation by either changing the original hypothesis, changing the original constructs, or from potentially applying the 'wrong' transformation (Field, 2009).

assignment (Grace-Martin, 2018). Third, parametric tests such as the *F*-test (ANOVA, ANCOVA etc.) perform effectively with skewed distributions, (Field, 2009). Fourth, normality was not expected in some of the variables (e.g., Biringen, 2008).

#### **6.7.6 Statistical methods**

Analysis of covariance (ANCOVA) was used for all studies to investigate the main effect of participant group (BPD, DPN, HC) for each outcome variable (TOPSE, MBQS, each EA construct, and each EA subscale), controlling for potential confounders. Bonferroni corrected pairwise comparisons were carried out for post hoc analyses, and partial eta squared reported to show effect sizes. EA-2 categories were examined with Pearson Chi Square ( $\chi^2$ ) and Fisher's exact test (FET) to account for small sample size, using Cramer's V to show the level of association (i.e., effect size). Categorical post hoc analyses were carried out using the right-handed probability of the chi square distribution to compare observed and expected values (CHISQ.DIST.RT function).

Hierarchical multiple regression analyses were used to explore which variables most explained the variance of outcomes, and Pearson correlations to compare the relationship between variables. The covariates for ANCOVA and the variables included at each step for the hierarchical regressions are described in chapters seven and eight. Given best practice to include demographic variables regardless of significance (Sweet & Grace-Martin, 2012), those known to be closely associated with parenting were also included. Analyses were carried out using *SPSS version 25* or *SPSS version 27*, with significance set at  $p < .05$ . Unadjusted means (*M*) and standard deviations (*SD*) are reported throughout. When reporting analyses in the following studies, the study groups are abbreviated as below.



**Table 6.10:** *Study group abbreviations*

<b>Group</b>	<b>Group abbreviation</b>
Mothers with borderline personality disorder	BPD
Mothers with depression	DPN
Mothers with no mental health difficulties	HC
Children of mothers with borderline personality disorder	cBPD
Children of mothers with depression	cDPN
Children of mothers with no mental health difficulties	cHC

The following chapters seven, eight, and nine report and discuss the findings from the empirical studies. Chapters seven and eight are presented as manuscripts.

## CHAPTER SEVEN

### PARENTING KNOWLEDGE AND SELF-EFFICACY

Parenting knowledge and parenting self-efficacy of mothers with borderline personality disorder and depression: 'I know what to do but think I am not doing it'

#### 7.1 Abstract

**Background.** Borderline personality disorder (BPD) is characterised by extreme instability in affect, behaviour, and relationships, often associated with early childhood adversities. Studies have identified maladaptive parenting behaviours in mothers with BPD, however it is not clear whether these parenting differences are attributable to poor knowledge of good parenting or lower perceptions of parenting self-efficacy.

**Method.** This study investigated two clinical groups: mothers with BPD ( $n=26$ ) and mothers with depression (DPN) ( $n=25$ ), compared to healthy control mothers (HC) ( $n=25$ ). Participants ranked ideal sensitive mother behaviours in a Q-sort parenting knowledge task and completed a parenting self-efficacy questionnaire.

**Results.** Mothers with BPD had the same knowledge of ideal parenting behaviours as mothers with depression and HC mothers,  $p=.140$ ,  $\eta_p^2=.055$ . However, parenting self-efficacy was lower in BPD and DPN compared with HCs,  $p<.001$ ,  $\eta_p^2=.267$ , with severity of mental health symptoms most strongly associated with lower parenting self-efficacy  $\beta=-.63$ ,  $p<.001$ . A significant but low correlation was found between parenting self-efficacy and knowledge  $r(76)=.24$ ,  $p=.04$ .

**Limitations.** Similar severity of depression in the two clinical groups could have enabled greater specificity by diagnosis. Replication in a larger cohort longitudinal study would allow causal inferences to be made.

**Conclusions.** Mothers with BPD and depression know what good parenting is but think they are not parenting well. Treatment-seeking mothers with BPD and depression may require interventions to improve their perceptions of their parenting

efficacy. Further exploration is warranted, as if effective parenting is observed in mothers with good parenting knowledge, then providing positive parenting feedback could help improve self-efficacy.

## 7.2 Introduction

BPD is a complex mental health condition affecting 1-6% of the population, many (c.85%) who are of child-rearing age (Coid et al., 2006; Grant et al., 2008). In clinical settings approximately 75% of those diagnosed are female (APA, 2000). BPD is associated with pervasive functional impairment in emotion regulation, interpersonal relationships, identity disturbance and behavioural control (APA, 2013), with impairments recognised as having a substantial impact on family organization and functioning (Feldman et al., 1995). The disorder is often associated with childhood trauma and maltreatment (Battle et al., 2004; Linehan, 1993) in particular abuse, neglect (Spatz Widom et al., 2009; Zanarini et al., 1997; 2002) and family adversity (Winsper et al., 2012).

There is increasing interest in the impact of maternal BPD on parenting, with studies identifying a number of parenting challenges such as less sensitive, overprotective, hostile parenting (for a review see Eyden et al., 2016). However, none to date has examined whether mothers with BPD know what makes an ideal sensitive mother. Parenting knowledge has been associated with parenting practices and behaviour (Okagaki & Bingham, 2005), observed parenting competence (Winter et al., 2012), and successful interpretation of child behaviour (Bugental & Happaney, 2002), with low parenting knowledge found to be associated with child internalising behaviour outcomes (Winter et al., 2012). Moreover, parenting knowledge has been associated with enhanced perceptions of parenting self-efficacy (Bornstein et al., 2003; Bornstein et al., 2018), with self-efficacy and observed parenting behaviour positively related when knowledge was high (Hess et al., 2004). Given the potential relationship between parenting knowledge, self-efficacy, mental health, parenting behaviour, and child outcomes, exploring the comprehension that mothers with BPD have regarding sensitive parenting and their perceptions of their parenting efficacy is key to informing what type of future interventions are required.

Parenting received as a child by those later diagnosed with BPD is often harsh (Belsky et al., 2012; Winsper et al., 2012), less caring and affectionate (Bandelow et al., 2005), inconsistent, and invalidating (Zanarini et al., 1997). Furthermore, being less likely to have been exposed to or had opportunity to observe appropriate parenting during childhood (Pears & Capaldi, 2001), may create maladaptive parenting schemas. Those who have a BPD diagnosis may know how they would not want to parent, yet not truly understand what 'good' parenting looks like. With no model of sensitive parenting, it is possible that when becoming a mother themselves their idea of appropriate sensitive parenting may be distorted. Moreover, due to associated personal relationship difficulties, social isolation, and a lack of positive parenting models, mothers with BPD have fewer people for support and parenting discussions (Dunn et al., 2020). As such, we hypothesise that mothers with BPD would have lower parenting knowledge than mothers without BPD.

Parenting knowledge has been associated with parenting self-efficacy (Bornstein et al., 2003); mothers with BPD report feeling less competent and less satisfied with their parenting than healthy comparison mothers (Elliot et al., 2014; Newman et al., 2007). Moreover, the identity disturbance and unstable sense of self often experienced by those with BPD can manifest in low self-confidence, unstable self-esteem, and poor self-regard (e.g., Zeigler-Hill & Abraham, 2006). Perceptions of their parenting being judged by others (Lerner, 2021) may be further exacerbated by BPD symptomatology. Those with BPD also experience unstable social support (Clifton et al., 2007), which is also associated with low parenting self-efficacy (Anglely et al., 2015). It is therefore likely that mothers with BPD may report low perceived parenting self-efficacy i.e., the mother's belief regarding her ability to parent successfully (Jones & Prinz, 2005).

Depression is another mental health condition associated with parenting difficulties. Childhood trauma is also associated with severe chronic depression (Negele et al., 2015). However, as depression has varied severity and aetiology (NHS, 2020; Wang et al., 2017), any associations with childhood maltreatment (and subsequent poor parenting experiences/maladaptive parenting schemas) are potentially less

prevalent. As such, parenting knowledge may be only mildly, or not affected in this clinical group. Conversely, poor parenting self-efficacy is associated with maternal depression (Kohlhoff & Barnett, 2013) as is low self-esteem and poor self-concept (e.g., Fennell, 2004; Fox, 2000); it is therefore likely that parenting self-efficacy may be negatively impacted. As BPD and depression often co-occur (83% lifetime prevalence of MDD; Zanarini et al., 1998), it is important to delineate whether it is BPD, depression or their combination that is associated with lower parenting knowledge and self-efficacy.

### **7.2.1 The current study**

This study investigates knowledge of ideal sensitive parenting and perceived parenting self-efficacy of mothers with BPD compared to mothers with depression and mothers with no mental health difficulties. Do mothers with BPD differ from the comparison groups in their knowledge of ideal sensitive parenting? Do mothers with BPD perceive their parenting efficacy differently to the comparison groups? Are any group differences associated with adverse childhood experiences, symptom severity and social support? We hypothesised that mothers with BPD will have lesser knowledge of ideal sensitive parenting than mothers with depression or no mental health difficulties (H1), but both mothers with BPD and depression will have lower parenting self-efficacy than healthy comparison mothers (H2). Finally, we hypothesised that childhood adversity, symptom severity, and perceived social support are the major factors associated with parenting knowledge and self-efficacy (H3).

## **7.3 Method**

### **7.3.1 Participants**

This study is part of a UK National Health Service (NHS) approved study (16/WM/0076, project ID:105429) exploring the parenting of mothers with BPD. A power analysis (G-Power; Erdfelder et al., 1996) indicated a total of 75 participants to yield 87% power for detecting large effects. Mothers were included if they were age 18 or over, fluent in English, had a child up to age 12 who had lived with them for the majority of the child's life, and either (a) had received a formal clinical

diagnosis of BPD or depression (by DSM/ICD clinical interviews) and were not in a current major exacerbation of their symptoms, or (b) had no mental health difficulties whilst being a parent - forming three study groups BPD, depression (DPN), and healthy comparisons (HC).

Recruitment took place from 2017 to 2018 in England, UK. Mothers with BPD were recruited from psychiatry services, DBT clinics, or personality disorder services; mothers with depression were recruited from clinical services (psychiatry and psychology) or community services (mother and baby groups, school newsletters, social media); and mothers with no mental health difficulties were recruited from similar community services. In all contexts, interested mothers were given the study information and signed consent-to-contact was obtained. Consenting mothers were contacted to assess eligibility. Non-response rates could not be calculated due to the nature of recruitment, however drop-out rates after consenting to be contacted or agreeing to participate were BPD  $n=2$ , DPN  $n=7$ , HC  $n=5$ . Child age range was kept broad to maximise the recruitment potential of mothers with BPD. Due to developmental differences, children's developmental stage was stratified between groups, as was educational level of mothers.

A total of 76 mothers participated: BPD  $n=26$ , DPN  $n=25$ , HC  $n=25$ . Home visits lasted around 2½ hours (one participant was seen at the University lab). Informed written consent was obtained. Mother's age ranged from 20 to 54 years and child age from 5 months to 11 years. Significant between group differences showed mothers with BPD were the youngest with a mean age of 30 and were less likely to be in employment (table 7.1). There were no group differences regarding mother's qualification level, relationship/marital status or ethnicity, child's age (in months or developmental stage), gender, number of siblings, or presence of child learning/mental health difficulties, nor for the clinical groups with diagnosis duration or therapy history.

**Table 7.1: Mother and child demographic characteristics**

Characteristics	BPD n=26 (25 child) Mean (SD)		Depression n=25 Mean (SD)		No mental health n=25 Mean (SD)		F	p	$\eta_p^2$
Age of mother (years)	30.4	(6.8)	33.6	(7.5)	35.8	(7.7)	3.46	.037	.087
	n (%)		n (%)		n (%)		$\chi^2$	p	$\phi_c$
Marital status							4.31	.116	.238
Married/living with	15	(57.7)	18	(72)	21	(84)			
Single	11	(42.3)	7	(28)	4	(16)			
Employment status							7.81	.020	.321
Not currently working	19	(73.1)	11	(44)	9	(36)			
Working/studying	7	(26.9)	14	(56)	16	(64)			
Qualification level							6.64	.156	.209
GCSE (equiv)/none	12	(46.2)	9	(36)	7	(28)			
A-level diploma (equiv)	11	(42.3)	6	(24)	9	(36)			
Degree/post grad (equiv)	3	(11.5)	10	(40)	9	(36)			
Ethnicity							2.42	.298	.178
White	25	(96.2)	21	(84)	21	(84)			
Other	1	(3.8)	4	(16)	4	(16)			
Duration of diagnosis							.267	.966	.072
0-1 years	7	(26.9)	8	(32)	n/a				
1-2 years	7	(26.9)	6	(24)	n/a				
2-3 years	4	(15.4)	3	(12)	n/a				
> 3 years	8	(30.8)	8	(32)	n/a				
Therapy for MH							2.83	.243	.236
No therapy	8	(30.8)	4	(16)	n/a				
Current therapy	11	(42.3)	9	(36)	n/a				
Previous therapy	7	(26.9)	12	(48)	n/a				
	Mean (SD)		Mean (SD)		Mean (SD)		F	p	$\eta_p^2$
Age of child (months)	54.7	(39.6)	45.6	(36.5)	55.3	(39.9)	.495	.612	.012
Number of siblings	1.2	(1.4)	.72	(.84)	1.0	(.96)	1.01	.369	.023
	n (%)		n (%)		n (%)		$\chi^2$	p	$\phi_c$
Developmental age group							1.45	.963	.098
Infant/toddler (5-36m)	10	(40)	13	(52)	10	(40)			
Preschool (37-60m)	4	(16)	3	(12)	5	(20)			
Early childhood (61-84m)	6	(24)	4	(16)	5	(20)			
Mid childhood (85-143m)	5	(20)	5	(20)	5	(20)			
Gender							2.03	.363	.179
Boys	10	(40)	15	(60)	13	(52)			
Girls	15	(60)	10	(40)	12	(48)			
Child learning/mental health difficulties	2	(8)	2	(8)	0	(0)	2.11	.348	.165

Notes: MH = mental health

### 7.3.2 Measures

***Borderline personality disorder pathology.*** The Personality Assessment Inventory (PAI-BOR; Morey, 1991) is a 24-item self-report Likert scale questionnaire used to assess the BPD subscales of affective instability, identity disturbance, negative relationships, and impulsivity/self-harming. The PAI-BOR has concurrent validity with DSM-IV (APA, 2000) and SCID-II (First et al., 1997). Scores range from 0 (not true at all) to 3 (very true). Subscale totals and overall total scores were transformed to *T*-scores for analyses, based on Morey's (1991) normative sample comparisons. Cronbach's alpha for the current sample was  $\alpha=.92$ .

***Depression.*** Presence and severity of depression symptoms were measured using the Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001), a 9-item self-report Likert scale questionnaire. Scores range from 0 (not at all) to 3 (nearly every day). Validity and reliability for the PHQ-9 has been well established (e.g., Löwe, Spitzer, et al., 2004; Löwe, Unützer, et al., 2004), and is the measure used by NHS, England. Cronbach's alpha for the current sample was  $\alpha=.93$ .

***Adverse childhood experiences.*** Mothers' retrospective recall of childhood adversity was established using the Adverse Childhood Experiences International Questionnaire (ACE-IQ, WHO, 2020a). The ACE-IQ has robust validity and reliability and is widely used (e.g., Kazeem, 2015; Murphy et al., 2014). Items on neglect (emotional and physical), abuse (emotional, physical, and sexual), family household adversities (e.g., parent with mental health, witnessing home violence), and bullying were included in a 23-item self-report Likert scale questionnaire. Responses range from always to never for questions regarding occurrence of an event, and yes/no for binary questions.

Each were coded using the ACE-IQ score calculation guide (ACE, 2018a). The ACE-binary scale denotes the presence/absence of various ACEs, and ACE-frequency the prevalence of each adversity. Scores range from 0-11 on each, the higher the ACE scores the greater the childhood adversity. Cronbach's alphas for the current sample were  $\alpha=.82$  (ACE-binary) and  $\alpha=.83$  (ACE-frequency).



**Maternal rating of received and preferred social support.** The Significant Others Scale (SOS: Power, Champion, & Aris, 1988) measured the level of received and preferred emotional and practical support from significant others in the mother's life. The SOS includes four self-report Likert scale questions assessing the level of support received e.g., 'can you trust, talk to frankly and share feelings with this person?' To capture preferred/ideal support, each question was followed by 'what rating would your ideal be?' Scores ranged from 0 (never) to 7 (always); participants could report up to four significant persons. SOS variables were created for received support, preferred support, and a discrepancy score of preferred minus received support. Cronbach's alphas for the current sample were  $\alpha=.90$  (received support) and  $\alpha=.91$  (preferred support).

**Maternal knowledge of ideal parenting.** A Q-sort task was used to assess mother's knowledge of the behaviours that most indicate an ideal sensitive mother. The maternal behaviour Q-set (MBQS) was based on Ainsworth's concept of attachment and maternal sensitivity, originally designed by Pederson and Moran (1995) for clinician use and later adapted by Mesman et al. (2015) for self-report. Ninety behaviour statements are ranked from the most ideal to the least ideal sensitive mother behaviours. Examples of behaviour statements include 'Makes sure she can hear or see her child'; 'Her responses to her child are unpredictable'. The behaviour statements were printed on white laminated cards in black Calibri 12-font. Pilot testing revealed a few misinterpretations of the Mesman-adapted statements, which were amended whilst retaining Pederson & Moran's intended meanings (Appendix Q). Correlation coefficients were computed comparing the mother-ranked behaviour scores with Pederson and Moran's criterion of an ideal sensitive mother (MBQS-score). High MBQS scores indicate an understanding of maternal sensitive parenting behaviour. A discrepancy score was calculated to denote the number of items which differ by 3 or more from Pederson & Moran's criterion score representing behaviours ranked in a different category (e.g., an 'ideal' statement ranked as 'not ideal').

**Maternal parenting self-efficacy.** Mother's parenting self-efficacy was measured using the Tool to Measure Parenting Self Efficacy (TOPSE; Kendall & Bloomfield, 2005). The TOPSE is a 48-item self-report Likert scale questionnaire, which assesses eight parenting domains: *emotion and affection; play and enjoyment; empathy and understanding; control; discipline and setting boundaries; parenting pressure; parenting self-acceptance; and parenting knowledge and learning*. Within each parenting domain are six items to rate; scores range from 0 (completely disagree) to 10 (completely agree). A score was given for each subsection, however as the adapted TOPSE baby questionnaire (for mothers with a child under 12m) excludes the domains of *Control* and *Discipline*, for comparability the overall TOPSE score was converted to a percentage score for each participant (TOPSE%). The TOPSE has been shown to have good internal and external reliability (e.g., Bloomfield & Kendall, 2007). Cronbach's alpha for the current sample was  $\alpha=.97$ .

### 7.3.3 Procedure

Mothers provided demographic information (table 1) and completed clinical, adverse childhood, and parenting self-efficacy questionnaires. For the Q-sort task mothers were asked to consider the behaviours of an ideal sensitive mother parenting a 0-3-year-old.

Sort 1. Mothers sorted the behaviour cards into piles of either *most ideal*, *least ideal*, or *neither most nor least ideal* parenting. The cards were then ranked from 9-1 (sorts 2, 3, & 4 below) with 9 representing the most ideal maternal parenting behaviours.

Sort 2. From the *ideal behaviours* pile, mothers chose the top 10 behaviours (ranked as 9), the 10 next most ideal behaviours (ranked 8) and then the 10 they ranked as 7. Any remaining cards were placed in the *neither/nor* pile.

Sort 3. The *least ideal* pile was ranked in a similar manner from 1-3 with 10 in each (1 being the least ideal). Any remaining cards were placed in the *neither/nor* pile.

Sort 4. Finally, the *neither/nor* pile was ranked choosing the most ideal 10 out of the remaining cards ranked as 6, followed by 5 then 4. Mothers were given a £10 voucher as a thank-you for participating and a debriefing letter signposting to relevant support services.

#### 7.3.4 Data processing and analysis

**Missing data.** Missed questions on the TOPSE questionnaire ( $n=2$ ) were omitted from the overall percentage score. A question missed on the PAI-BOR ( $n=1$ ) was replaced with the mean value for that subsection, and where participants ( $n=7$ ) opted for 'prefer not to answer' on the ACE-IQ questionnaire, these were not included in total ACE scores. The two ACE scales (binary, frequency) were highly correlated,  $r(76) = .91, p < .001$ , therefore ACE-binary (i.e., number of ACEs) was used in the main analyses.

**Statistical methods.** IBM SPSS version 25 was used. Analysis of covariance (ANCOVA) were computed to identify group differences in each of the clinical/support variables (PAI-BOR, PHQ-9, ACE-IQ, SOS) and outcome variables (TOPSE, MBQS). As mother's age and employment status differed between groups, these demographic characteristics were entered as covariates, with Bonferroni adjusted post hoc comparisons. To address multicollinearity between borderline severity (PAI-BOR) and depression severity (PHQ-9),  $r(76) = .84, p < .001$ , principal components analysis was used to create a composite variable of mental health symptom severity (Field, 2009; Song et al., 2013). Variables included borderline severity (PAI-BOR), depression severity (PHQ-9), number of comorbid conditions, and difficulty in daily functioning measures. No rotation method was required as only one composite had an Eigen-value  $>1$ , The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) exceeded the minimum recommended value ( $>.5$ ): KMO = .69, and Barlett's test of sphericity was significant:  $\chi^2(6) = 167.47, p < .001$ . The extracted composite explained 68% of the variance, with PAI-BOR, PHQ-9, comorbidity, and functioning difficulty loading as .928, .910, .839, .561 respectively. Standardised Cronbach's alpha = .83.

Where significant group differences were found, hierarchical regressions were performed to explore which variables (ACE, mental health severity, social support, maternal knowledge) had the strongest association. For parenting self-efficacy, adverse childhood experience (ACE-binary) was included at step 1 due to the temporal priority of this variable; mental health severity was added at step 2; and

given the importance of a supportive social network on parenting self-efficacy and the relationship between knowledge and self-efficacy, discrepancy between received and preferred support (SOS), and parenting knowledge (MBQS) were added at step 3. Approximate normality, multicollinearity, homoscedasticity, linearity, outliers, and independence of errors assumptions were met with the exception of one outlier, which was a valid response and therefore retained. Significance was set at  $p < .05$ .

## **7.4 Results**

### **7.4.1 Clinical profile**

For all BPD scales, BPD mothers scored significantly higher than DPN and HC mothers; DPN mothers scored significantly higher than HC mothers on all except self-harm/impulsivity (see table 7.2). For current depression symptoms BPD mothers had higher scores than DPN mothers who had higher scores than HC mothers. Moderate or severe depression ( $\geq 10$  on PHQ-9) was reported in 88% ( $n=23$ ) of BPD mothers, 56% ( $n=14$ ) of DPN mothers, and 4% ( $n=1$ ) of HC mothers,  $\chi^2(2, n=38)=34.43, p=.077$ . No difference was found between the two clinical groups for difficulty in daily functioning score, however BPD mothers had significantly more comorbid conditions. All effect sizes were large.

### **7.4.2 Adverse childhood experiences**

BPD mothers had experienced more overall ACEs and more frequently, more abuse and more frequently, and more neglect and more frequently than either DPN or HC mothers, and more family adversity than HC mothers (see table 7.2). No differences were found between DPN and HC mothers with the exception of neglect where DPN mothers scored significantly higher than HC mothers. No differences were found between BPD, DPN, and HC with being bullied (42%  $n=11$ ; 28%  $n=7$ ; 16%  $n=4$  respectively;  $\chi^2(2, N=76)=4.30, p=.116$ ). All effect sizes were large except for family adversity (moderate).

**Table 7.2:** Means, standard deviation, ANCOVA statistics, and pairwise comparisons for BPD scores (PAI-BOR), depression scores (PHQ-9), comorbidity, childhood adversity scores (ACE-IQ), and social support (SOS) by participant group

Measures	BPD ( <i>n</i> =26)	DPN ( <i>n</i> =25)	HC ( <i>n</i> =25)	Between group comparisons				Pairwise comparisons ( <i>p</i> )		
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	BPD-DPN	BPD-HC	DPN-HC
<b>BPD pathology</b>										
PAI-BOR <i>T</i> -score	82.96 (11.65)	63.80 (12.22)	43.36 (7.05)	2, 71	69.801	<.001	.669	<.001	<.001	<.001
BOR-A <i>T</i> -score <sup>a</sup>	79.12 (9.98)	64.16 (12.18)	45.56 (8.87)	2, 71	51.927	<.001	.601	<.001	<.001	<.001
BOR-I <i>T</i> -score	74.27 (10.49)	64.04 (12.62)	42.00 (5.82)	2, 71	57.121	<.001	.623	.026	<.001	<.001
BOR-N <i>T</i> -score <sup>b</sup>	74.85 (10.58)	62.20 (12.90)	45.20 (9.41)	2, 71	33.637	<.001	.494	.025	<.001	<.001
BOR-S <i>T</i> -score	79.38 (16.63)	53.00 (12.07)	46.76 (7.44)	2, 71	32.482	<.001	.485	<.001	<.001	.339
<b>Depression</b>										
PHQ-9 total score	16.15 (5.58)	11.24 (6.05)	2.16 (2.12)	2, 71	45.036	<.001	.566	.012	<.001	<.001
Functioning	1.50 (0.86)	1.48 (1.74)	0.20 (0.41)	2, 71	10.034	.003	.225	1.00	<.001	<.001
# Comorbidity	2.12 (0.77)	0.84 (0.62)	0.00 (0.00)	2, 71	66.652	<.001	.659	<.001	<.001	<.001
<b>Childhood Adversity</b>										
ACE-IQ binary	8.00 (1.88)	5.64 (2.68)	3.84 (2.90)	2, 71	12.100	<.001	.260	.008	<.001	.165
Abuse	2.70 (0.47)	1.73 (1.03)	1.16 (1.07)	2, 65	12.648	<.001	.286	.005	<.001	.244
Neglect <sup>c</sup>	1.58 (0.58)	0.83 (0.70)	0.48 (0.65)	2, 70	13.610	<.001	.286	.002	<.001	.343
Family adversity	3.04 (1.15)	2.36 (1.38)	1.56 (1.42)	2, 71	4.840	.011	.123	.288	.008	.375

Measures	BPD ( <i>n</i> =26)	DPN ( <i>n</i> =25)	HC ( <i>n</i> =25)	Between group comparisons				Pairwise comparisons ( <i>p</i> )		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	BPD-DPN	BPD-HC	DPN-HC
ACE-IQ frequency	6.73 (2.03)	4.08 (3.10)	2.24 (2.44)	2, 71	14.180	<b>&lt;.001</b>	.291	<b>.004</b>	<b>&lt;.001</b>	.100
Abuse	2.17 (0.89)	0.91 (1.11)	0.48 (0.82)	2, 65	16.166	<b>&lt;.001</b>	.339	<b>&lt;.001</b>	<b>&lt;.001</b>	.508
Neglect	1.38 (0.57)	0.87 (0.68)	0.24 (0.52)	2, 70	19.355	<b>&lt;.001</b>	.363	<b>.011</b>	<b>&lt;.001</b>	<b>.004</b>
Family adversity	2.92 (1.19)	2.08 (1.55)	1.26 (1.35)	2, 71	4.767	<b>.011</b>	.121	.210	<b>.009</b>	.530
<b>Social support</b>										
Actual support	17.95 (4.66)	20.29 (3.42)	23.15 (3.45)	2, 71	7.591	<b>.001</b>	.180	.462	<b>.001</b>	<b>.038</b>
Ideal support	24.82 (3.35)	25.67 (2.15)	26.42 (1.69)	2, 71	1.847	<b>.195</b>	.051	1.00	.190	.736
SOS discrepancy	7.41 (3.80)	5.53 (2.88)	3.36 (2.65)	2, 71	6.807	<b>.002</b>	.165	.317	<b>.001</b>	.096

<sup>a</sup> The covariate of age of mother had a significant main effect on BOR-A *T*-score,  $F(2,71)=5.951$ ,  $p=.017$ ,  $\eta_p^2=.079$ , whereby as mother's age increased affective instability decreased  $r(76)= -.399$ ,  $p<.001$ .

<sup>b</sup> The covariate of working status had a significant main effect on BOR-N *T*-score,  $F(2,71)=4.887$ ,  $p=.030$ ,  $\eta_p^2=.066$ , whereby as working status increased (i.e., when in employment) negative relationships decreased  $r(76)= -.432$ ,  $p<.001$ .

<sup>c</sup> The covariate of age of mother had a significant main effect on Neglect binary score,  $F(2,71)=5.544$ ,  $p=.021$ ,  $\eta_p^2=.075$ , as mothers age increased, neglect was less likely to have occurred,  $r(76)= -.385$ ,  $p=.001$

### 7.4.3 Social support

ANCOVA analyses showed a difference between groups for received support with large effect sizes; both BPD and DPN mothers received less support than HC mothers (table 7.2). For preferred support there was no significant group difference; all mothers had similar support expectations. Significant group differences were found with SOS discrepancy (i.e., the difference between actual/received support and ideal/preferred support) again with large effects. BPD mothers had a significantly larger discrepancy than HC mothers (all other comparisons were not significant). As the discrepancy score most accurately reflects the mother's perception of support, this variable was used in subsequent analyses.

## Main results

### 7.4.4 H1: Mother's knowledge of ideal sensitive parenting

No significant differences were found between groups with the MBQS ideal sensitive mother score (see table 7.3). To investigate whether there were any group differences by specific mother behaviour statements, the ten highest scoring items and the ten lowest scoring items were reported by group. Table 7.4 shows almost complete convergence of mother behaviour items chosen by the BPD, DPN and HC mothers. All Q-sort findings indicate that BPD mothers have the same knowledge of what makes an ideal sensitive mother as DPN and HC mothers. A low positive correlation was found between mother's parenting knowledge and self-efficacy,  $r(76) = .24, p = .04$ .

**Table 7.3:** Means, standard deviations, ANCOVA statistics, and pairwise comparisons for mother's parenting perceptions (TOPSE) and mother's parenting knowledge (MBQS) by participant group

MBQS & TOPSE Measures	BPD ( <i>n</i> =26)	DPN ( <i>n</i> =25)	HC ( <i>n</i> =25)	Between group comparisons				Pairwise comparisons ( <i>p</i> )		
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	BPD-DPN	BPD-HC	DPN-HC
<b>Knowledge</b>										
MBQS	0.79 (0.5)	0.79 (0.05)	0.81 (0.03)	2, 71	2.026	.140	.055	-	-	-
<b>Self-perceptions</b>										
Total TOPSE %	64.92 (17.39)	74.20 (15.78)	87.76 (8.91)	2, 71	12.536	<.001	.267	.267	<.001	.003
Emotion	49.08 (10.56)	53.64 (7.39)	57.24 (2.70)	2, 71	4.673	.012	.119	.395	.010	.305
Play	42.92 (13.72)	47.84 (11.23)	56.44 (4.63)	2, 71	8.031	.001	.189	.719	.001	.017
Empathy	42.92 (11.40)	49.52 (9.48)	54.40 (4.75)	2, 71	6.683	.002	.162	.063	<.001	.059
Control <sup>a</sup>	32.90 (12.21)	41.10 (12.34)	46.29 (8.01)	2, 60	5.457	.007	.163	.209	.005	.390
Discipline <sup>a</sup>	33.33 (14.62)	46.52 (9.35)	47.24 (11.19)	2, 60	6.637	.003	.192	.011	.005	1.00
Pressures <sup>b</sup>	29.00 (14.64)	26.28 (15.72)	48.12 (10.84)	2, 71	18.715	<.001	.352	1.00	<.001	<.001
Self-acceptance	35.96 (12.61)	42.88 (12.08)	54.12 (6.75)	2, 71	15.535	<.001	.314	.270	<.001	.001
Learning	41.08 (13.20)	48.67 (9.57)	55.24 (4.93)	2, 71	11.401	<.001	.251	.064	<.001	.039

Notes: <sup>a</sup> *n*=21 for BPD, DPN & HC

<sup>b</sup> The covariate of age of mother had a significant main effect on TOPSE Pressure score,  $F(2,71)=6.429$ ,  $p=.013$ ,  $\eta_p^2=.085$ , whereby as mother's age increased their ability to manage parenting pressures increased,  $r(76)=-.320$ ,  $p=.005$



**Table 7.4:** *Highest and lowest scoring MBQS items by participant group*

Highest scoring mother behaviour statements	Highest 10 BPD (n=26)	Highest 10 DPN (n=25)	Highest 10 HC (n=25)
Responds well when child is upset or distressed	✓	✓	✓
Makes sure she can see or hear her child	✓	✓	✓
Steps in when her child does something dangerous	✓	✓	✓
Is enthusiastic when she does things with her child	✗	✓	✗
Praises her child, acknowledges achievements	✓	✓	✓
Makes sure the environment is interesting for her child	✓	✗	✗
Shows that she enjoys doing things with her child	✓	✓	✓
Responds to what her child does or says	✗	✗	✓
Notices when her child is distressed	✓	✓	✓
Holds her child close to her to comfort him/her	✓	✓	✓
Clearly shows her child love and acceptance	✓	✓	✓
The way she handles her child makes her child settled and content	✓	✓	✓
Lowest scoring mother behaviour statements	Lowest 10 BPD (n=26)	Lowest 10 DPN (n=26)	Lowest 10 HC (n=26)
Her responses to her child are unpredictable	✓	✓	✓
Treats her child as an object when holding him/her	✗	✓	✗
Her way of showing affection to her child seems insincere or mechanical	✓	✓	✓
Often scolds or criticises her child	✓	✓	✓
Is irritated when her child wants to be near to her	✓	✓	✓
Shows that she is aware of her child's distress but does not respond	✓	✓	✓
Never responds to her child	✓	✓	✓
Responds only when her child shows prolonged or intense distress	✓	✗	✓
The feelings she shows do not match the child's feelings (laughs when child is upset)	✓	✓	✓
Often disagrees or argues with her child (underlying hostility)	✓	✓	✓
Is negative and hostile towards her child	✓	✓	✓

**Note:** Ticks represent the mother behaviour statements chosen by each group

#### **7.4.5 H2: Mother's parenting self-efficacy**

Separate ANCOVAs revealed significant group differences for the total TOPSE% score and for each TOPSE subscale (table 7.4). All yielded large effect sizes. Post hoc tests showed both mothers with BPD and DPN had overall lower parenting self-efficacy than HCs. Similarly, both clinical groups had lower perceived self-efficacy on the measures of Play, Parenting pressures, Self-acceptance, and Learning than HC mothers. BPD mothers had lower perceived self-efficacy than HC mothers for Emotion and Affection, Empathy, Control, and lower than DPN and HC mothers for Discipline.

#### **7.4.6 H3: Associations with maternal parenting self-efficacy**

Significant negative correlations were found between mother's parenting self-efficacy (TOPSE%) and ACE-binary  $r(76) = -.29, p = .006$ ; symptom severity  $r(76) = -.67, p < .001$ ; SOS discrepancy  $r(76) = -.45, p < .001$ , and positively correlated with MBQS  $r(76) = .24, p < .020$ . Step 1 of the hierarchical regression showed that ACE contributed significantly to the regression model,  $F(1, 74) = 6.79, p = .01$ , accounting for 8.4% of the variance of mother's parenting self-efficacy (table 7.5). At step 2 the model was again significant,  $F(2, 73) = 30.14, p < .001$ , but with symptom severity added ACE no longer significantly contributed to the model ( $p = .60$ ); symptom severity accounted for 36.8% of the variance. Finally at step 3, the addition of support discrepancy resulted in a significant model,  $F(4, 71) = 17.74, p < .001$ , with support uniquely accounting for 3.6% of the variance. ACE and knowledge coefficients were not significant ( $p = .22, p = .15$ ); symptom severity and support discrepancy were significant ( $p < .001, p = .04$ ). The final model accounted for 47% of total variance, with symptom severity having the strongest effect on mother's parenting self-efficacy ( $\beta = -.61$ ); three times that of social support ( $\beta = -.21$ ).

**Table 7.5:** Hierarchical regression exploring the relative contribution of childhood adversity, symptom severity, and social support in mother's self-perceptions of parenting (TOPSE%)

Variable	<i>B</i>	SE	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
<b>STEP 1</b>						.29	.08	.08
Constant	85.15	4.17		20.43				
ACE-IQ (binary)	-1.65	.63	-.29	-2.61	.01			
<b>STEP 2</b>						.67	.45	.37
Constant	73.62	3.64		20.24				
ACE-IQ (binary)	.32	.57	.06	.56	.58			
MH severity	-12.01	1.71	-.70	-7.01	<.001			
<b>STEP 3</b>						.71	.50	.05
Constant	37.36	27.76		1.35				
ACE-IQ (binary)	.70	.57	.12	1.23	.22			
MH severity	-10.48	1.76	-.61	-5.94	<.001			
SOS discrepancy	-1.62	.47	-.21	-2.25	.03			
Knowledge (MBQS)	50.03	34.39	.125	1.46	.15			

Notes: *N* = 76

## 7.5 Discussion

This is the first study to our knowledge to explore whether mothers with BPD are cognisant of ideal sensitive parenting: Do they know what ideal sensitive parenting looks like and do they think they are parenting well? We found that mothers with BPD had a similar knowledge of parenting as mothers with depression and mothers with no mental health difficulties. However, both clinical groups had lower overall perceptions of their parenting efficacy than those without mental health difficulties. Mothers with BPD had experienced more childhood adversity, and the clinical groups received less support than HCs despite having similar social support expectations. The discrepancy between preferred and received support was significantly larger in mothers with BPD than healthy comparison mothers.

### 7.5.1 H1: Parenting knowledge

Contrary to our hypothesis, mothers with BPD appear to know what good parenting is despite experiencing greater childhood adversity and having had fewer opportunities to observe appropriate parenting (Pears & Capaldi, 2001). Similarly, having fewer people for support and fewer with whom to discuss parenting strategies did not limit parenting knowledge in mothers with BPD, despite social parenting models suggesting that parents rely first and foremost on family and friends for support (Cochran & Negro, 2002). Parenting skills are often learned from one's own parents, however, parenting knowledge is also gleaned from other sources such as psychiatric services and health visitors, in particular regarding infant parenting (the age of focus for the Q-sort task); from other relatives, friend's parents during childhood, observing other mothers in the community; and from the plethora of literary, media, and online resources of parenting strategies readily accessible to help-seeking parents (e.g., Bornstein, 2015; Bornstein, Cote, et al., 2010; Smith, 2010). Further exploration of how mothers with BPD gain parenting knowledge is warranted as despite their often-poor childhood experiences and relationship difficulties, mothers with BPD still acquire parenting knowledge. It could be that mothers with BPD have a general understanding of parenting knowledge but are less informed regarding parenting practices and timings of child developmental abilities (Tamis-LeMonda et al., 2002). Both a basic knowledge of child developmental

milestones and an understanding of necessary parenting practices are required to optimise child development (WHO, 2009).

### **7.5.2 H2: Parenting self-efficacy**

Mothers with BPD and depression reported lower parenting self-efficacy (Elliot et al., 2014; Kohlhoff & Barnett, 2013; Newman et al., 2007) than healthy comparison mothers. Lower discipline and boundary setting was specific to BPD, consistent with previous research (Harvey et al., 2011). Parenting knowledge does not appear to equate to perceived parenting self-efficacy in that mothers with BPD or depression thought they were not doing well as parents or parenting as well as other mothers (as seen by the self-acceptance scores). Borderline and depression symptomatology of low sense of self and low self-esteem (APA, 2013) could be colouring their responses. However, mothers with BPD and depression could be accurately reporting their parenting efficacy, as highlighted by maternal BPD and depression studies of observed parenting behaviour (Eyden et al., 2016; Lovejoy et al., 2000), and may struggle to translate parenting knowledge into sensitive parenting behaviour. As parenting self-efficacy is associated with observed parenting behaviour, indirectly affecting the child via parenting behaviours and practices (Jones & Prinz, 2005; Reiner-Hess et al., 2004), our findings raise important questions (e.g., how mothers utilise parenting knowledge in parenting practices), which require exploration in these two clinical groups via direct observations of their parenting behaviours.

### **7.5.3 H3: Associations with maternal parenting self-efficacy**

Adverse childhood experiences affect parenting perceptions (Michl et al., 2015), however whilst ACEs were initially associated with lower parenting self-efficacy in the regression analyses, severity of symptoms was most strongly associated with mothers' parenting self-efficacy scores over and above the contribution of ACE. If ACEs are involved with parenting self-efficacy in any causal way then this could be due to the impact of childhood adversity on mental health severity, which would require evaluation with longitudinal data. Associations of borderline severity with depression severity, comorbidity of depression with BPD, and the inability to

untangle the two makes it challenging to conclude with certainty whether differences found in mothers' parenting self-efficacy are due to borderline or depression symptomatology, although likely to be linked to the negative cognitive self-schemas often associated with these disorders. Similarly, it is not conclusive whether it is depression severity or the severity of mental health more generally. However, the findings suggest that severity of mental health rather than specific diagnosis underpins the association with parenting self-efficacy given that mothers with depression also had higher borderline severity scores than healthy comparison mothers<sup>18</sup>. This is consistent with the general shift in conceptualisation of mental health difficulties along dimensions of severity rather than via diagnostic categories (e.g., Bach & First, 2018; Caspi et al., 2014). Regardless, implications for interventions for mothers with BPD or depression are the same i.e., to treat those with low parenting self-efficacy and implement strategies to reduce symptom severity. Early intervention to improve maternal parenting self-efficacy, such as Dialectical Behaviour Therapy (Roepke et al., 2011) is important, as mothers who consider themselves as competent parents are typically more responsive and attentive, discipline their children less, and have more realistic expectations of their child's developmental capabilities (De Hann et al., 2009; Meunier et al., 2011).

#### **7.5.4 Strengths and limitations**

This study makes comparisons with healthy mothers and includes a comparison clinical group of mothers with depression permitting a test of whether BPD, depression, or the severity of mental health difficulties most strongly affects parenting self-efficacy, with severity a major predictor. Using both diagnostic and symptom severity data enabled comprehensive analysis both between-group and dimensionally and showed a similar pattern of mental health difficulties affecting parenting self-efficacy. Furthermore, this is the first study to explore parenting knowledge in mothers with BPD.

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<sup>18</sup> Regression results were re-run with BPD severity (PAI-BOR) scores and depression severity (PHQ-9) scores, and all results were the same.

The study also has limitations. First, the sample sizes are small, although larger than 70% of the studies that have examined parenting in mothers with borderline pathology (Eyden et al., 2016). Regardless of sample size, effect sizes were typically large, indicating statistically significant and substantively meaningful findings. Furthermore, findings of  $p > .05$  and moderate effect size showed the same pattern as the significant findings: mothers with BPD typically had lower scores followed by the depression group then healthy mothers. Second, not all mothers in the depression group were currently experiencing depression symptoms due to practical and logistical difficulties. Third, even with potential for desirability bias when using self-report measures, substantial effects were observed. Finally, mothers with BPD were treatment-seeking and therefore potentially more self-aware.

#### **7.5.5 Conclusions**

Mothers with BPD and depression know what good parenting is but believe they are not parenting well. The higher their mental health symptom severity, the lower their self-efficacy. What is not yet clear is why parenting knowledge does not equate to parenting self-efficacy and whether the lower self-efficacy scores accurately reflect their parenting. If mothers with BPD who possess good parenting knowledge are in fact able to translate this knowledge into effective parenting behaviours, then providing feedback on positive parenting could be key to improving parenting self-efficacy.

#### **7.6 Chapter Summary**

The findings in this chapter highlight the need to explore the parenting behaviours of mothers with BPD and depression to ascertain how parenting knowledge and self-efficacy impact on actual parenting behaviour. The following chapter will explore this through observing the mother-child dyads in play and measuring their emotional availability with each other.

## CHAPTER EIGHT

### MOTHER AND CHILD EMOTIONAL AVAILABILITY

The emotional availability of mothers with borderline personality disorder and depression and their children: 'I know what to do but I am struggling to do it'

#### 8.1 Abstract

**Background.** Mothers with borderline personality disorder (BPD) and depression face challenges with their parenting behaviours. Previous research suggests that maternal psychopathology, adverse childhood experiences (ACE), lower perceived parenting efficacy, and parenting knowledge are associated with parenting behaviour. Our main aims were to evaluate the emotional availability (EA) behaviour of mothers with BPD and depression and their children, and explore which of these factors were most heavily associated with observed EA.

**Method.** Parent-child interaction behaviours of mothers with BPD ( $n=25$ ), mothers with depression ( $n=25$ ), and mothers with no mental health difficulties (HCs,  $n=25$ ), all of whom had previously been found to have good knowledge of ideal parenting, were explored. Mothers were observed in a play task with their 0-12 year-old children. Mother and child EA behaviours were interpreted using the Emotional Availability Scales and the Emotional Availability and Emotional Attachment Screener. STROBE guidelines were followed throughout.

**Results.** More mothers with BPD were categorised as having EA difficulties (76%), compared to 48% of the depression mothers and 12% of HCs. Similar patterns of EA were seen with the children of each group. Mothers with BPD and depression scored significantly lower on sensitivity, structuring and non-intrusiveness, and their children lower on responsiveness and involvement, than HCs; BPD mothers had lower non-hostility scores than either comparison group. Mother's mental health severity was strongly associated with sensitivity and structuring, ACE and parenting knowledge was associated with non-intrusiveness, and mental health severity and parenting knowledge was associated with non-hostility. With the



child EA scores it was maternal sensitivity, not symptom severity, that associated most strongly.

**Conclusions.** Knowledge of ideal parenting appears to have a reductive influence on intrusive and hostile parenting behaviours, but less so for proactive positive parenting. Symptom severity regardless of diagnosis contributed to maternal EA behaviours, however it was maternal sensitivity regardless of mental health difficulties that uniquely contributed to child EA behaviours. These findings have implications for mothers with BPD and depression, as even where there is no reduction in symptom severity, increasing maternal sensitivity could improve child EA outcomes.

## 8.2 Introduction

Maternal psychopathology is one of the most influential determinants of maladaptive parenting practices (Belsky, 1984), with much research carried out on maternal depression and parenting behaviours (see Lovejoy et al., 2000 for a review). Mothers with depression are found to be less responsive and engaging (Palaez et al., 2008), less warm and sensitive (Kaplan et al., 2009; Lanzi et al., 2009), show fewer positive behaviours (Ewell Foster et al., 2008), and have difficulty in conveying positive affect to their child (Dib et al., 2019). More recently studies have turned to the effects of maternal BPD on parenting. Less sensitive, more hostile and overprotective parenting behaviours have been found in mothers with BPD, and more emotional dysregulation, insecure attachment and increased risk of psychopathology in their children (see Eyden et al., 2016 for a review). Central to BPD as a disorder are emotion regulation and relational difficulties (APA 2013), thus unsurprisingly, mothers with BPD are considered to be inconsistent in their parenting behaviours (Stepp et al., 2012). Previous research suggests that maternal psychopathology, adverse childhood experiences, lower perceived parenting efficacy, and parenting knowledge are all associated with parenting behaviour, however in order to effectively guide parenting interventions it is important to understand what specifically is underpinning maladaptive parenting behaviours.

One aspect that might be important in mothers with mental health difficulties is the mother's ability (or lack of it) to become emotionally available. This is crucial for facilitating a strong mother-child relationship involving maternal sensitivity, flexibility, and synchronicity, which is widely recognised as being key for the child's emotional and social development, secure attachment, and mental wellbeing (e.g., Biringen & Robinson, 1991; Campbell et al., 2004; Lovas, 2005). Emotional availability (EA) (Biringen & Robinson, 1991; Emde & Easterbrooks, 1985; Mahler et al., 1975) is the open dyadic communications that occur under optimal parenting conditions. The association between attachment and EA has been supported by various studies (e.g., Altenhofen et al., 2013; Biringen, 2008), however EA builds on attachment theory by including the whole range of dyadic behaviours, not just those associated with attachment and separation. As a concept, EA encompasses many aspects of mother and child interaction behaviours adapting throughout childhood to reflect each developmental stage, including the constructs of maternal sensitivity, non-intrusiveness, structuring and non-hostility, and child responsiveness and involvement. While difficult to constantly achieve optimal EA even in the most competent of parents, it is the ability to repair the relationship that is particularly important to rebuild any lost emotional connection (Biringen, 2009).

Emotional availability and consequent child development depend to an extent on the surrounding environment in which the mother and child are embedded. Bronfenbrenner (1994) refers to these influencers as 'systems' whereby each level (i.e., close home environment, wider school system, and the most expansive society and cultural influences) affect the child either positively or negatively dependent on various factors including external circumstances, how the child reacts given their own characteristics, and the support provided by the parent (and others) enabling adapting/coping strategies (Bronfenbrenner & Morris, 2006). The need to offset any negative occurrences affecting the child via positive parenting behaviours is similar to Biringen's EA concept of repair. With

this in mind, the EA findings of the study will be interpreted using Bronfenbrenner's model as well as attachment theory.

Within the mother-child microsystem, various personal factors also influence emotional availability. Studies have found that maternal age correlates positively with sensitivity and structuring (Bornstein, Hahn, Suwalsky, et al., 2011; Bornstein, Putnick, et al., 2006), younger (teenage) mothers tend to be more intrusive (Bornstein, Putnick, et al., 2006; Easterbrooks et al., 2005), and maternal education correlates positively with sensitivity (Bornstein, Hahn, Suwalsky, et al., 2011; Bornstein et al., 2007). Maternal depression is also implicated; mothers with depression have been observed as low in maternal sensitivity, (e.g., Frigerio et al., 2019; Salo et al., 2010; Vliegen et al., 2009) even in remission (Kluczniok et al., 2018). Where mothers have a history of ACE, sensitivity was lower still (Kluczniok et al., 2016) indicating that ACE may exacerbate EA problems. Conversely, studies find no association with maternal depression and hostile behaviours (e.g., Kluczniok et al., 2018; Lok & McMahon, 2006; Salo et al., 2010; Vliegen et al., 2009). Associations between structuring and non-intrusiveness with maternal depression are less conclusive (e.g., Frigerio et al., 2019; Kluczniok et al., 2016; Salo et al., 2010; Trapolini et al., 2008; Vliegen et al., 2009), although higher non-intrusiveness scores may reflect detached/withdrawn maternal behaviours being scored positively (through lack of intrusiveness) rather than as a suboptimal behaviour. While some EA findings are mixed, the association with depression and lower sensitivity and lacking hostility are largely consistent.

Few studies have explored EA in mothers with BPD specifically, few have used comparison groups, and the majority of studies have focused on just one or two specific EA constructs. Findings in clinical samples show mothers with BPD had lower sensitivity and lower structuring (Newman et al., 2007) and while Høivik et al. (2018) found sensitivity, structuring and intrusiveness were not significantly lower than in healthy mothers, their sample was a non-clinical sample of mothers with BPD features, suggesting that symptom severity may be an

important factor in maternal EA. In contrast to depression, increased hostility was observed with maternal BPD (Høivik et al., 2018; Kluczniok et al., 2018), and while a lack of significance in Newman's study, the authors suggest this was potentially due to mothers being more frightened-of rather than frightening in their behaviour (Newman et al., 2007), confirmed by Hobson et al. (2009). Very few studies have explored child EA behaviours. Lower responsiveness and involvement have been observed in the children of mothers with both depression (Salo et al., 2010), and BPD (Newman et al., 2007) compared with children of healthy mothers. In contrast, Høivik et al. (2018) found no differences in child EA behaviours in children of mothers with borderline pathology, which the authors suggest is due to these children being overly responsive as an unhealthy coping strategy. It is therefore considered likely that children of mothers with BPD and children of mothers with depression would show reduced EA capacity.

Studies have shown that both mothers with BPD and mothers with depression have lower parenting self-efficacy (Elliot et al., 2014, Newman, 2007), even when they have similar knowledge of ideal parenting to that of healthy mothers, with symptom severity most strongly associated (chapter seven). As parenting knowledge and behaviours have previously been found to be positively associated (Bornstein et al., 2003), it is not yet understood whether this discrepancy between parenting knowledge and self-efficacy represents an erroneous perception of their parenting due to symptom-associated negative cognitions. Alternatively, as studies of mothers with BPD and/or depression show sub optimal parenting behaviours (Eyden et al., 2016; Lovejoy et al., 2000), and associations of parenting self-efficacy have been found with observed parenting behaviour (e.g., Bornstein et al., 2018; Jones & Prinz, 2005), it is possible these mothers could be accurately describing their parenting behaviours. Furthermore, as mothers with BPD (and to a lesser extent mothers with depression) are likely to have adverse childhood histories (Paris, 2008), and given that mothers often draw on their own parents for parenting models (Bornstein, 2015), the mothers' own experience of being parented will likely influence how they will parent

(Campbell & Gilmore, 2007; Rees, 2008; van IJzendoorn, 1992). As such parenting behaviours may be compromised.

### **8.2.1 Current study**

The quality of mother-child interactions was captured using the Emotional Availability Scales (EAS) and Emotional Availability and Emotional Attachment Screener (EA-2). This is the first study to explore *all* maternal and child EA constructs of mothers with BPD and their children comparing to both clinical (depression, DPN) and healthy comparison groups (HCs) and is the only study to our knowledge to report mother and child EA categories in mothers with BPD.

We hypothesise that:

- (H1) mothers and their children will most often be categorised as Complicated for BPD, Detached for depression, and High EA for HCs
- (H2a) mothers and their children with BPD, and/or depression will have lower levels of sensitivity, structuring and non-intrusiveness, and child responsiveness and involvement than HCs
- (H2b) mothers with BPD will be more hostile than both comparison groups of mothers
- (RQ1) We also investigated the relationship between EA behaviours and maternal ACE history, symptom severity, parenting self-efficacy, and parenting knowledge, to identify the variables most strongly associated.

### **8.3 Method**

Ethical approval was gained from the NHS Research Ethics Committee and Health Research Authority (Ref:16/WM/0076, project ID:105429). Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines were followed throughout (von Elm et al., 2007).

### 8.3.1 Participants

Participants were recruited in the UK between 2017 and 2018. Recruitment of mothers with BPD was made via introductions from psychiatry clinics, Dialectical Behaviour Therapy (DBT) groups, or personality disorder services. Mothers with depression were recruited from clinical and community services (psychiatry and psychology clinics, mother and baby groups, schools, or social media advertisement); mothers with no mental health difficulties were recruited from similar community services. Once consent to contact had been obtained, potential participants were contacted to discuss study details and participation. Whilst the method of recruitment did not allow complete assessment of non-responders, 14 of those who agreed to be contacted did not progress through to participation (BPD  $n=2$ , DPN  $n=7$ , HC  $n=5$ ; chapter six, figure 6.2). Of the 76 participants recruited 75 mother-child dyads took part in the play observation as one child was with child protection services. All participants were:

- (1) aged 18 or over with a child under the age of 12<sup>19</sup> currently living with their mother and previously had for the majority of their life
- (2) English speaking (not necessarily first language) and
- (3) had prior to recruitment received a diagnosis of BPD ( $n=25$ ) or depression (DPN,  $n=25$ ) from a clinician using DSM/ICD clinical interviews and were not experiencing a major exacerbation of symptoms, OR had no mental health difficulties whilst being a mother (HC,  $n=25$ ).

Mothers were aged 20 to 54-years and their children, 5-months to 12-years. No group differences were found for mother's relationship/marital status, educational level, child age (months or developmental stage), gender, or number of siblings, (see table 8.1). Mothers with BPD were significantly younger and less likely to be in employment, therefore these variables were included as covariates in subsequent ANCOVA analyses.

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<sup>19</sup> Age of child was kept intentionally broad to optimise participant recruitment of mothers with BPD.

**Table 8.1: Mother and child demographic characteristics**

Characteristics	BPD n=25 Mean (SD)		Depression n=25 Mean (SD)		No mental health n=25 Mean (SD)		F	p	$\eta_p^2$
Age of mother (years)	30.4	(7.0)	33.6	(7.5)	35.8	(7.7)	3.37	.040	.086
	n (%)		n (%)		n (%)		$\chi^2$	p	$\phi_c$
Relationship status							3.57	.168	.218
Married/living with	15	(60)	18	(72)	21	(84)			
Single	10	(40)	7	(28)	4	(16)			
Employment status							7.15	.028	.309
Not currently working	18	(72)	11	(44)	9	(36)			
Working/studying	7	(28)	14	(56)	16	(64)			
Qualification level							6.31	.177	.205
GCSE /none	12	(48)	9	(36)	7	(28)			
A-levels/diploma	10	(40)	6	(24)	9	(36)			
Degree/post grad	3	(12)	10	(40)	9	(36)			
	Mean (SD)		Mean (SD)		Mean (SD)		F	p	$\eta_p^2$
Age of child (months)	54.7	(39.6)	45.6	(36.5)	55.3	(39.9)	.495	.612	.012
Number of siblings	1.2	(1.4)	.72	(.84)	1.0	(.96)	1.01	.369	.023
	N (%)		n (%)		n (%)		$\chi^2$	p	$\phi_c$
Developmental age group							1.45	.963	.098
Infant/toddler (5-36m)	10	(40)	13	(52)	10	(40)			
Preschool (37-60m)	4	(16)	3	(12)	5	(20)			
Early childhood (61-84m)	6	(24)	4	(16)	5	(20)			
Mid childhood (85-143m)	5	(20)	5	(20)	5	(20)			
Gender							2.03	.363	.179
Boys	10	(40)	15	(60)	13	(52)			
Girls	15	(60)	10	(40)	12	(48)			

### 8.3.2 Measures

The measures listed below were completed by all mothers; obtaining borderline and depression severity scores across all three groups enabled both dimensional (i.e., severity) as well as categorical analyses (i.e., from clinical diagnoses). The number of comorbid conditions for BPD and depression mothers were also obtained.

**Borderline personality.** The self-report Personality Assessment Inventory (PAI-BOR, Morey, 1991) was used to measure the severity of borderline features: *affective instability, identity disturbance, negative relationships, and self-harm/impulsivity*. Scores ranged from 0 (not true at all) to 3 (very true). The PAI-

BOR has concurrent validity with clinical borderline measures: SCID II (First, Spitzer, Gibbons, Williams, & Benjamin, 1997) and DSM-IV-TR (APA, 2000). Total raw scores were converted to standardised *T*-scores in accordance with normative comparison samples (Morey, 1991). Cronbach's alpha for the current sample was  $\alpha=.92$ .

***Depression.*** Maternal depression severity was assessed via the 9-item self-report Patient Health Questionnaire (PHQ-9, Kroenke, Spitzer, & Williams, 1999, 2001). Scores ranged from 0 (not at all) to 3 (nearly every day). A further question regarding how difficult depression-related problems had made daily functioning was scored from 0 (not difficult at all) to 4 (extremely difficult). The PHQ-9 has well-established validity and reliability as a diagnostic tool (e.g., Lowe, Spitzer, Grafe et al., 2004). Cronbach's alpha for the current sample was  $\alpha=.93$

***Childhood Adversity.*** Adverse childhood experience was measured using the Adverse Childhood Experiences questionnaire (ACE-IQ, WHO, 2020). This measure has been used in numerous studies, having robust validity and reliability (Ford et al., 2014; Murphy et al., 2014). Responses regarding *child maltreatment* (emotional and physical neglect; emotional, physical and sexual abuse), and *family household dysfunction* (e.g., witnessing violence in the home) ranged from *always* to *never* for occurrences, or *yes/no* for binary questions, and were scored using the ACE-IQ calculation guide (ranging from 0-11, WHO, 2018a). Cronbach's alpha for the current sample was  $\alpha=.82$

***Parenting self-efficacy.*** Parenting self-efficacy was measured using the Tool to Measure Parenting Self Efficacy (TOPSE; Kendall & Bloomfield, 2005) a 48-item self-report Likert questionnaire. Self-efficacy questions regarding emotion and affection, setting boundaries, parenting pressures etc. are scored from 0 (completely disagree) to 10 (completely agree). As the adapted TOPSE questionnaire (TOPSE baby) for mothers with a child under 12 months excludes questions regarding control and discipline, for comparability overall TOPSE



scores were converted to a percentage score for each participant. Cronbach's alpha for the current sample was  $\alpha=.97$ .

***Parenting knowledge.*** Parenting knowledge was garnered using a Q-sort task of ideal sensitive mother behaviours. The behaviour Q-set (MBQS, Pederson, & Moran, 1995; adapted by Mesman et al., 2015) was based on maternal sensitivity and attachment concepts. Mothers ranked 90 behaviour statements from those most ideal (score of 9) to those that were the least ideal (scored as 1) which were correlated with Pederson & Moran's criterion scores to give a total ideal sensitive parenting (knowledge) score. While no group differences were found on parenting knowledge (chapter seven), due to the potential impact of knowledge of sensitive parenting on observed maternal parenting behaviour (Bornstein et al., 2003) the knowledge score was used as a variable in regression analyses for this study.

***Emotional availability (EA).*** All observations were coded using the Emotional Availability Scale (EAS) in order to capture the quality of the mother-child EA interaction (Biringen, 2008). The EAS is a robust multidimensional observational measure with well-established validity and reliability. It measures the behaviours, relationships, and emotional affect of both mother and child. The EAS captures a global rating of the dyad's interactional style via four mother measures: *sensitivity*, *structuring*, *non-intrusiveness*, and *non-hostility*<sup>20</sup>, and two child measures: *responsiveness* and *involvement*. Each EA measure is scored from 1-7 (direct score).

*Sensitivity* refers to the mother's ability to be not just warm but also sensitive, responsive, and authentic with her child in an appropriate and timely manner. For a mother to score high on sensitivity, the child must also be enjoying the interaction. The *structuring* scale assesses the extent to which the mother guides

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<sup>20</sup> All EA dimensions are depicted in the positive or with the absence of a negative quality (ie., *non hostility*) so that the higher scores are always the most optimal behaviours.

and scaffolds her child to achieve a higher level both emotionally and practically. Structuring should be age appropriate allowing sufficient space for the child, whilst making subtle suggestions and setting appropriate behavioural limits. *Non-intrusiveness* assesses the degree to which the mother lets the child lead the interaction rather than over-suggesting or over-leading, and the smoothness with which she enters into the interaction. Scoring is influenced by the child's reaction, i.e., rough play that the child is enjoying is nonintrusive, whereas over-stimulating a child who is giving clear signals to the contrary is intrusive behaviour. *Non-hostility* measures the degree to which hostile negative behaviours are present, ranging from no hostility (calm, with no negativity in dialogue, tone, or facial expression), covert hostility (i.e., fleeting signs of boredom, impatience etc.) to overt hostility (i.e., harsh, angry, threatening behaviour). *Child responsiveness* considers two main aspects of the child's behaviour: affect/emotion regulation, and willingness/eagerness to engage with their mother. Emotions should be well regulated (not under or over regulated) and the child should appear happy, robust, content and secure rather than anxious, clingy, and over-pleasing, or under-connected and avoidant. *Child involvement* focuses on the child's ability to bring the adult into play with a balance between autonomous and involving play, and plenty of positive involving behaviours (e.g., looking, smiling, talking, turning towards the mother), rather than over-involving in negative ways through anxiety or distress, or clear uninvolved behaviours.

The mother and child were also individually categorised using the Emotional Availability and Emotional Attachment Screener (EA-2) to capture their emotional connection and emotional availability. Categories include *High EA* (i.e., emotionally available), *Complicated*, *Detached*, or *Problematic* and are loosely based on Ainsworth's attachment categories (see table 8.2) (Ainsworth et al., 1978; Biringen, 2008; Biringen et al., 2014; Main & Solomon, 1986). In brief, *High EA* encapsulates emotionally available parenting or child responding style, *Complicated* reflects inconsistencies in emotional availability but at least connected and warm, *Detached* is mechanical or avoidant, not warm and

*Problematic* includes extreme or neglectful parenting behaviour or highly emotionally dysregulated child behaviour.

**Table 8.2:** *EA categories compared with attachment categories*

EA category	Attachment category	
	Child	Adult
High EA	Secure	Secure
Complicated	Insecure-resistant	Anxious-preoccupied
Detached	Insecure-avoidant	Dismissive-avoidant
Problematic	Disorganised	Fearful-avoidant

Coders were trained and accredited by Zeynep Biringen for the use of both the EAS and EA-2. The first coder rated all observations, while the second coder, blind to the mother's mental health diagnosis, independently rated 40% ( $n=30$ ) randomly selected observations, with a further 12% of difficult cases also rated (52%  $n=39$  total blind coded). All interactions were watched multiple times with EA direct scores and EA categories assigned to each. To assess inter-rater agreement whilst accounting for the degree of discrepancy between coders, weighted Cohen's Kappa analysis was used. Results showed a substantial agreement on all measures ranging from  $\kappa=.68$  to  $\kappa=.94$ , all  $ps<.001$  (table 6.7, chapter six). Any disagreements were discussed and resolved between the two coders. The Newcastle-Ottawa Scale (Wells et al., 2000) was followed to ensure study quality. This scale offers a star rating system of which this study scored 7 out of 9 stars (table 6.9, chapter six). A method variable was created to explore group differences between those who were observed in free play (under 3 years,  $n=33$ ) and those with semi-structured play ( $n=42$ ). Chi Square test showed no significant association, ( $\chi^2=.822$ ,  $p=.663$ ); ANCOVA results including method as a covariate for the between group analysis of the EA observation measures are reported in Appendix W.

### 8.3.3 Procedure

Mothers completed questionnaires (mental health severity, childhood adversity, parenting self-efficacy), the Q-sort parenting knowledge task, and a video-recorded observation of a play interaction with her child. Each observation took around 20-25 minutes ( $M = 22.3$ ,  $SD = 3.89$ ; Range = 10.5 – 33 minutes), with no group difference in time taken:  $M_{BPD} = 23.04$  ( $SD = 4.13$ ),  $M_{DPN} = 21.38$  ( $SD = 4.63$ ),  $M_{HC} = 22.52$  ( $SD = 2.57$ );  $F(2, 72) = 1.199$ ,  $p = .307$ . Tasks were chosen to reflect the child's developmental stage. Mother-child dyads under 3 years played together with shape sorters, stacking cups, and puzzles. Those older than 3 years took part in co-operation tasks (3-5 years: Etch-A-Sketch and puzzles; 5 years upwards: Etch-A-Sketch and Labyrinth maze task). The Etch-A-Sketch task involved drawing a picture of a house with the mother operating one dial (e.g., the vertical lines) and the child the other (e.g., the horizontal lines). Similarly, for Labyrinth, the mother and child each operated a dial to tilt the board and manoeuvre a ball around the maze while avoiding holes. Mothers were given a £10 voucher as a thank-you for participating and a list of relevant support services.

### 8.3.4 Data processing and analysis

Abbreviations of cBPD, cDPN, cHC are used for the children of mothers with BPD, depression, and healthy mothers respectively.

**Missing data.** One question missed on the PAI-BOR ( $n=1$ ) was replaced with the mean value for that subsection, and where participants ( $n=7$ ) opted for 'prefer not to answer' on the ACE-IQ questionnaire, these items were not included in the total ACE score.

**Statistical methods.** All analyses were computed using SPSS version 25. EA categories were examined using Pearson Chi Square ( $\chi^2$ ) and Fisher's exact test (FET), with Cramer's  $v$  to measure the strength of the association (effect size). Categorical post hoc analyses were performed using the right-handed probability of the chi square distribution to compare observed and expected values. Group

comparisons of EA measures (maternal sensitivity, structuring, non-intrusiveness, non-hostility and child responsiveness and involvement) were investigated using ANCOVA analyses. Demographic group differences of mother's age and employment status were entered as covariates; significant main effects were explored using Bonferroni post hoc pairwise comparisons. To address multicollinearity between the PHQ-9 and PAI-BOR, a composite for mental health severity was created using principal components analysis (Field, 2013; Song et al., 2013) including borderline severity (PAI-BOR), depression severity (PHQ-9), number of comorbid conditions, and difficulty in daily functioning measures. Only one composite had an Eigen-value >1, therefore no rotation was required. Kaiser-Meyer-Olkin measure (KMO) was acceptable, KMO = .69, and Barlett's test of sphericity significant:  $\chi^2(6) = 167.47, p < .001$ . The extracted composite explained 68% of the variance; loadings scores were .928, .910, .839, .561 for the PAI-BOR, PHQ-9, comorbidity, and functioning difficulty respectively. Standardised Cronbach's alpha = .83.

Hierarchical regression analyses were performed to establish which variables most strongly associated with maternal and child EA behaviours.

Regressions for maternal EA: Step 1 controlled for mother's age and qualifications as these demographics are consistently associated with parenting behaviours (e.g., Bornstein, Hahn, Suwalsky, et al., 2011; Bornstein, Putnick, et al., 2006). ACE-IQ was added at step 2 given the temporal precedence of this measure; mental health severity at step 3; and parenting self-efficacy and knowledge at step 4.

Regressions for child EA: Steps 1, 2 and 3 replicated those for maternal EA; step 4 added maternal sensitivity (maternal EA measures were too highly correlated to all be entered, see table 8.5; sensitivity therefore was used as this measure is recognised as underpinning all other maternal EA behaviours, Biringen, 2008). Approximate normality, multicollinearity, homoscedasticity, linearity, outliers, and independence of errors assumptions were met (except one outlier that was retained as confirmed as a valid response). Statistical significance was  $p < .05$ .

## 8.4 Results

### 8.4.1 Clinical profile

ANCOVAs showed that the BPD mothers scored higher than comparison mothers on borderline severity (PAI-BOR), and the DPN mothers scored higher than HCs (see table 8.3). Similarly, for current depression severity (PHQ-9) the BPD mothers scored higher than both comparison mothers, and DPN mothers higher than HCs. Difficulty in functioning was similar in both clinical groups, however the BPD mothers had significantly more comorbid conditions. A similar pattern was seen for the mental health severity composite whereby the BPD mothers scored higher than DPN mothers, who scored higher than the healthy comparison mothers. Mothers with BPD experienced more ACEs than either of the comparison groups.

### 8.4.2 Parenting self-efficacy and parenting knowledge

Parenting self-efficacy showed significant group differences and a large effect size, with BPD and depression mothers scoring themselves lower than HC mothers. No significant between group differences were found for mother's knowledge of ideal sensitive parenting (see table 8.3).

### 8.4.3 Mother and child EA categories (H1)

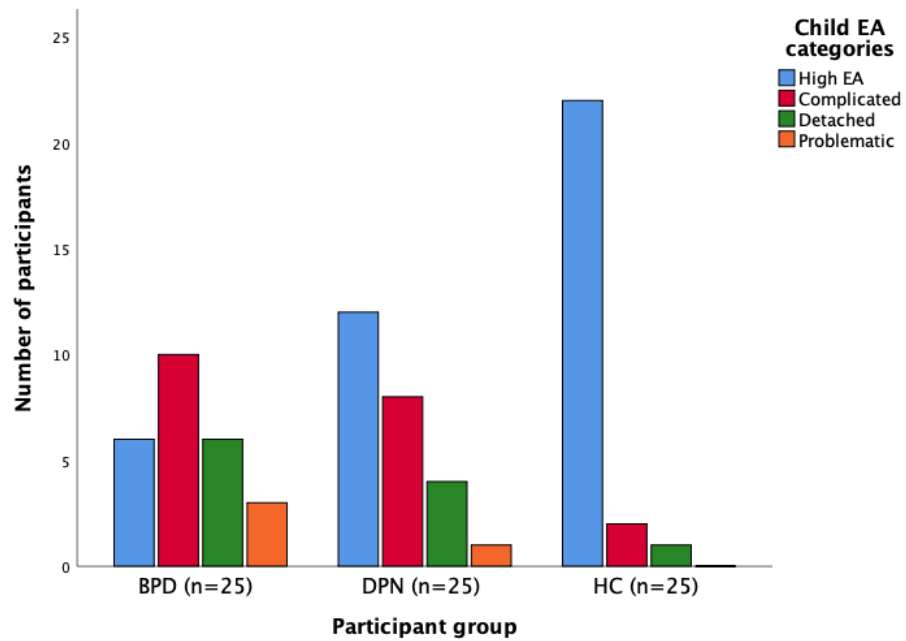
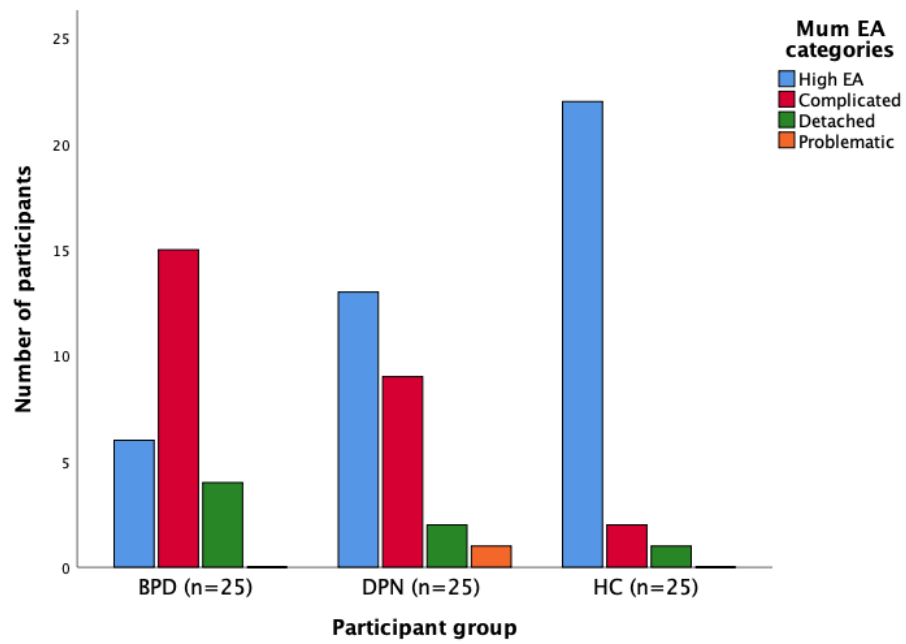
Chi-square test showed an unequal distribution of EA categories between participant group  $\chi^2(6) = 23.184, p = .001$ ; FET = 23.513,  $p < .001$ , with a moderately strong association,  $\phi_c = .393, p = .001$ . Mothers with BPD were most often categorised as complicated (60%), and 76% showed emotional availability difficulties (i.e., complicated or detached), compared with 48% of the DPN group and 12% of the HCs. Half (52%) of mothers with depression and almost all (88%) of the HCs were categorised as High EA (figure 8.1). Post hoc findings showed the BPD mothers were less likely to be categorised as High EA, and significantly more likely to be categorised as complicated; the HC mothers were less likely to be categorised as complicated and more likely to be categorised as High EA ( $ps < .001$ ). All other  $ps$  were not significant.

**Table 8.3:** Between group differences for BPD (PAI-BOR), depression (PHQ-9), comorbidity, childhood adversity (ACE), parenting self-efficacy, & parenting knowledge

Measures	BPD ( <i>n</i> =25)	DPN ( <i>n</i> =25)	HC ( <i>n</i> =25)	Between group comparisons				Pairwise comparisons ( <i>p</i> )		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	BPD-DPN	BPD-HC	DPN-HC
<b>BPD Pathology</b>										
PAI-BOR <i>T</i> -score	83.16 (11.85)	63.80 (12.22)	43.36 (7.05)	2, 70	69.617	<.001	.672	<.001	<.001	<.001
<b>Depression</b>										
PHQ-9 total score	16.04 (5.66)	11.24 (6.05)	2.16 (2.12)	2, 70	43.901	<.001	.564	.016	<.001	<.001
Functioning	1.52 (0.87)	1.48 (1.74)	0.20 (0.41)	2, 70	10.034	<.001	.228	1.00	<.001	<.001
<b>Comorbidity</b>	2.08 (0.76)	0.84 (0.62)	0.00 (0.00)	2, 70	65.492	<.001	.658	<.001	<.001	<.001
<b>MH Severity</b>	1.02 (0.57)	.081 (0.51)	-1.14 (0.22)	2, 70	114.82	<.001	.769	<.001	<.001	<.001
<b>Childhood Adversity</b>										
ACE	8.00 (1.88)	5.64 (2.68)	3.84 (2.90)	2, 70	12.635	<.001	.271	.006	<.001	.162
Abuse	2.70 (0.47)	1.73 (1.03)	1.16 (1.07)	2, 65	12.648	<.001	.286	.005	<.001	.244
Neglect <sup>a</sup>	1.58 (0.58)	0.83 (0.70)	0.48 (0.65)	2, 69	13.854	<.001	.293	.001	<.001	.343
Family adversity	3.04 (1.15)	2.36 (1.38)	1.56 (1.42)	2, 70	5.381	.007	.137	.208	.005	.359
<b>Self-efficacy</b>	65.80 (17.15)	74.20 (15.78)	87.76 (8.91)	2, 70	12.081	<.001	.262	.348	<.001	.003
<b>Knowledge</b>	.79 (.05)	.79 (.05)	.81 (.03)	2, 70	2.065	.135	.057	1.00	.421	.170

Notes: MH = mental health; <sup>a</sup> The covariate of age of mother had a significant main effect on Neglect score,  $F(2,70)=5.348$ ,  $p=.024$ ,  $\eta_p^2=.074$ , as mothers age increased, neglect was less likely to have occurred,  $r(75)= -.385$ ,  $p=.001$

Figure 8.1: Mother and child EA category by participant group





A similar pattern was seen with the child EA categories whereby more children of mothers with BPD (76%) were categorised as having EA difficulties than cDPN (48%) and cHC (12%). However, the cBPD children were more distributed between complicated, detached, and problematic categorisations than their mothers (figure 8.1). Again, there was a significant moderately strong association  $\chi^2(6) = 21.955, p=.001$ , FET= 21.621,  $p<.001$ ,  $\phi_c = .383, p=.001$ . Post hoc tests revealed the cBPD group were significantly less likely to be categorised as High EA ( $p<.001$ ); the cHC group were significantly less likely to be categorised as complicated ( $p=.009$ ), and significantly more likely to be categorised High EA ( $p<.001$ ). All other  $ps$  were not significant.

#### **8.4.4 Mother and child EA direct scores (H2)**

ANCOVAs showed highly significant group differences for the maternal EA measures of sensitivity, structuring, non-intrusiveness, and non-hostility, and child EA measures of responsiveness, and involvement, all with large effect sizes (table 8.4). Sensitivity, structuring, and non-intrusiveness were all significantly lower for the BPD and DPN mothers than the HCs, whereas non-hostility was significantly lower for the BPD mothers only. Similarly, child responsiveness, and involvement measures were lower for the cBPD and cDPN children than the cHC children. There were no significant differences between the cBPD and cDPN children.

**Table 8.4:** Means, standard deviations and ANCOVA statistics for mother's parenting behaviour (EA) by participant group

EA direct measures	BPD (n=25)	DPN (n=25)	HC (n=25)	Between group comparisons				Pairwise comparisons (p)		
	M (SD)	M (SD)	M (SD)	df	F	p	$\eta_p^2$	BPD-HC	BPD-DPN	DPN-HC
<b>Maternal scores</b>										
Sensitivity	4.38 (1.02)	5.16 (1.32)	6.26 (0.89)	2, 70	13.990	<.001	.292	<.001	.478	.001
Structuring	4.64 (0.82)	5.14 (1.29)	6.06 (0.85)	2, 70	10.293	<.001	.232	<.001	.347	.001
Non-intrusive	4.50 (1.15)	4.76 (1.36)	6.02 (0.80)	2, 70	9.364	<.001	.216	.022	1.00	.001
Non-hostility	5.08 (1.14)	6.06 (0.78)	6.52 (0.84)	2, 70	8.987	<.001	.209	<.001	.025	.300
<b>Child scores</b>										
	cBPD	cDPN	cHC							
Responsiveness <sup>a</sup>	4.12 (1.21)	4.78 (1.38)	6.08 (1.00)	2, 70	12.861	<.001	.274	<.001	1.00	<.001
Involvement	4.38 (1.26)	4.50 (1.43)	5.84 (1.02)	2, 70	8.455	.001	.199	.014	1.00	.001

Note: <sup>a</sup> The covariate of age of mother had a significant main effect on child responsiveness direct score,  $F(2,71)=6.551$ ,  $p=.013$ ,  $\eta_p^2=.088$ , whereby as mother's age increased so did the child's responsiveness,  $r(76)=.433$ ,  $p<.001$

#### 8.4.5 Associations of maternal EA (RQ1a)

Correlations showing significant relationships between the independent variables and the maternal and child EA outcome variables can be found in table 8.5. For the hierarchical regressions:

*Step 1- Maternal demographics.* Mother's age but not qualification level significantly contributed to the regression model for maternal sensitivity  $F(3, 71) = 4.71, p = .005$ , structuring  $F(3, 71) = 4.97, p = .003$ , non-intrusiveness  $F(3, 71) = 2.88, p = .042$ , and non-hostility  $F(3, 71) = 4.01, p = .011$ , with these models accounting for 16.6%, 17.3%, 10.8%, 14.5% of the variance respectively (table 8.6, see also Appendix X for full regression statistics).

*Step 2 – ACE.* With the introduction of ACE the model was statistically significant for sensitivity  $F(4, 70) = 6.91, p < .001$ , structuring  $F(4, 70) = 5.45, p = .001$ , non-intrusiveness  $F(4, 70) = 5.88, p < .001$ , non-hostility  $F(4, 70) = 6.13, p < .001$ , with ACE uniquely accounting for 11.7%, 6.4%, 14.3%, 11.4% of the variance respectively. Mother's age no longer significantly contributed to non-intrusiveness, or non-hostility.

*Step 3 – Mental health symptom severity.* The model was again significant for sensitivity  $F(5, 69) = 9.71, p < .001$ , structuring  $F(5, 69) = 7.33, p < .001$ , non-intrusiveness  $F(5, 69) = 5.55, p < .001$ , and non-hostility  $F(5, 69) = 6.81, p < .001$ , with symptom severity strongly associated, and accounting for 13%, 10.9%, 7.1% of the variance for sensitivity, structuring, and non-hostility respectively over and above that of ACE, age and qualification level. The  $F$ change for non-intrusiveness however was not significant,  $p = .069$  (i.e., mental health severity did not significantly improve the variance beyond the previous model), and ACE was the only variable significantly associated with non-intrusiveness.

*Step 4 – Maternal parenting knowledge and self-efficacy.* When adding these parenting domains, the overall models were significant for sensitivity  $F(7, 67) = 7.53, p < .001$ , structuring  $F(7, 67) = 5.37, p < .001$ , non-intrusiveness  $F(7, 67) = 4.90, p < .001$ , and non-hostility  $F(7, 67) = 5.97, p < .001$ , but all  $F$ change values were not significant  $p = .204, p = .527, p = .079, p = .061$  respectively.

**Table 8.5:** *Correlations between maternal independent variables and maternal EA outcome variables*

	Age	Qualification	ACE	MH severity	PSE	Knowledge	Sensitivity	Structuring	Non-intrusive	Non-hostility	Child Responsiveness	Child Involvement
Age	-											
Qualification	.466**	-										
ACE	-.306**	-.097	-									
MH severity	-.310**	-.196	.505**	-								
PSE	.230*	.109	-.305**	-.662	-							
Knowledge	.224	.272*	-.159	-.208	.257*	-						
Maternal Sensitivity	.403***	.237*	-.445***	-.576***	.441***	.322**	-					
Maternal Structuring	.407***	.245*	-.360***	-.511***	.407***	.243*	.891**	-				
Maternal Non-intrusive	.325**	.124	-.458***	-.428***	.268**	.346***	.817**	.667**	-			
Maternal Non-hostility	.370***	.230*	-.433***	-.494***	.355***	.374***	.787**	.659**	.644**	-		
Child Responsiveness	.433***	.246*	-.424***	-.538***	.431**	.305**	.908***	.832**	.773**	.711**	-	
Child Involvement	.387***	.182	-.319**	-.386***	.240*	.255*	.790***	.767**	.696**	.541*	.873**	-

Notes: MH = Mental health; PSE = parenting self-efficacy; \* =  $p < .05$ ; \*\* =  $p < .01$ ; \*\*\* =  $p < .001$

**Table 8.6:** Exploring the relative contribution of variables on maternal and child emotional availability

Variable	Maternal sensitivity			Maternal structuring			Maternal non-intrusiveness			Maternal non-hostility			Child responsiveness			Child involvement		
	$\Delta R^2$	$\beta$	<i>p</i>	$\Delta R^2$	$\beta$	<i>p</i>	$\Delta R^2$	$\beta$	<i>p</i>	$\Delta R^2$	$\beta$	<i>p</i>	$\Delta R^2$	$\beta$	<i>p</i>	$\Delta R^2$	$\beta$	<i>p</i>
<b>STEP 1</b>	.166			.173			.108			.145			.196			.182		
Mother's age		.367	<b>.004</b>		.362	<b>.005</b>		.317	<b>.016</b>		.349	<b>.007</b>		.390	<b>.002</b>		.349	<b>.006</b>
Qualifications 1		.065	.625		.102	.443		-.018	.893		-.023	.867		.115	.380		.187	.160
Qualifications 2		.072	.602		.081	.556		.038	.789		.080	.567		.065	.631		.008	.955
<b>STEP 2</b>	.117			.064			.143			.114			.097			.047		
Mother's age		.245	<b>.048</b>		.272	<b>.034</b>		.182	.148		.229	.069		.279	<b>.024</b>		.272	<b>.035</b>
Qualifications 1		.087	.484		.118	.359		.006	.962		-.001	.996		.135	.276		.201	.123
Qualifications 2		.096	.457		.098	.460		.065	.625		.104	.430		.087	.498		.023	.864
ACE-IQ (binary)		-.360	<b>.001</b>		-.266	<b>.018</b>		-.398	<b>.000</b>		-.356	<b>.002</b>		-.328	<b>.003</b>		-.228	<b>.043</b>
<b>STEP 3</b>	.130			.109			.035			.071			.107			.051		
Mother's age		.183	.108		.215	.074		.150	.231		.182	.133		.222	.054		.232	.066
Qualifications 1		.102	.371		.132	.274		.014	.914		.010	.934		.149	.199		.210	.098
Qualifications 2		.053	.65		.059	.636		.042	.747		.072	.570		.048	.689		-.023	.975
ACE-IQ (binary)		-.165	.136		-.087	.454		-.296	<b>.016</b>		-.211	.075		-.151	.176		-.105	.387
MH severity		-.429	<b>.000</b>		-.394	<b>.001</b>		-.224	.069		-.318	<b>.009</b>		-.389	<b>.001</b>		-.269	<b>.030</b>
<b>STEP 4</b>	.027			.011			.052			.054			.433			.381		
Mother's age		.169	.134		.204	.091		.139	.254		.168	.803		.065	.293		.085	.353
Qualifications 1		.077	.504		.123	.318		-.035	.781		-.035	.768		.061	.322		.128	.147
Qualifications 2		-.020	.864		.048	.711		-.020	.880		-.014	.913		.002	.970		-.047	.606
ACE-IQ (binary)		-.160	.146		-.080	.451		-.278	<b>.021</b>		-.197	.088		-.009	.875		.027	.747
MH severity		-.358	<b>.011</b>		-.315	<b>.035</b>		-.242	.108		-.288	<b>.049</b>		-.020	.754		.077	.413
PSE		.077	.537		.105	.435		-.071	.598		-.001	.996		—	—		—	—
Knowledge		.153	.124		.071	.505		.239	<b>.025</b>		.246	<b>.020</b>		—	—		—	—
Mum sensitivity		—	—		—	—		—	—		—	—		.859	<b>.000</b>		.806	<b>.000</b>
<b>Total R<sup>2</sup></b>	.440			.359			.339			.394			.833			.661		

Notes: *N* = 75; MH = mental health; PSE = parenting self-efficacy; Qualification 1 = dummy variable A-levels/diploma; Qualifications 2 = dummy variable degree/post graduate qualification; Reference dummy variable = GCSE/no formal qualifications

For the EA constructs of sensitivity and structuring, mental health severity remained the only associated variable. For non-intrusiveness, the contribution of knowledge to the overall variance (5.2%) was not sufficient to produce a significant change in the  $R^2$  for the model, however knowledge was significantly associated with non-intrusiveness and similar to the association of ACE. Similarly for non-hostility, the contribution of parenting knowledge (5.4%) again did not produce a significant change in  $R^2$  for the model but was significantly associated with non-hostility and with a similar magnitude of effect to mental health severity.

#### **8.4.6 Associations of child EA (RQ1b)**

Correlations can be found in table 8.5. For the hierarchical regressions:

*Step 1- Maternal demographics.* Mother's age but not qualification level significantly contributed to the regression model for child responsiveness  $F(3, 71)= 5.77, p=.001$ , and involvement  $F(3, 71)= 5.28, p=.002$ , accounting for 19.6%, 18.2%, of the variance respectively (table 8.6).

*Step 2 - ACE.* With the introduction of ACE, the model was significant for responsiveness  $F(4, 70)= 7.26, p<.001$ , and involvement  $F(4, 70)= 5.20, p=.001$ , with ACE uniquely accounting for 9.7%, 4.7%, of the variance respectively.

*Step 3 – Mental health symptom severity.* The model was significant for responsiveness  $F(5, 69)= 9.20, p<.001$ , and involvement  $F(5, 69)= 5.38, p<.001$ , with symptom severity uniquely accounting for 10.7%, and 5.1%, of the variance respectively. Mother's age and ACE were no longer significantly associated.

*Step 4 – Maternal sensitivity.* When adding maternal sensitivity, both models were significant for responsiveness  $F(6, 68)= 56.58, p<.001$ , and involvement  $F(6, 68)= 22.13, p<.001$ , with maternal sensitivity uniquely accounting for 43.3%, and 38.1%, of the variance respectively. None of the other variables significantly associated with the child EA measures.

## **8.5 Discussion**

To our knowledge, this study is the most comprehensive research of maternal emotional availability of mothers with BPD and their children to date, comparing to healthy mothers and mothers with depression, and is the first to evaluate the EA categories of mothers with BPD and their children. We found that mothers with BPD were more likely to be categorised as complicated and less likely to be high EA. Both mothers with BPD and mothers with depression were less sensitive, less structuring, and more intrusive than mothers with no mental health difficulties; mothers with BPD showed more hostility than either of the other two groups. Mental health symptom severity was most strongly associated with mother's sensitivity and structuring, ACE and parenting knowledge associated with maternal intrusiveness, and mental health severity and parenting knowledge associated with non-hostility. The children of mothers with BPD were less likely to be categorised as High EA, and both children of mothers with BPD and depression showed less responsiveness and less involvement than the children of healthy mothers. However, despite symptom severity being the factor most strongly associated with maternal EA behaviours, it was the mother's sensitivity that associated most strongly with child EA behaviours.

### **8.5.1 Mother and child EA categories (H1)**

Three quarters of mothers with BPD had EA difficulties, and of those mothers the majority were categorised as complicated. These findings reflect attachment literature whereby mothers with BPD are more likely to have anxious-preoccupied attachment profiles (i.e., complicated, table 8.2) (Agrawal et al., 2004). No mothers with BPD were categorised as problematic in this study (i.e., fearful adult attachment) as found by Agrawal et al. (2004) however this is likely due to our sample of mothers being treatment-seeking and knowledgeable of sensitive parenting. Around half of mothers with depression had EA difficulties. Fewer overall were in the complicated category, but of those with difficulties, a similar proportion to mothers with BPD were categorised as complicated.

Looking closer at the types of parenting within the complicated category, of the mothers with BPD, half had apparent sensitivity (i.e., appearing sensitive but with leaks revealing mismatches with mother-child interaction); the other half had inconsistent parenting, consistent with previous literature suggesting association between oscillating inconsistent parenting and maternal BPD (Reinelt et al., 2014; Stepp et al., 2012). The proportion of apparent sensitivity ratings potentially reflects mothers being predominantly help-seeking, and as such more self-aware and potentially more knowledgeable (from the many available resources e.g., healthcare professionals, literature, other mothers, Bornstein, 2015). Whilst findings reflect an awareness of effective sensitive parenting (as shown by similar parenting knowledge scores to comparison mothers), these mothers appear to still lack the affective repertoire to move them to high EA (Biringen, 2008; Bornstein, Cote, et al., 2010).

This poses the question why parenting knowledge is not being fully translated into emotionally available parenting in these mothers. BPD symptoms, in particular impulsivity and emotion dysregulation, could be preventing mothers from accessing parenting knowledge in a timely fashion. Further, inconsistent parenting suggests the mother has the capacity for emotionally available parenting but lacks the ability to consistently convey congruous behavioural messages to her child. Of the mothers with depression who were categorised as complicated, one-third showed elements of detachment while the others had apparent sensitivity, and notably, none of these mothers were rated as inconsistent. The depression findings bear some similarity to Frigerio et al. (2019) who found mothers with depression were more likely to be complicated or detached and is consistent with previous literature indicating withdrawn detached parenting is often seen in mothers with depressive symptoms (Lovejoy et al., 2000). The differences between the mothers suggest that parenting interventions should consider the nuances between depression and BPD.

The likelihood of children of mothers with BPD being categorised as complicated (inconsistently engaged, easily upset), detached (withdrawn), or problematic



(highly emotionally dysregulated) was consistent with attachment studies that report resistant/ambivalent, avoidant, and disorganised insecure attachment respectively in children of mothers with BPD symptoms (Abela et al., 2005; Gratz et al., 2014; Herr et al., 2008; Hobson et al., 2005). This pattern was also seen with the children of all mothers (regardless of diagnosis) who were categorised as complicated. Of note however, not all children had the same EA category as their mothers; almost half of the children of mothers with BPD and a quarter of those whose mothers had depression had different EA categories. This suggests that the children are not invariably mirroring their mother's behaviours but reacting and responding accordingly to them (i.e., some children were withdrawing from an inconsistent mother whereas others became more demanding and overly emotional). This behaviour pattern has implications for helping children of mothers with emotional availability difficulties, and as such warrants further explication.

### **8.5.2 Mother and child EA behaviours (H2)**

*Sensitivity:* Our hypothesis was consistent with many previous studies reporting maternal sensitivity lower in mothers with BPD (Howard et al., 1995; Newman et al., 2007) and depression (Kluczniok et al., 2016; Kluczniok et al., 2018; Salo et al., 2010). Furthermore, our finding was consistent with previous studies that used alternative observation methods (e.g., Crandell et al., 2003; Hobson et al., 2005). While Kluczniok et al. (2018) found BPD was not significantly associated with sensitivity, they were unable to make diagnostic between group comparisons to mothers with rMDD due to unequal group sizes. Høivik et al. (2018) also reported no difference in sensitivity (or structuring), which the authors suggest is due to mothers potentially being able to control their BPD symptoms in the short video time. Their sample however included sub-clinical levels of BPD which may account for the differences.

*Structuring:* maternal structuring was lower in mothers with BPD and mothers with depression as with previous research (Newman et al., 2007; Vliegen et al., 2009) again supporting our hypothesis. Consistent with Bronfenbrenner's bioecological model (Bronfenbrenner & Morris, 2006), interpretation of this

finding should consider the transactional effect of the child's characteristics. Child temperament may affect their ability to receive structuring from the mother, particularly given the greater propensity of internalising and externalising behaviours, attention problems, and emotion regulation difficulties in children of mothers with BPD (Eyden et al., 2016, chapter four). Furthermore, given maternal low perceived parenting self-efficacy (chapter seven) a negative feedback loop may occur whereby the behaviours of mother and child negatively impact on each other (and the dyad relationship) creating a situation where the mother no longer attempts to structure as the chances of 'failure' are too great (Bandura, 1977). The temporal ordering of parent-child cause and effect requires further explication with longitudinal studies.

*Non-intrusiveness:* While we found non-intrusiveness to be significantly lower in the clinical groups compared with healthy mothers, this was contrary to Howard et al. (1995). Their analysis was made using an earlier edition of the EAS before adjustments (in recent editions) to take account of those that may score low on non-intrusiveness due to withdrawal (i.e., a non-optimal parenting style despite appearing to score acceptably on this measure). Moreover, this was the rationale cited by Newman et al. (2007) for their non-inclusion of this construct in their study. Similarly, Høivik et al. (2018) also found non-intrusiveness was not significant however their use of sub-clinical participants may account for their higher observed scores, further supporting the potential importance of symptom severity impacting on maternal parenting behaviours.

*Non-hostility:* Maternal non-hostility was the only EA measure that was specific to mothers with BPD, scoring lower than mothers with depression and healthy mothers. Associations with BPD and maternal hostility is consistent with previous research (e.g., Høivik et al., 2018; Kluczniok et al., 2018; Newman et al., 2007). Specifically in this current study, mothers with BPD were more hostile on the subscale measures of negativity, ridiculing, and marginally with losing their cool, consistent with BPD symptomatology, but not the more disturbing hostile behaviours of threats of separation, silent or frightening, and negative themes of play. This finding is consistent with previous research (e.g., Harvey et al., 2011), and with mothers with BPD considered to be more frightened of rather than

frightening in their interactions (Hobson et al., 2009). All maternal EA findings for mothers with depression were accordant with those of Vliegen et al. (2009), with lower sensitivity, structuring and non-intrusiveness scores, and no observed hostility (e.g., Frigerio et al., 2019; Klucznik et al., 2018; Salo et al., 2010).

*Child responsiveness and involvement.* Reduced involvement and responsiveness in children of mothers with BPD and depression was in line with previous research (Newman et al., 2007). Notably, where mothers with BPD or depression had difficulties with emotional availability, so did their children, highlighting how the mother's systems via her parenting impact on the child's systems, their development, and the symbiotic parent-child relationship (Bronfenbrenner & Morris, 2006).

### **8.5.3 Variables associated with maternal EA (H3a)**

Symptom severity was strongly associated with maternal sensitivity, structuring, and non-hostility, even when accounting for maternal age, qualification, and childhood adversity. Consistently, symptom severity has previously been correlated with raised levels of maternal hostile behaviours (Elliot et al., 2014). Due to multicollinearity between the PAI-BOR and PHQ-9, it is not possible to fully determine whether it is borderline severity, depression severity, or mental health severity more generally that is underpinning mothers EA scores. However, the strength of the association with the mental health severity composite with maternal EA constructs suggests that symptom severity rather than specific diagnosis is key and supports the widely acknowledged shift in mental health being conceptualised along dimensions of severity rather than purely by categorical diagnoses (APA, 2013; Bach & First, 2018; Caspi et al., 2014). Furthermore, studies finding no association with BPD and sensitivity (and structuring) with sub-clinical mothers (e.g., Høivik et al., 2018) suggests that severity of symptoms is credibly implicated.

ACE was strongly associated with non-intrusiveness, and also initially associated with the other maternal EA measures, however contra to previous research regarding the influence of ACE on EA (e.g., Ziv et al., 2018), once symptom

severity was added this was no longer the case for sensitivity, structuring, and non-hostility. Childhood adversity could be acting as an exogenous factor via its recognised association with the later development and severity of mental health difficulties, in particular BPD. Further, our finding regarding the association of ACE with intrusiveness is consistent with previous research whereby mothers with a history of physical or sexual abuse show more intrusiveness towards their infants (Lyons-Ruth & Block, 1996; Moehler et al., 2007).

Parenting knowledge was also associated with non-intrusiveness, and non-hostility, indicating the importance of mother's having an appropriate level of comprehension of ideal maternal parenting behaviour. The distinction appears to be between positive parenting (i.e., sensitivity and structuring) and negative parenting (i.e., intrusiveness and hostility), in so far as parenting knowledge appears to reduce suboptimal parenting behaviours rather than increase optimal parenting behaviours. Having knowledge of optimal parenting on an abstract level may not sufficiently enable the mother to understand the emotional nuances required to create effective and timely pro-parenting and how to apply this to their own behaviour. This raises the question whether negative parenting behaviours are easier to relate to practice? For example, knowing not to show anger towards a child may be easier to translate into not shouting at the child, whereas knowing that you should guide a child during tasks maybe more difficult to translate into effective structuring behaviours; Inhibition of negative parenting behaviours may be easier to grasp than the activation of positive ones. This distinction between positive and negative parenting requires further investigation.

#### **8.5.4 Variables associated with child EA (H3b)**

Although symptom severity was most strongly associated with maternal EA behaviours, it was uniquely maternal sensitivity, not the mother's mental health symptomatology that greatly influenced child EA behaviours. Where mother's sensitivity was low, child responsiveness and involvement were also low. This finding is consistent with Hatzis et al. (2019) who found a correlation between

maternal sensitivity and child responsiveness in substance misuse and socially disadvantaged mothers. Further, despite Høivik et al. (2018) finding no association between sub-clinical maternal BPD and child responsiveness and involvement (Høivik et al., 2018), notably the mothers in their study were not significantly lower on sensitivity either, supporting the relationship between maternal sensitivity and child emotional availability.

As sensitivity was highly correlated with structuring, non-intrusiveness, and non-hostility, these findings should be interpreted with these EA behaviours in mind, however while sensitivity is a discrete parenting construct it is also recognised as having a strong influence on each of the other measures (Biringen, 2008). Our finding has important intervention implications for mothers experiencing either BPD or depression as even where symptoms cannot be reduced, helping improve maternal sensitivity could help to improve child EA behaviours, consequently strengthening mother-child interactions, and helping alleviate the pernicious consequences to children of poor parental relationships (e.g., insecure attachment, psychopathology, Gökçe & Yilmaz, 2018).

It could be that maternal depression symptoms are driving the maternal sensitivity results and lower child EA behaviours, as lower sensitivity has been previously observed in mothers with depression (Kluczniok et al., 2018), and depression was present in the majority of mothers with BPD in this study. However, using the combination of borderline severity, depression severity, difficulties in daily functioning, and number of comorbid conditions suggests it is the severity of mental health more generally that is contributing to the lowered sensitivity and the effects on child behaviours. By increasing sensitivity, the feedback loop becomes more positive (Biringen et al., 2014); the child is more likely to be responsive, the mother feels like a successful parent, parenting self-efficacy improves, and the mother is more likely to attempt similar behaviours (Schuengel & Oosterman, 2019).

### 8.5.5 Strengths and limitations

Few studies have observed the emotional availability of maternal BPD parenting, with none previously evaluating emotional availability and emotional attachment using the EA-2, facilitating interpretation of parenting to attachment categories. Analyses utilised both diagnostic and severity measures highlighting that EA was lower when considering BPD from a categorical (diagnostic) or dimensional (severity) perspective. Moreover, including a depression clinical comparison group addressed the limitations highlighted in many previous maternal BPD observational studies, enabling clinical comparison and exploration of BPD specificity.

There are some limitations. First, as a cross-sectional design, causation cannot be inferred, however the study has explored the *capability* of optimal parenting. Second, the sample size was small but was comparable with other observational studies of maternal BPD (e.g., Høivik et al., 2018; Kluczniok et al., 2018; Newman et al., 2007). Notwithstanding, the magnitude of effect sizes were very large and findings substantive despite mothers being aware of being observed, and regardless of mothers with BPD being a treatment-seeking group and therefore potentially more self-aware of their parenting behaviours. Third, due to the exclusion of mothers in acute exacerbation of symptoms, logistical difficulties associated with those experiencing depression difficulties, and the cyclical nature of depression, the mothers in the depression group differed in severity and duration of depression symptoms at the time of the study.

### 8.5.6 Future research direction and intervention

Having maternal knowledge of ideal sensitive parenting did not translate to sensitive parenting behaviours under play-observation, as found previously (Bornstein, Jager, et al., 2012; Bornstein et al., 2018). Appreciating that the majority of mothers in the two clinical groups were treatment-seeking mothers it is important to note that most of the mothers exhibited some sensitivity. It was evident that many of the mothers with BPD and depression were self-critical of their parenting abilities (measured via self-efficacy scores, chapter seven),

showing explicit awareness of their parenting capabilities whilst also revealing a strong desire to parent well. While parenting self-efficacy was not uniquely associated to maternal EA, given that parenting knowledge *and* self-efficacy are required for supportive parenting and positive child outcomes (Bornstein et al., 2018), and parenting self-efficacy is associated with sensitivity (De Hann et al., 2009; Meunier et al., 2011), parenting and treatment programmes should ensure both parenting knowledge and self-efficacy are adequate. Moreover, as knowledge was associated with non-intrusiveness and non-hostility, this suggests that psychoeducation of behaviours considered to be intrusive or hostile would improve maternal non-intrusiveness and non-hostility scores.

Intervention is pivotal to improve maternal sensitivity as this is key to improving child emotional availability and the synergic effect of improved dyadic EA, however interventions may need to more specifically target *how* to translate knowledge of sensitivity to parenting behaviour. Given the lack of association found between knowledge and sensitivity and structuring, interventions including targeted mother-child interaction feedback may be more effective than psychoeducation alone. Improving maternal sensitivity, regardless of mental health, should in turn help to improve child EA behaviours and mother-child interactions, and given that maternal sensitivity underpins structuring, non-intrusiveness and non-hostility, these behaviours are likely to improve also (Biringen, 2008). Specifically, for mothers with BPD it is of particular importance to address maternal hostility, as hostility in mothers with BPD has previously been associated with child mental health disorders and internalising and externalising symptoms (Kluczniok et al., 2018), and more so for children of mothers with personality disorders compared to those with schizophrenia or bipolar disorder (Rutter & Quinton, 1984). Due to high comorbidity in mental health diagnoses, subsequent research should further explore mental health severity versus diagnosis as a means of investigating further specificity of what underpins the parenting behaviours of mothers with mental health difficulties; for instance, do number of conditions and severity of conditions equally affect outcomes? A greater understanding of why maternal parenting knowledge does

not equate to effective parenting and the barriers involved, is also warranted.

## **8.6 Conclusions**

It appears that parenting knowledge does not transmit fully to parenting behaviour in that despite mothers with BPD and depression having similar knowledge to mothers with no mental health difficulties, they struggle in their emotional availability with their children as evidenced by the direct EA constructs (sensitivity, structuring, non-intrusiveness, non-hostility), and their EA category. However, maternal parenting knowledge does appear to be associated in some way with the suboptimal parenting behaviours of intrusiveness and hostility for all mother groups, suggesting that parenting knowledge provides a reductive influence on maternal intrusive and hostile behaviours. Child EA behaviours of mothers with BPD and depression were also impaired. However, while mental health severity was most strongly associated with maternal EA behaviours, it was maternal sensitivity rather than the mothers' mental health that predicted child EA behaviours. This has implications for mothers both with and without mental health difficulties; ameliorate maternal sensitivity and child EA is likely to improve. Furthermore, whilst mental health symptoms would typically be targeted in mothers with difficulties, even where symptom severity does not improve our findings suggest increasing maternal sensitivity would potentially instigate greater child responsiveness and involvement. Consequentially, the overall mother-child interaction would likely improve as would the negative developmental sequelae known to be associated with lower maternal sensitivity.

## **8.7 Chapter Summary**

This chapter has shown the overall group differences determined by the broad EA constructs of maternal sensitivity, structuring, non-intrusiveness, and non-hostility, and child EA constructs of responsiveness and involvement. The following chapter will analyse group differences and specific behaviours within these constructs using the EA subscales, and it will also consider whether the same results as found with the EAS are also found when using the constructs defined using a quantitative coding method.



## CHAPTER NINE

### THE EMOTIONAL AVAILABILITY SCALES: EXPLORATION OF SUBSCALES AND COMPARISON WITH ALTERNATIVE CODING METHOD

#### *Overview*

This chapter explores the EA subscales of the broader EA constructs discussed in chapter eight to understand the specific maternal and child EA behaviours that explain the differences between the groups of mothers. Additionally, the Etch-A-Sketch task in the mother-child observation is interpreted using an alternative coding method to investigate whether the same results found using the broad EA constructs are also found when adopting the constructs defined by a quantitative approach, enabling comparison of coding methods.

#### **9.1 Interpretation of the Maternal EA Subscales**

Findings in chapter eight show that mothers with BPD and mothers with depression score significantly lower on the broad EA constructs of sensitivity, structuring, and non-intrusiveness, and mothers with BPD lower on the non-hostility scale than healthy comparison mothers. What is not yet clear is which specific behaviours within these constructs are responsible for the differences found between the mother groups. For instance, we know that structuring is lower for both groups of clinical mothers but what specifically is it about their structuring behaviours that result in these mothers receiving lower structuring scores compared to mothers with no mental health difficulties, and which EA subscales behaviours are diagnosis-specific? The following research questions were explored:

- Do mothers with BPD differ from mothers with depression on the EA subscale measures within the broad sensitivity, structuring, non-intrusiveness, and non-hostility EA constructs?
- How do the clinical mothers differ from mothers with no mental health difficulties on these subscale measures?

### 9.1.2 Statistical treatment

The observed maternal EA behaviours were coded using the EA subscales (seven scales for each, see table 9.1). Of note, the first two subscales of each EA construct were scored from 1-7 and the remaining five scored from 1-3 where 1 equals the lowest (i.e., least optimal parenting), and 7 or 3 respectively denotes the most optimal EA behaviours. The higher range (1-7) for the first two subscale behaviours reflect those aspects considered most important to the overall EA construct (e.g., ‘maternal affect’ for sensitivity). ANCOVA analyses were performed using mother’s age and working status as covariates as with the broader EA constructs in chapter eight.

**Table 9.1:** *Maternal emotional availability subscales*

	EA subscales scored 1-7		EA subscales scored 1-3				
<b>Sensitivity</b>	Affect	Clarity of perceptions	Timing	Flexibility	Acceptance	Amount of interaction	Conflict
<b>Structuring</b>	Guidance	Success	Amount of structuring	Limit setting	Firm in pressure	Non-verbal structuring	Peer vs adult
<b>Non-intrusive</b>	Following child’s lead	Ports of entry	Commands	Talking	Didactic teaching	Interferences	Feels intrusive
<b>Non-hostility</b>	Lacks negativity	Lacks ridiculing	Lacks separation	Loses cool	Frightening	Silence	Themes

### 9.1.3 Results

#### *EA subscale behaviour differences between mothers with BPD and depression*

The ANCOVAs between the two diagnostic clinical groups of mothers (BPD and depression) showed differences for conflict (in the sensitivity construct), and lack of negativity and losing cool (in the non-hostility construct) whereby BPD mothers scored significantly lower on these subscales than depression mothers, thus showing more suboptimal parenting behaviours (table 9.2). All effect sizes were large. There were no differences between the clinical groups with all other subscales. Mother’s age had a significant main effect on many of the subscale scores (particularly those associated with favourable parenting outcomes).

**Table 9.2:** *Between group differences of maternal behaviours for the subscales of sensitivity, structuring, and non-intrusiveness*

Measures	BPD ( <i>n</i> =25)	DPN ( <i>n</i> =25)	HC ( <i>n</i> =25)	Clinical comparisons (BPD-DPN)				Clinical compared to HCs			
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
<b>Sensitivity</b>											
Affect <sup>a</sup>	4.58 (1.12)	5.36 (1.30)	6.40 (0.96)	4,45	1.77	.190	.038	4,70	21.43	<.001	.234
Clarity <sup>a</sup>	4.52 (1.01)	5.00 (1.45)	6.12 (0.97)	4,45	.036	.850	.001	4,70	19.70	<.001	.220
Timing <sup>a</sup>	2.08 (0.49)	2.32 (0.63)	2.80 (0.41)	4,45	.459	.502	.010	4,70	18.89	<.001	.213
Flexibility <sup>a</sup>	2.32 (0.63)	2.48 (0.65)	2.88 (0.33)	4,45	.077	.782	.002	4,70	8.91	.004	.113
Acceptance	2.52 (0.51)	2.64 (0.49)	2.88 (0.33)	4,45	.053	.818	.001	4,70	5.55	.021	.073
Interaction	2.72 (0.46)	2.84 (0.47)	3.00 (0.00)	4,45	.344	.561	.008	4,70	3.64	.061	.049
Conflict <sup>a</sup>	2.52 (0.65)	2.84 (0.37)	2.92 (0.28)	4,45	5.23	.027	.104	4,70	2.82	.098	.039
<b>Structuring</b>											
Guidance <sup>b</sup>	4.74 (1.03)	5.30 (1.33)	6.20 (0.80)	4,45	.711	.403	.016	4,70	15.69	<.001	.183
Success <sup>b</sup>	4.44 (1.02)	4.90 (1.42)	5.96 (0.85)	4,45	.065	.800	.001	4,70	18.08	<.001	.205
Amount of <sup>b</sup>	2.24 (0.52)	2.44 (0.65)	2.76 (0.44)	4,45	.134	.716	.003	4,70	8.15	.006	.104
Limit setting	2.52 (0.59)	2.72 (0.54)	2.88 (0.33)	4,45	1.22	.276	.026	4,70	3.97	.050*	.054
Firm in pressure <sup>b</sup>	2.60 (0.65)	2.80 (0.41)	2.88 (0.33)	4,45	2.59	.114	.054	4,70	1.55	.218	.022
Non-verbal <sup>b</sup>	2.72 (0.46)	2.92 (0.40)	2.92 (0.28)	4,45	.264	.610	.006	4,70	1.91	.169	.027
Peer vs adult	2.64 (0.57)	2.84 (0.47)	2.96 (0.20)	4,45	2.07	.158	.044	4,70	1.63	.206	.023
<b>Non-intrusive</b>											
Child's leads	4.44 (1.15)	4.96 (1.27)	5.94 (1.24)	4,45	.376	.543	.008	4,70	13.36	<.001	.160
Ports of entry	4.72 (0.98)	5.02 (1.38)	6.04 (0.80)	4,45	.012	.912	.000	4,70	16.18	<.001	.188

Measures	BPD ( <i>n</i> =25)	DPN ( <i>n</i> =25)	HC ( <i>n</i> =25)	Clinical comparisons (BPD-DPN)				Clinical compared to HCs			
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Commands	2.16 (0.69)	2.44 (0.51)	2.44 (0.65)	4,45	1.03	.317	.022	4,70	.234	.630	.003
Talking	2.16 (0.63)	2.36 (0.70)	2.84 (0.37)	4,45	.179	.674	.004	4,70	13.28	.001	.159
Didactic teach <sup>c</sup>	2.28 (.068)	2.60 (0.71)	2.84 (0.37)	4,45	1.06	.309	.023	4,70	4.58	.036	.061
Interferences	1.92 (0.70)	1.88 (0.88)	2.60 (0.50)	4,45	.639	.428	.014	4,70	11.69	.001	.143
Feel intrusive	2.16 (.69)	2.28 (0.62)	2.68 (0.56)	4,45	.102	.751	.002	4,70	7.30	.009	.094
<b>Non-hostility</b>											
Lack negativity	5.10 (1.26)	6.06 (0.73)	6.48 (0.90)	4,45	5.49	.024	.109	4,70	8.40	.005	.107
Lack ridiculing	5.28 (1.51)	6.30 (1.07)	6.52 (0.78)	4,45	3.04	.088	.063	4,70	3.93	.051 <sup>†</sup>	.053
Lack separation	3.00 (0.00)	3.00 (0.00)	3.00 (0.00)	4,45	-	-	-	4,70	-	-	-
Lose cool	2.80 (0.41)	3.00 (0.00)	2.96 (0.20)	4,45	4.16	.047	.085	4,70	.342	.561	.005
Frightening	2.96 (0.20)	3.00 (0.00)	3.00 (0.00)	4,45	.274	.603	.006	4,70	.147	.702	.002
Silence	2.96 (0.20)	2.92 (0.40)	3.00 (0.00)	4,45	.643	.427	.014	4,70	.369	.546	.005
Themes	3.00 (0.00)	3.00 (0.00)	3.00 (0.00)	4,45	-	-	-	4,70	-	-	-

**Notes:** N=75; <sup>†</sup>= marginal significance

<sup>a</sup> The covariate of age of mother had a significant main effect on affect,  $F(4,45)=9.64$ ,  $p=.003$ ,  $\eta_p^2=.176$ , clarity of perceptions,  $F(4,45)=9.62$ ,  $p=.003$ ,  $\eta_p^2=.176$ , timing,  $F(4,45)=9.85$ ,  $p=.003$ ,  $\eta_p^2=.180$ , flexibility,  $F(4,45)=5.81$ ,  $p=.020$ ,  $\eta_p^2=.114$ , and conflict,  $F(4,45)=4.28$ ,  $p=.044$ ,  $\eta_p^2=.087$ , whereby as mother's age increased so did the sensitivity EA sub-measures.

### ***EA subscale behaviour differences between the clinical mothers and mothers with no mental health difficulties***

The clinical group differed from the healthy comparison mothers with lower scores on the subscales of affect, clarity of perceptions, timing, flexibility, and acceptance for the sensitivity construct. For structuring, the clinical mothers scored lower than HCs for guidance, success, amount of structuring, and limit setting. Similarly, for non-intrusiveness, the clinical mothers scored lower on the non-intrusive behaviours of following the child's leads, ports of entry, talking, didactic teaching, interference, and feeling intrusive for the child. For non-hostility, the clinical mothers scored lower only on lacking negativity, and marginally lower for lack of ridiculing (see table 9.2).

#### **9.1.4 Discussion**

The significant main effect found with maternal age and many of the mother and child EA subscales, particularly those relating to maternal sensitivity, structuring, and child responsiveness, is consistent with previous research showing an association between maternal age and observed mother-child interactions (Bornstein, Putnick, et al., 2006; Camberis et al., 2016; Goodman et al., 2017).

### ***Specific behaviour differences between mothers with BPD and mothers with depression***

The mothers largely differed on the behaviours associated with conflict and hostility, where mothers with BPD scored lower than mothers with depression. The key distinction was that the mothers with BPD had more hostile behaviours associated with lack of composure. Behaviours such as losing their cool (with either their child or the current situation), being less able to move conflicts towards a successful resolution, use of negative comments, and having negative facial expressions and/or tone of voice were more evident. These results are not surprising given the emotional dysregulation, relationship instability, and negative affect symptomatology specifically associated with BPD (DSM-5, APA, 2013). Experiencing emotional dysregulation is a potential catalyst to an increased lack of equanimity leading to the mother losing her cool, particularly in more demanding situations such as when jointly completing the cooperation task. Inter-personal relationship

difficulties make managing personal conflict especially difficult, and as a consequence of being unable to skilfully resolve conflict with their child, mothers with BPD are less able to effectively carry out the repair element of the mother-child relationship of emotional availability (Biringen, 2009), negatively impacting on the child (Bronfenbrenner, 1994). Negative affect further exacerbates the interaction difficulties and increases the likelihood of the kinds of maternal negativity behaviours observed such as disparaging comments to the child, negative tone of voice, and negative maternal facial expressions.

Of particular note is that regardless of mothers being aware of being observed with their children these hostile leaks in behaviour still occurred. What is unknown, is how extreme hostile behaviours could manifest under more difficult circumstances and during episodes of increased exacerbation of symptoms. Interventions may help by providing strategies for mothers with BPD to draw upon when the feeling of loss of composure commences, prior to losing their temper or cool with their child (or a given situation). A key distinction between the diagnoses (BPD and depression) is the oscillation in behaviours observed in those with BPD. Individuals with depression tend to be more consistently low, whereas those diagnosed with BPD often fluctuate in their behaviour (Stepp et al., 2012), consistent with the 'complicated inconsistent' EA category and 'losing cool' behaviours observed.

### ***Specific behaviour differences between clinical mothers and healthy mothers***

*Sensitivity subscales.* The clinical mothers' affect was less balanced and consistent, with lower clarity of perceptions in noticing child's cues and signals, and fewer occasions of responding appropriately to their child. Awareness of timing and entry into play was less smooth and synchronised and instances of abrupt transitions between tasks were seen. Lower flexibility in attention meant the clinical mothers were more likely to be less responsive and more likely to tune out than healthy mothers, they showed less variety and creativity in play with their child, and their ideas were more rigid and inflexible. The clinical mothers displayed less acceptance of their child as an individual with its own goals and were more likely to make belittling comments. Findings were consistent with studies showing low maternal

sensitivity behaviours associated with maternal psychopathology (Crandell et al., 2003; Field et al., 2009; Howard et al., 1995; Kaplan et al., 2009). There were no differences with the amount of interaction (as appropriate to the situation) with their child, however, the observation conditions and instructions could have encouraged and prompted greater interplay, as seen with teacher-structured tasks (Booren et al., 2012); with less overt direction and structure, the clinical mothers may have interacted less (e.g., Lovejoy et al., 2000; Pelaez et al., 2008). Further observations in different contexts would help clarify.

Parenting interventions to improve maternal sensitivity and responsiveness are numerous (Bakermans-Kranenburg et al., 2003) reporting improvement in maternal sensitivity in clinical (Brahm et al., 2016) and community (e.g., King et al., 2015) samples, in particular in the area of understanding and responding to infant cues in a timely manner (Komoto et al., 2015). Improving behaviours such as the mother's awareness of child cues, timing, and flexibility is likely to improve maternal sensitivity overall and impact on other EA behaviours such as structuring (see below). Consequentially, child outcomes specifically associated such as simple and elaborative initiatives, positivity, responsiveness, and engagement should improve, and the ensuing enhanced mother-child relationship should help to reduce the child's risk of a negative development sequelae such as poor attachment patterns, psychosocial difficulties, and subsequent psychopathology. Early intervention is therefore justified and warranted.

*Structuring subscales.* The specific behaviour differences in structuring between the clinical and healthy mothers centred around *how* the mothers structured (i.e., what guidance was given, how successful they were in their structuring efforts), and the *amount* of structuring given. The structuring subscale behaviours also included emotional/behavioural structuring such as providing a holding environment to enable the child to succeed, guiding the child towards appropriate behaviours, and containing unsuitable behaviours. The lack of success observed in the clinical mothers' attempts to structure may have created a negative feedback loop of 'failure' and as such affected the amount of observed structuring subsequently

attempted (Bandura, 1977). Reinforcement feedback of positive parenting behaviours may help stop this negative cycle. Limit setting in scaffolding the child was marginally lower, consistent with the TOPSE scores of the mothers' perceived parenting self-efficacy where difficulty in boundary setting was reported, particularly by mothers with BPD. No differences were found with being firm when under pressure however there were very few instances in the observations of children putting pressure on the adult for this to be tested. Reduced guidance or overly guiding behaviour is likely to have ramifications for other maternal EA behaviours and child EA. Giving too much direction increases the likelihood of maternal intrusive behaviours, and the lack of providing a 'holding space' for the child to succeed rather than guiding the child to a successful outcome may cause the child to be less responsive, engaged, and involved. Furthermore, the negative impact of lack of success in structuring may create more negativity and irritation in the mother, thereby affecting maternal hostility and sensitivity behaviours, particularly those related to affect (sensitivity) and lack of negativity (non-hostility). It is plausible that intervention strategies which encourage more perseverance and effective guidance for the child will involve the child in a more positively responsive manner, bringing about greater success and more positive affect in the mother, thereby leading to increased structuring.

*Non-intrusiveness and non-hostility subscales.* The clinical mothers differed from HCs on almost all specific behaviours for non-intrusiveness. Their limited ability to let their child lead is consistent with the reported lower perceived parenting self-efficacy of mothers with BPD and depression (e.g., regarding play, and understanding their child, chapter seven), and with the findings on the guidance subscale in the structuring construct. With less confidence in their ability to effectively play with their child and get their child to cooperate, the more likely the mothers would be to lead, over suggest, over mentor, and direct the play. Ports of entry (i.e., the way in which the mother entered into play) was occasionally ill timed, sometimes interrupting the flow, and similar to the findings of the 'timing' subscale of the sensitivity construct. Interferences when made were more often physical rather than verbal i.e., physically moving the child in play or moving/holding onto



their hand during tasks. Unsurprisingly the behaviour of the children of the clinical mothers indicated this feeling of their mother's intrusiveness, potentially leading to the child withdrawing from the interaction and/or making fewer involving responsive behaviours as noted in their lower involvement and responsiveness scores. Guidance and teaching were more a one-way street rather than joint communication, with the mothers less able to relate to their child as an interactive partner in the play. It is plausible that the lack of 'space' provided by the mother and lack of encouragement to involve the child could have led to the lower involvement scores seen in the children of the clinical mothers, as with the lower interaction and involvement in play of children of intrusive mothers found in other studies (e.g., Dib et al., 2019).

Fewer differences were seen between the clinical group of mothers and healthy mothers with hostility, scoring lower on lack of negativity and marginally on lack of ridiculing. This finding is potentially due to only mothers with BPD (not mothers with depression) scoring low on the broad EA non-hostility construct. Given the differences also found on the hostility subscales between mothers with BPD and mothers with depression (i.e., increase in stress and negativity, irritation, impatience, and long-suffering demeanour), the difference found between the clinical mothers and HCs most probably reflects the BPD specificity of this construct.

## **9.2 Interpretation of the Child EA Subscales**

Children of mothers with BPD and children of mothers with depression scored lower on the EA constructs of responsiveness and involvement. To investigate whether specific EA behaviours are driving this, as previously the BPD and depression groups were compared on the child EA subscales before comparing specific behaviours between the children of clinically diagnosed mothers and those of mothers with no mental health difficulties. The following questions were explored.

- Do children of mothers with BPD differ from children of mothers with depression on the EA subscales that comprise responsiveness and involvement?

- How do the children of the clinical mothers differ from the children of healthy comparison mothers on the subscales for responsiveness and involvement?

### 9.2.1 Statistical methods

Observed child EA behaviours were coded using the EA subscales (again seven scales for each, see table 9.3). The first two subscales of each EA domain were scored from 1-7 and the remaining five were scored from 1-3, where 1 equals the lowest score. ANCOVA analyses were performed using mother's age and working status as covariates as with the broader EA constructs in chapter eight and the maternal EA subscales in section 9.1.

**Table 9.3:** *Child emotional availability subscales*

EA domains	EA subscales						
<b>Responsiveness</b>	Affect	Responsiveness	Autonomy	Physical positioning	Role-reversal	Lack of avoidance	Task oriented
<b>Involvement</b>	Simple initiative	Elaborative initiative	Use of adult	Lack over-involvement	Eye contact	Body positioning	Verbal involvement

### 9.2.2 Results

#### *EA subscale behaviour differences between children of mothers with BPD and children of mothers with depression*

The ANCOVAs showed no differences between the children of the two diagnostic clinical groups (BPD and depression) for any of the EA subscales (table 9.4).

#### *EA subscale behaviour differences between children of clinical mothers and children of mothers with no mental health difficulties*

The children of clinical mothers (BPD and depression) differed from the children of healthy mothers scoring lower on the subscales of affect, responsiveness, autonomy, positioning, lacking avoidance, and task oriented for the responsiveness construct, and lower on the subscales of simple initiative, elaborative initiative, eye contact, and body positioning for the involvement construct. Again, mothers age showed a significant main effect on several of the EA subscale measures.

**Table 9.4:** Between group differences of child behaviours for the EA subscales of responsiveness and involvement

Measures	cBPD ( <i>n</i> =25)	cDPN ( <i>n</i> =25)	cHC ( <i>n</i> =25)	Clinical comparisons (cBPD/cDPN)				Clinical compared to HCs			
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
<b>Responsiveness</b>											
Affect <sup>a</sup>	4.12 (1.36)	4.88 (1.33)	6.08 (1.09)	4,45	1.10	.300	.024	4,70	20.59	<b>&lt;.001</b>	.227
Responsiveness <sup>a</sup>	4.54 (1.07)	4.60 (1.61)	6.18 (.95)	4,45	.829	.367	.018	4,70	24.61	<b>&lt;.001</b>	.260
Autonomy <sup>a</sup>	1.96 (.68)	2.36 (.76)	2.84 (.47)	4,45	1.44	.237	.031	4,70	12.68	<b>.001</b>	.153
Positioning <sup>a</sup>	2.28 (.79)	2.44 (.65)	2.88 (.33)	4,45	.029	.866	.001	4,70	8.44	<b>.005</b>	.108
Role-reversal	2.84 (.37)	2.92 (.28)	2.96 (.20)	4,45	1.33	.255	.029	4,70	.900	.346	.013
Lack avoidance <sup>a</sup>	2.44 (.65)	2.60 (.50)	2.92 (.40)	4,45	.398	.531	.009	4,70	5.86	<b>.018</b>	.077
Task oriented	2.24 (.66)	2.36 (.81)	2.84 (.47)	4,45	.201	.656	.004	4,70	8.37	<b>.005</b>	.107
<b>Involvement</b>											
Simple initiative	4.62 (1.33)	4.70 (1.53)	5.98 (1.05)	4,45	.657	.422	.014	4,70	12.86	<b>.001</b>	.155
Elaborative <sup>b</sup>	3.94 (1.27)	4.02 (1.50)	5.62 (1.01)	4,45	1.87	.178	.040	4,70	22.81	<b>&lt;.001</b>	.246
Use of adult <sup>b</sup>	2.44 (.71)	2.48 (.71)	2.80 (.50)	4,45	.110	.742	.002	4,70	2.74	.102	.038
Lack overinvolve	2.36 (.76)	2.56 (.75)	2.88 (.33)	4,45	1.66	.204	.036	4,70	6.69	<b>.012</b>	.087
Eye contact <sup>b</sup>	2.36 (.57)	2.48 (.59)	2.80 (.41)	4,45	.012	.912	.000	4,70	5.72	<b>.019</b>	.076
Body position <sup>b</sup>	2.48 (.59)	2.52 (.59)	2.92 (.28)	4,45	.730	.398	.016	4,70	8.15	<b>.006</b>	.104
Verbal involve	2.64 (.57)	2.64 (.49)	2.92 (.28)	4,45	8.91	.350	.019	4,70	3.92	.052 <sup>†</sup>	.053

**Notes:** N=75; <sup>†</sup>= marginal significance; The clinical group includes children of mothers with BPD (cBPD) and children of mothers with depression (cDPN)

<sup>a</sup> The covariate age of mother had a significant main effect on affect,  $F(4,45)=9.28$ ,  $p=.004$ ,  $\eta_p^2=.171$ , responsiveness,  $F(4,45)=7.43$ ,  $p=.009$ ,  $\eta_p^2=.142$ , autonomy,  $F(4,45)=7.00$ ,  $p=.011$ ,  $\eta_p^2=.135$ ,  $F(4,70)=4.25$ ,  $p=.043$ ,  $\eta_p^2=.057$ , physical positioning,  $F(4,45)=5.76$ ,  $p=.021$ ,  $\eta_p^2=.114$ , and lack of avoidance,  $F(4,45)=5.58$ ,  $p=.023$ ,  $\eta_p^2=.110$ , whereby as mother's age increased so did the child responsiveness EA sub-measures.

<sup>b</sup> The covariate age of mother had a significant main effect on elaborative initiative,  $F(4,45)=9.60$ ,  $p=.003$ ,  $\eta_p^2=.176$ ,  $F(4,70)=7.64$ ,  $p=.007$ ,  $\eta_p^2=.098$ , use of adult,  $F(4,45)=6.66$ ,  $p=.013$ ,  $\eta_p^2=.129$ , eye contact,  $F(4,45)=6.20$ ,  $p=.017$ ,  $\eta_p^2=.121$ , and body positioning,  $F(4,45)=7.10$ ,  $p=.011$ ,  $\eta_p^2=.136$ , whereby as mother's age increased so did the child involvement EA sub-measures.

### 9.2.3 Discussion

#### *Child responsiveness subscales*

The children of clinical mothers were less able to regulate their emotions than children of healthy mothers, with patterns of being either dysregulated, or self-contained and over-controlled. This behaviour is consistent with findings of children of mothers with BPD or depression having emotion regulation difficulties and as such appears not to be diagnosis specific (Choe et al., 2013; Macfie et al., 2014; Zalewski et al., 2014). Similarly, previous studies support the under/over responsiveness that we observed in children of mothers with depression and BPD (Crandell et al., 2003; Field, 2010; Hobson et al., 2005). Physical contact was also either an unhealthy physical connection (over-connectedness) or avoidant in contact with the mother. Fewer opportunities were sought to exercise their own agency (appropriate autonomy for age) which is indicative of the psychosocial/self-esteem difficulties often experienced by offspring of mothers with psychopathology (e.g., Barnow et al., 2006), and consistent with the mothers' lower guidance efficacy when structuring, and mothers' lower scores on following the child's lead. Moreover, the children of clinical mothers were more avoidant of their mothers and not simply due to task-orientation and concentration but to the exclusion of the adult, potentially reflecting the more intrusive behaviours of the mother. Contra to previous research no differences were found with role reversal, however, behaviours of the child caring for the adult might be more likely to show in scenarios such as fantasy play, or story-stem completions (e.g., Macfie & Swan, 2009) rather than in specific task-oriented mother-child play.

#### *Child involvement subscales*

Simple initiative refers to brief involving behaviours to engage the adult, while elaborative initiative includes involving behaviours that lead to extended ongoing exchanges. Both of these were lower in children of the clinical mothers, so they were less likely to initiate and less likely to extend any engagement, consistent with previous findings regarding lower child involvement (Newman et al., 2007). While some of these children were uninvolving (lacking simple or elaborative initiative) others had negative involving behaviours consistent with their under and over-

responsiveness respectively. As verbal involvement was not significantly different between groups, and as midway scores were seen for simple initiatives in half of children of mothers with depression and two thirds of children of mothers with BPD (reflecting those with negatively involving behaviours), this suggests lower involving initiatives were not entirely due to withdrawal but from higher levels of negative and anxious involving behaviours. This type of behaviour is indicative of the inconsistent parenting seen in mothers with BPD, and of the maternal intrusiveness felt by these children. Use of adult showed no group differences, however given that this scale measures the behaviour from the child not only for playful exchange but also how they react with their mother when they hurt themselves or need food or other instrumental uses, it could have been that fewer occasions presented themselves to test the children's reactions to such instances. The children of clinical mothers had fewer contacts via non-verbal channels and less frequently positioned themselves towards their mother. Such behaviours might be more reflective of their typical demeanour in that whilst vocalisations were as frequent as healthy comparison children, leaks may have presented through more subtle non-verbal cues; some children could therefore have been showing 'apparent involvement' similar to the apparent sensitivity of their mothers. Repeated measures over time would provide greater understanding and clarification.

#### **9.2.4 Future research and intervention (maternal and child EA subscale findings)**

Maternal affect, clarity of perceptions and appropriate responsiveness, timing and flexibility were the main subscale behaviours that differed from mothers with no mental health difficulties for maternal sensitivity and as such these behaviours would be logical areas of focus for intervention. Similarly, structuring guidance and success, following child's leads, ports of entry, and how to reduce negativity and ridiculing would be key target areas given the importance of each (being those subscales scored from 1-7) within the structuring, non-intrusiveness, and non-hostility constructs. Further, understanding how the specific EA subscale differences interact and influence each other would help focus intervention efforts more effectively. For instance, a mother who has positive affect, is well attuned to her child's cues, and who is respectful of her child as an individual, is far more likely to

give her child space, follow the child's lead, enter into play more appropriately and smoothly, and be less likely display hostile behaviours, the antithesis of sensitive parenting. As maternal age was positively associated with many EA subscales (and AMCIES constructs, see below, table 9.5) for all mothers regardless of group designation, particularly those associated with positive parenting behaviours such as flexibility, timing, guidance, success at structuring etc., younger mothers with mental health difficulties should unequivocally be targeted for early intervention. Detail regarding the content, delivery, and timing of potential parenting interventions will be discussed in greater depth in the following 'General Discussion' chapter.

Regardless of the mother's diagnosis, children of the clinical mothers react similarly with their behaviours on the EA subscales, despite there being some differences in their mother's subscale behaviours particularly with regards to negative parenting behaviours, such as increased conflict and negativity, and losing their cool. This may indicate that negative parenting may have less of an impact on children's emotional availability than does a lack of positive parenting (i.e., those seen in the structuring and sensitivity subscales). Should this supposition be correct it supports the earlier finding of maternal sensitivity most strongly affecting child responsiveness and involvement (chapter eight). Further research exploring the associations between a lack of positive parenting (e.g., genuine positive affect, understanding the child's cues, flexibility, guidance in structuring etc.), overt negative parenting (e.g., losing cool, negative/undermining statements, physical intrusions etc.), and child behaviours is needed to test this hypothesis.

### **9.3 Comparison of Mother and Child Behaviours using AMCIES**

The Etch-A-Sketch is a well-established task for testing the level of co-operation and interaction between parent and child. This task formed part of the mother-child play interaction for children aged 3 years 1 month and above ( $n=42$ ). The task was coded as part of the emotional availability scale (EAS) coding and using an Etch-A-Sketch task specific method of coding: Assessment of Mother-Child Interaction using Etch-A-Sketch (AMCIES). While the EAS classifies the mother and child on a global rating

scale taking into consideration the quality of the behaviours of the mother and child (see chapter eight), AMCIES uses a frequency based quantitative measure of mother and child behaviours. As the systematic review (study 1) identified the use of different methods and different construct measures yielded differing results, the AMCIES was utilised to assess whether similar results to the broader EA constructs were found when using this coding method, enabling a comparison of the two coding scales. The AMCIES scales of maternal sensitivity, verbal and non-verbal control, child readiness for social interaction, and child persistence on task were included, to mirror the EA measures of maternal sensitivity, intrusiveness, child responsiveness, and involvement, respectively. The following research questions were explored.

- Do mothers with BPD and their children differ from mothers with depression or no mental health difficulties (and their children) on the AMCIES scales
- Are similar results to those using the EAS constructs found when using the constructs defined by AMCIES?

### **9.3.1 Coding procedure and statistical treatment**

The Etch-A-Sketch task duration ranged from 1 minute 20 seconds to 4 minutes 30 seconds, with a mean time of 2 minutes 30 seconds. All Etch-A-Sketch recordings were watched a minimum of three times. The constructs were scored in conjunction with the AMCIES manual (Wolke et al., 1995), and all interactions coded by the author. A second researcher coded 45% of randomly selected recordings and was blind to participant diagnosis. Discrepancies were initially discussed between the two coders and any unresolved matters agreed in discussion with Prof. Wolke. Weighted Cohen's Kappa results ranged from  $\kappa = .170$  to  $\kappa = .756$  with a substantial agreement between the two coders for maternal sensitivity and verbal control constructs, moderate agreement for maternal non-verbal control and child readiness for social interaction, and slight agreement for child persistence/attention on task (chapter six, table 6.8). ANCOVA analyses were performed again controlling for the covariates of mothers age and working status as with the broader EA constructs.

### 9.3.2 Results

ANCOVAs showed a significant difference for maternal sensitivity, with BPD mothers scoring lower on the sensitivity measure than healthy comparison mothers (table 9.5). Pairwise comparisons showed mothers with depression did not significantly differ from either of the other mother groups. Maternal verbal control and non-verbal control showed no group differences. Child readiness for social interaction was lower for cDPN than cHCs; cBPDs were not significantly different to cDPN or cHCs. For task persistence and attention cDPN differed from cBPD and cHCs. Children of DPN mothers were less likely to interact than cHC, and less likely to persist with the task than cBPD and cHCs. All effect sizes were large. Additionally, mother's age covariate showed significant main effects for maternal sensitivity, child readiness for social interaction, and task persistence; as mother's age increased the scores on these measures also increased.

**Table 9.5:** *Between group differences of mother-child behaviours on the Etch-A-Sketch task using AMCIES*

Measures	BPD ( <i>n</i> =15)	DPN ( <i>n</i> =12)	HC ( <i>n</i> =15)	Between group comparisons				Pairwise comparisons ( <i>p</i> )		
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$	BPD- DPN	BPD- HC	DPN- HC
<b>Maternal sensitivity<sup>a</sup></b>	3.40 (1.06)	4.42 (.67)	4.60 (.74)	6,35	5.22	<b>.010</b>	.230	.160	<b>.009</b>	1.00
<b>Maternal verbal control</b>	4.00 (1.60)	4.67 (1.61)	4.60 (1.72)	6,35	.285	.754	.016	1.00	1.00	1.00
<b>Non-verbal control</b>	6.80 (2.11)	6.92 (2.43)	6.40 (1.92)	6,35	1.21	.310	.065	1.00	.451	.845
<b>Child ready interaction<sup>b</sup></b>	5.73 (1.94)	5.42 (1.88)	6.93 (1.58)	6,35	5.55	<b>.008</b>	.241	.105	.887	<b>.007</b>
<b>Task persistence<sup>c</sup></b>	7.33 (1.35)	6.42 (1.93)	7.67 (1.18)	6,35	4.82	<b>.014</b>	.216	<b>.026</b>	1.00	<b>.031</b>

Notes: *n*=42

<sup>a</sup> The covariate of age of mother had a significant main effect on maternal sensitivity score,  $F(6,35)=8.30$ ,  $p=.007$ ,  $\eta_p^2=.192$ , as mothers age increased her sensitivity increased; <sup>b</sup> also on child readiness for interaction  $F(6,35)=10.79$ ,  $p=.002$ ,  $\eta_p^2=.236$ , as mothers age increased, the child's readiness for interaction also increased; <sup>c</sup> and on child's persistence on the task  $F(6,35)=8.51$ ,  $p=.006$ ,  $\eta_p^2=.196$ , whereby as mothers age increased, the child's task persistence also increased.



### 9.3.3 Discussion

#### *Maternal AMCIES scales*

While mothers with depression appear to be more sensitive during the Etch-A-Sketch task compared to the overall observation (as interpreted using the EAS), the pattern remains the same whereby mothers with BPD score the lowest on sensitivity, followed by mothers with depression, and then those without mental health difficulties. The relative increase seen in sensitivity for mothers with depression could be due to a number of factors. Having specific task directives may have brought about more sensitive behaviours than when observed on other more free-flowing elements. Alternatively, the AMCIES coding for maternal sensitivity focused on the *proportion* of time that the mother was sensitive (i.e., whether the mother predominantly allowed the child space to manoeuvre, picked up on signals from the child, and used age-appropriate behavioural instructions etc.). Whereas in contrast the EAS measured the *quality* of behaviours underpinning maternal sensitivity such as tone of voice, non-verbal cues, timing, affect, acceptance of the child etc. whilst also taking into consideration the child's reactions and behaviours, whereby the 'mother cannot look good without the child' (Biringen, 2008). As the findings for the complicated category rated a greater proportion of mothers with depression with 'apparent sensitivity' compared to mothers with BPD (i.e., at first glance appearing sensitive by their use of positive statements, yet on further exploration revealing leaks such as the mother's tone sounding bored, or lacking sincerity etc.), it is plausible that the quantitative nature of the AMCIES scale did not identify these subtleties and leaks in behaviour. Consequentially, mothers with depression would appear to be displaying more sensitive behaviour using the AMCIES method than mothers with BPD, and therefore scored as more sensitive than when coded via the EAS.

Across all mothers, as with the EA subscales, maternal age had a significant effect on maternal sensitivity, whereby as maternal age increased so did maternal sensitivity, consistent with previous research (e.g., Bornstein, Hendricks, et al., 2010; Camberis et al., 2016; Goodman et al., 2017). Similarly, mother's age positively affected child responsiveness and persistence on task, which is unsurprising given the effect of

maternal age on sensitivity (Bornstein, 2015) and the effect of maternal sensitivity on child emotional availability (chapter eight).

For the measures of maternal verbal control, the AMCIES coding is again heavily quantitative, scoring the number of, and proportion of time spent using controlling or prohibitive statements compared to less controlling positive remarks such as general feedback and encouragement. Similarly, for non-verbal control the AMCIES coding method measures the number of times the mother physically intervenes by either controlling the child's hand or taking over their dial. Both constructs showed no group differences contrary to the non-intrusiveness construct findings of the EAS and interference behaviour of the non-intrusiveness EA subscales, which showed mothers with BPD and depression scored lower than healthy comparison mothers. As the Etch-A-Sketch task encourages a considerable amount of instruction to complete the drawing, especially for the younger children (27 out of 42 were younger than 7 years), the majority of mothers in all groups were providing a relatively high level of instruction (considered as control in this coding method); this could explain the lack of group difference found on these control measures. Furthermore, as the non-intrusiveness construct of the EAS also included how much the mother let the child lead, how smoothly the mother entered into play, the level of regard for bi-directional exchanges, as well as benign well-intentioned intrusiveness such as over-mentoring/over-teaching etc., a greater depth of intrusive behaviour was explored with the EAS, beyond that of verbal and non-verbal control measured with AMCIES.

### ***Child AMCIES scales***

The lower scores for the children of depressed mothers on readiness for social interaction and persistence/attention on task is consistent with research showing children of mothers with depression being less responsive (Field, 2010), and having lower adaptive functions (i.e., skills required to effectively navigate through environmental demands) than their peers (Luoma et al., 2001). For both clinical groups, the child's behaviour appears influenced not only by the mother's current behaviour but also potentially by their mother's typical behaviour. While mothers

with depression were less severe in their current depression symptoms at the time of the study than mothers with BPD, their symptoms at some stage would have been more severe to warrant the diagnosis of depression, thereby reflecting the residual effect of the mother's prior depression symptoms (Lovejoy et al., 2000). Similarly, a greater proportion of the mothers with depression categorised with complicated EA had apparent sensitivity compared to mothers with BPD. Consequentially, and as all children in the Etch-A-Sketch task were older than 3-years with prior learned behaviours, these children may be responding with more usual patterns of behaviour (e.g., apathy and lack of attention) when interacting with their mothers, adapted from their mother's previous depressive cycles (Lovejoy et al., 2000). As such children of mothers with depression would be less readily available for social interaction and less likely to persist on the Etch-A-Sketch task. Further, as one third of the mothers with depression in the complicated category were categorised as withdrawn (compared with none of the mothers with BPD), this may further explain the lower readiness for interaction and persistence on task found in their children.

The mothers with BPD in the complicated EA category showed higher levels of inconsistency in sensitivity, whereas none of the mothers with depression were rated as inconsistent. It is possible, therefore, that the inconsistent parenting behaviour has resulted in the children of BPD mothers being more likely to make attempts to engage as previously this strategy would *sometimes* have been successful at eliciting a positive response. This may explain the increased persistence on task observed in children of mothers with BPD, similar to that seen in children of healthy comparison mothers. When looking at the specific scale within AMCIES, the upper end of the scale for readiness for social interaction includes all types of active social interactions with the mother. Alongside positive interactions such as questions and suggested instructions, non-positive behaviours such as insults, and very directive instructions also score highly. Relatedly, children of mothers with BPD are more likely to display attention seeking behaviours due to self-regulating and self-control difficulties (Macfie et al., 2014; Zalewski et al., 2014), meaning the higher child AMCIES scores for children of mothers with BPD may be not due to positive behaviours but from employing less optimal attention seeking involving behaviours.

#### 9.3.4 Comparison of AMCIES and EAS

Quantitative coding methods typically use counts of discrete behaviours, whereas the EAS framework takes into account the context in which the dyad is interacting, with attention given to subtle emotional signals (Biringen, 2008). With the AMCIES coding, the quantitative nature may mean it was less successful at capturing the quality of the interaction. For example, readiness for social interaction includes both positive and some sub-optimal behaviours as high scoring, and the verbal and non-verbal control scales capture only the number of occasions/proportion of time spent rather than the contextual factors surrounding these behaviours. Furthermore, the constructs from each scale do not easily map onto each other as seen by the sensitivity scales. AMCIES measures predominant sensitivity behaviours of the mother (e.g., how often the mother allows the child space, picks up on child signals, and gives age-appropriate behavioural instructions), whereas the EAS sensitivity construct comprises seven subscales including considering the child's reactions and behaviours toward the mother. Indeed, some of the behaviours incorporated within the EA sensitivity subscales are measured as separate constructs (not within sensitivity) in the AMCIES method, e.g., emotional condition, motherly criticism, and vocalisation by the mother (not used in these analysis). Similarly, some of the measures in the AMCIES scale are included under different constructs in the EAS. For example, within the AMCIES 'mother's emotional condition' construct, unhappiness and irritability are separately reflected in the sensitivity and non-hostility constructs respectively, for the EAS. Consequentially, direct comparison of constructs is difficult.

By using contextual cues and making judgements on the appropriateness of given behaviours, the EAS provides a comprehensive rating of the observation of the mother's behaviour, the child's behaviour, and their dyadic interaction. Hence the emotional cues of both are considered, enabling the coder to notice mismatches in emotional availability. For example, the mother may be producing all the right behaviours and as such would have several 'counts' of positive behaviour included in the quantitative coding method but may not be reading the child's emotional cues effectively so her behaviour would be rated lower in the EAS (e.g., as apparent

sensitivity). Thus, the qualitative interpretative approach provides greater clarity and richness of data from the observation. A few additional points and potential limitations are worth mentioning. The AMCIES coding was based on a relatively short amount of observation time compared to the EAS (11% only of the total time), affording considerably fewer opportunities from which to observe and assess specific mother-child behaviours. Inter-rater reliability showed greater agreement between coders with the EAS than with AMCIES possibly due to having more occasions to make interpretations using the whole observation compared to the Etch-A-Sketch task only. Finally, the AMCIES method included a smaller number of participants than the EAS due to age of child, potentially lowering the power. AMCIES coding would therefore be helpful for measuring mother-child interactions where all participating children are of the age to take part in the Etch-A-Sketch task, and also for studies looking for specific parenting behaviours represented within the constructs of the AMCIES coding (e.g., Schneider, Houwelling, et al., 2009). Furthermore, as the AMCIES method is less resource intensive, requiring less time with both the mother-child dyad and with the coding process, it may be a useful tool to provide an indication of mother-child interaction behaviours where observation time is limited.

### **9.3.5 Summary and conclusions**

Maternal sensitivity measures were similar to those found with the broad EA construct however all findings reveal that using multi coding methods can impart subtly different results. This is consistent with the limitations highlighted in the systematic review of mothers with BPD regarding differing constructs and methods (chapter four). Using two coding methods, however, has enabled an alternative interpretation of the mother-child observation and has highlighted the benefits of using a comprehensive assessment method rather than count data for this study using these clinical groups. Specifically for parenting interventions, a more qualitative approach such as the EAS would enable richer interpretation and therefore may be more suitable for informing intervention strategies.

## CHAPTER TEN

### GENERAL DISCUSSION

#### *Overview*

This final chapter presents a summary of the main findings from the systematic review and empirical research studies which explored the parenting perceptions, knowledge, and observed parenting behaviours of mothers with BPD and their children. Intervention strategies are discussed, strengths and limitations of the study acknowledged, suggestions are made regarding the clinical and research implications of the reported findings, and finally future directions are indicated.

#### **10.1 Summary of Main Findings**

The main aims of this thesis were:

- To systematically review all research studies pertaining to maternal BPD (diagnosis and pathology), their parenting perceptions, practices and behaviours, and child outcomes
- To explore the parenting self-efficacy and parenting knowledge of mothers with BPD comparing to mothers with depression and mothers with no mental health difficulties
- To examine the emotional availability of mothers with BPD and their children compared with mothers (and their children) with depression or no mental health difficulties
- To compare observational coding methods to see whether similar results when using the EAS constructs were found when coding the Etch-A-Sketch task using constructs from an alternative method (AMCIES).

##### **10.1.1 The systematic review**

The systematic review highlighted a number of maladaptive parenting practices of mothers with BPD diagnosis and pathology. These practices were characterised by low maternal sensitivity, high intrusiveness, overprotection, and increased hostility. Mothers had higher parenting stress and distress, lower parenting satisfaction, and reported poor perinatal experiences (e.g., Blankley et al., 2015; Elliot et al., 2014;

Newman et al., 2007). Mother-child interaction dynamics were also often dysfunctional. Studies showed difficult mother-child interactions and poor interaction satisfaction, with mothers with BPD pathology being less responsive in interactions and having poorer quality of vocalisations (e.g., Crandell et al., 2003; Delavenne et al., 2008). Mothers were more likely to inhibit the autonomy of their adolescent children, and less likely to relate to them (Frankel-Waldheter et al., 2015). Interaction difficulties were seen from infancy, where infants of BPD mothers were less likely to communicate, had reduced eye contact, and fewer simultaneous conversations. Lowered infant affect was evident even when comparing to infants of mothers with major depressive disorder (White et al., 2011).

Regarding offspring outcomes, psychopathology was particularly prevalent including increased likelihood of BPD, emotional dysregulation, suicide ideation, and depression (e.g., Barnow et al., 2013). Children of mothers with BPD had insecure attachment profiles, unstable self-image, and externalising problems (e.g., Herr et al., 2008). These children had more home instability and exposure to invalidating environments, experienced lower family satisfaction, increased family stress, and had negative expectations of their mother-child relationship (Feldman et al., 1995). Psychosocial difficulties included self-criticism, harm avoidance, and interpersonal problems (e.g., Abela et al., 2005). Child outcomes reflect the difficulties that individuals (i.e., their mothers) experience with their BPD symptomatology, showing generational transmission of psychosocial dysfunction, relationship instabilities, and psychopathology. Importantly, findings from studies exploring underlying mechanisms suggest that maladaptive parenting is one of the key pathways by which vulnerabilities may be transmitted from mother to child (e.g., Reinelt et al., 2014).

### **10.1.2 Maternal parenting self-efficacy and knowledge**

Mothers with BPD had similar parenting knowledge to mothers with depression and mothers with no mental health difficulties. Moreover, when identifying the highest scoring and lowest scoring maternal behaviours by diagnostic mother groups, there was almost complete convergence of ratings of the maternal behaviour statements. Parenting knowledge may have been gained from healthcare professionals,

observing other mothers, or from various available parenting online or literary resources (e.g., Bornstein et al., 2015) as it seems despite having a greater number and frequency of adverse childhood experiences, limited opportunity in their childhood to observe appropriate parenting practices (Pears & Capaldi, 2001), and fewer contacts to rely on for social support (Cochran & Niegro, 2002; Eyden et al., under review, chapter seven), this has not limited their understanding of what ideal sensitive parenting looks like.

Both mothers with BPD and mothers with depression had lower overall perceptions of their parenting self-efficacy than mothers with no mental health difficulties as expected given the unstable sense of self and/or low self-esteem often associated with BPD and depression symptomatology, and as shown by previous studies (Elliot et al., 2014; Newman et al., 2007). However, a new finding from this study shows that the specific domains of emotion and affection, play and enjoyment, empathy and understanding, control, parenting pressure, parenting self-acceptance, knowledge and learning that underpin self-efficacy perceptions are lower for both mothers with BPD, and mothers with depression compared to healthy mothers. For discipline and boundary setting there was BPD specificity whereby mothers with BPD scored themselves lower in this domain than either of the other groups, strengthening the idea of maternal laxness previously found in mothers with BPD (Harvey et al., 2011). The adverse childhood of the mother with BPD may be implicated in this finding as (1) experiencing ACEs may have taught to retreat from confrontation (Heitler, 2012), (2) having received strong discipline may result in a strong desire to not replicate those parenting behaviours, or (3) having experienced neglectful parenting may lead to not knowing appropriate boundary setting. A further novel finding was that symptom severity was the factor most associated with parenting self-efficacy scores, suggesting that rather than diagnosis it is the severity of mental health that has the greatest impact. Clinical Implications of this finding are discussed further in section 10.3.1. In summary, both groups of clinical mothers knew what good parenting looked like, but thought that they were not parenting well, and not parenting as well as other parents.



### 10.1.3 Emotional availability in mother and child

More mothers with BPD had EA difficulties than mothers with depression or healthy comparison mothers (76%, 48%, and 12% respectively). Within the EA categories, the mothers with BPD were more likely to be rated as complicated EA; mothers with no mental health difficulties were more likely to be categorised as high EA.

Interestingly, of the clinical mothers rated as complicated, half of the mothers with BPD were apparent sensitivity while the other half had inconsistent sensitivity; whereas for the mothers with depression, two-thirds had apparent sensitivity and the others showed withdrawn tendencies – none were inconsistent, supporting the hypothesis of inconsistent parenting being specific to mothers with BPD (Stepp et al., 2012). For the direct EA constructs of sensitivity, structuring, and non-intrusiveness, mothers with BPD and mothers with depression scored lower than mothers with no mental health difficulties (the implications of the EA-2 and EAS findings are discussed in section 10.3.2).

Findings reflect those found in the systematic review regarding increased intrusiveness and reduced sensitivity (chapter four) and provides new information regarding maternal structuring; a construct which has received limited prior attention. Hostility was specific to mothers with BPD, with these mothers scoring the lowest on the non-hostility construct when observed in interactions with their 0-12 year-old children. This supports the finding of adolescent self-reports of maternal hostility (Herr et al., 2008), and indicates that maternal hostility starts at a young age but continues through to adolescence. The areas on the subscales where mothers with BPD scored lower included negative behaviours associated with lack of control (i.e., losing cool and unsuccessful resolution of conflict); negative phrases, tone of voice and non-verbal cues; and subtle hostility in the form of yawning, huffing, and sighing. Several subscales differed between the clinical group (mothers with BPD and depression together) and healthy mothers, which have implications for the type of parenting programme required as discussed later in this chapter.

When exploring the factors most associated with EA scores, symptom severity was strongly associated with mother's sensitivity, structuring, and non-hostility scores.

Maternal symptom severity has similarly been correlated with raised levels of maternal hostile behaviours (Elliot, et al., 2014). When symptoms are high it seems that it may be harder for the mother to prevent her symptoms from affecting her behaviours, particularly apparent behaviours such as losing her cool, poor timing when entering into play, ability to structure, negative affect etc. ACE was most strongly associated with maternal intrusiveness which is consistent with previous research (Lyons-Ruth & Block, 1996). The lack of influence of ACE on the other EA measures suggests that ACE may be acting as an exogenous variable on borderline severity given its association with the development of mental health difficulties. Alternatively, through experiencing childhood adversity there would have been limited opportunities from which to have observed appropriate parenting behaviour, and due to their own childhood neglect mothers with BPD may be over-compensating in an attempt to not parent as they were parented but in doing so become overly intrusive. Parenting knowledge was also associated with non-intrusiveness and non-hostility scores suggesting that psychoeducation might be helpful (see section 10.3.2)

Children of mothers with BPD followed a similar pattern with the direct EA scores whereby they had more EA difficulties than children of mothers with depression, who had more EA difficulties than children of healthy mothers. However, findings from the EA categories showed that many differed from their mother's EA category, suggesting that children do not invariably match their mother's behaviour but respond accordingly to her behaviours and emotional availability; for instance, some children withdrew from an overly intrusive mother whilst others were emotionally under-regulated. Also, the child EA categories found in this study were similar to the insecure attachment patterns found in infants (e.g., Hobson et al., 2005) and adolescents (e.g., Herr et al., 2008) of mothers with BPD. For the main EA constructs both children of mothers with BPD and depression had lower responsiveness and involvement than children of healthy mothers. Newman et al. (2007) also found similar child EA findings and while Høivik et al. (2018) did not find an association between borderline pathology and child EA behaviours, they suggest this may be due to children in their study being overly responsive and pleasing as a coping

strategy. No differences were seen between the children of the clinical mothers on any of the subscale EA behaviours, however they differed from the children of healthy mothers on almost all measures except role-reversal and use of adult, which are behaviours that may not have had opportunity to present in the semi-structured observation method used. When exploring the factors most associated with child EA behaviours, maternal sensitivity was strongly associated, above all other factors even maternal symptom severity. This builds on previous findings which found a correlation between maternal sensitivity of at-risk mothers and child responsiveness (Hatzis et al., 2019).

#### **10.1.4 Comparison of quantitative and qualitative coding methods**

Comparison of parenting constructs using the AMCIES coding method showed mothers with BPD had lower sensitivity than mothers with no mental health difficulties, with a similar pattern to that found using the EAS. The higher maternal sensitivity observed in mothers with depression using the AMCIES scale may be as a result of a greater proportion of these mothers having 'apparent sensitivity' (i.e., looking sensitive but with behavioural 'leaks' revealing less sensitivity). As such the degree to which the mother appeared sensitive would be likely greater than when measured via the EAS which considers the various subscale behaviours and acknowledges leaks in behaviour. There were no differences between the mothers on verbal-control and non-verbal control. The Etch-A-Sketch task was however a heavily directive task and therefore may have resulted in all mothers providing a high level of instruction. Children of mothers with depression were lowest on readiness for social interaction and task persistence, followed by children of mothers with BPD, then those of healthy mothers consistent with previous research (e.g., Dib et al., 2019). These child findings suggest that they may have been responding with their usual behaviour (e.g., apathy and lack of attention) based on their mother's typical behaviours and previous depression levels (Lovejoy et al., 2000). Interpretation and comparison of the findings revealed that using a qualitative comprehensive approach provided richer in-depth interpretation compared to using count methods of data, which tend to not consider the context of the behaviour or the direct reactions and responses of the other in the relationship.

Collectively findings from the systematic review and the empirical studies show that mothers with BPD have knowledge of parenting but they think they are not parenting well, and their perceptions of lower parenting self-efficacy were indeed accurate as backed up by the observational data. Having parenting knowledge of ideal sensitive parenting is associated with fewer hostile and intrusive behaviours, however this knowledge does not translate to positive parenting practices such as being more sensitive or effectively structuring (see section 10.3.2 for further discussion). Findings also support anecdotal comments from mothers who said they knew how they did not want to parent but were less sure of how to parent well. Consequentially, although we still see increased hostility and intrusiveness in mothers with BPD, it is important to note that the mothers in this study were aware of and appeared to be avoiding the rather disturbing hostile behaviours (e.g., threats of separation, and being silent or frightening) and the very poor parenting behaviours such as those associated with parenting neglect and abuse as observed in mother-child interaction and Q-sort behaviour choices.

## **10.2 Evaluation of the Research**

As with any cross-sectional research, causal inferences cannot be established (Maxwell et al., 2011). Therefore, despite some support for the use of mediational analysis in behavioural research (Preacher & Hayes, 2008), as longitudinal data were not collected this method of analysis was considered unsuitable. The study did however explore capability of optimal parenting, and the use of hierarchical multiple regression analysis enabled recognition of the temporal order of the retrospective recollection of the data (i.e., ACE in childhood, diagnosis early adulthood, and subsequent parenting perceptions etc.).

All mothers with BPD and many of the mothers with depression were recruited from clinical populations thus there may be an element of sampling bias. These mothers have likely been exposed to treatment and therapies, whereas community sampling potentially captures both treatment and nontreatment-seeking mothers. That said, as significant differences were found with treatment-seeking mothers who were potentially more aware and possibly doing better than mums not receiving

treatment, then results are likely to be more extreme in community populations of those with BPD. Moreover, while all mothers with depression had received a depression diagnosis, some were not currently experiencing depression symptoms due to variability in depression severity, the cyclical nature of the disorder (i.e., exacerbation and remission), and the exclusion of those experiencing severe symptoms; indeed, the mothers with BPD had higher depression severity scores. Had there been fewer mothers with remitted depression symptoms we may have seen lower parenting scores with this group of mothers (e.g., Jaser et al., 2008; Lovejoy et al., 2000). Consequentially it was more difficult to confirm with certainty whether it was BPD symptomatology, depression difficulties or mental health more generally that was accountable for the parenting differences. Distinctions found between mothers with depression and mothers with BPD on their EA categories (i.e., none with depression had inconsistent sensitivity) imply that some differences could be due to diagnostic category, however it was mental health severity regardless of diagnosis that most strongly associated with the majority of parenting outcomes. Gathering clinical data regarding medication use, exacerbation history, self-harm occurrences, and suicide attempts may have helped distinguish those with greater mental health complexity; however, the mental severity score included not only depression and borderline severity but also number of comorbid conditions and effect of the condition on daily function, thereby identifying those with more complicated presentations.

There was considerable heterogeneity in the operationalisation of the parenting constructs utilised in the systematic review studies, as such comparability was difficult and precluded meta-analytic interpretation of the studies in the review. Heterogeneity was to some extent similarly found when using the two coding methods for the mother-child observations, where scale constructs differed. Findings overall suggest that greater synergy in methodology is required and more detailed explanations of the kinds of behaviours underpinning each parenting construct.

Recruitment is difficult for clinical populations, in particular where the specific mental health condition fosters a degree of mistrust, and where symptomatology may inhibit mothers to participate. Specifically, eligibility criteria precluded those with current exacerbation of symptoms, which reduced the number of mothers with depression who were available to participate. The sample size was small (76 in total across the three groups). However, the participant numbers met the power analysis requirement for detecting a large effect size (75 participants required). Despite sample size, findings were substantive yielding very large effect sizes, even with mothers being aware of their condition and in receipt of treatment. Furthermore, the participant sample was comparable to other studies of maternal BPD exploring parenting behaviours via observational methods and larger than over two-thirds of the studies in the systematic review.

This study was one of a limited few that has employed a clinical comparison group of mothers as well as a healthy comparison group; a limitation highlighted by some previous research in the review. It also measured clinical data at both a categorical and continuous level permitting comprehensive analysis diagnostically between groups and dimensionally via symptom severity.

Robust measures were used throughout. The systematic review followed PRISMA procedures (Moher et al., 2009) and the observational study used STROBE guidelines (von Elm et al., 2007). Questionnaires included well established measures such as ACE-IQ (WHO, 2018), PAI-BOR (Morey, 1991), and PHQ-9 used by NHS England (Kroenke et al., 2001). For observation coding, the highly cited and well-established emotional availability scales (Biringen, 2008) were used with the observation duration lasting for the recommended time (current study  $M=22.3$  minutes) for interpretation using the EAS (Biringen, 2008). A novel Q-sort method was also used, which given the broad age range of the children, specifically focussed on mother behaviours towards an infant (0-3 years) as all mothers would have parented a child through that developmental stage. While acknowledging the potential for self-report bias, the use of multi-methods of data collection helped reduce the likelihood. For instance, the negative self-schemas of mothers with BPD and depression may have

led to mothers under-reporting their parenting self-efficacy, however findings concur in that mothers with BPD and depression self-reported they were not parenting as well as mothers without mental health difficulties, and observations confirmed this.

This study was the first to explore parenting knowledge in mothers with BPD enabling understanding of whether maladaptive parenting schemas may have distorted their view of ideal sensitive parenting. It appears that while their knowledge is similar to mothers without BPD, operationalising this knowledge is more difficult. Furthermore, this was the most comprehensive and inclusive EA research to date for mothers with BPD, including all EA direct constructs, and is the first to our knowledge to measure the EA subscales, and categorise mothers and children via the Emotional Availability and Emotional Attachment Screener. As such it was possible to not only establish how mothers with BPD compared to those with depression or no mental health difficulties on EA constructs, but additionally to understand the behaviours underpinning those constructs and their overall EA categorisation by group. It also permitted an understanding of their children's EA and how this was affected by their mother's childhood experiences, symptom severity, and maternal EA.

### **10.3 Implications of Findings for Clinical Intervention**

Findings from the studies suggest that early parenting intervention is paramount for mothers with BPD in order to improve self-efficacy and increase optimal parenting behaviours. As maternal age was positively associated with many EA subscale behaviours, younger mothers with mental health diagnoses should also be identified and referred for early intervention.

#### **10.3.1 Implications of parenting self-efficacy**

The studies presented here show those mothers with the highest severity of mental health are at the most risk for poor perceived parenting self-efficacy. As mothers with BPD and mothers with depression had lower perceived parenting efficacy than mothers with no mental health difficulties, this indicates the high importance of

early intervention for mothers with mental health difficulties, particularly given the impact of parenting self-efficacy on self-confidence and task persistence (e.g., Ardelt & Eccles, 2001). *Confident Parents* (Mouton et al., 2018), is a programme aimed at improving mother's confidence in their parenting abilities particularly in those with increased SES risk and where children have behavioural difficulties. Due to the marginal benefit found for those whose children do not have externalising behaviours, this is likely to be less appropriate for an early intervention but effective where behavioural problems are already present. *Project Air Parenting with Personality Disorder and Complex Mental Health Issues* (McCarthy et al., 2015) intervention is tailored to parents with complex difficulties and recognises the importance of building self-efficacy as a key theme throughout the modules in this brief intervention, as does the well-established parenting programme *Triple P - Positive Parenting Programme* (Sanders, 1999; Sanders et al., 2003; Sanders et al., 2014). The *Tool to Measure Parenting Self-Efficacy* (the measure used in this study to ascertain mother's parenting self-efficacy), was developed to provide a rigorous and reliable method of evaluating parenting programmes for improvement in maternal self-efficacy and may therefore also prove useful for assessing parenting intervention efficacy (Kendall & Bloomfield, 2005).

Given the recognised impact of parenting self-efficacy on parenting competence (Jones & Prinz, 2005), and that the lower self-reported parenting efficacy of the mothers with BPD in this current study was confirmed in observations, parenting programmes aimed at including a component for improvement of maternal self-efficacy perceptions may also see improvements in observed parenting behaviours. Equally, with enhanced maternal sensitivity (see below for further discussion) potentially leading to greater success of the mother's interactions with her child, it is probable that increased emotional availability may provide a positive feedback loop leading to a subsequent increase in perceived self-efficacy also (Leerkes & Crockenberg, 2002).



### 10.3.2 Translating parenting knowledge into parenting behaviour

It is evident that it is not a lack of knowledge that mothers with BPD have regarding optimal parenting but a lack of knowing *how* to transmit this knowledge into their own parenting practices. While knowledge was associated with the negative parenting behaviours of intrusiveness and hostility, knowledge was not similarly associated with the positive parenting of sensitivity and structuring. This finding suggests that improving knowledge regarding the behaviours associated with intrusiveness and hostility may help to reduce these behaviours but will be less effective with sensitivity and structuring. Many of the EA subscale behaviours relating to these two constructs included subtly intrusive hostile behaviours such as sighing, eye-rolling, and making joking yet nonetheless belittling remarks, some of which may be well-intentioned for instance over-teaching, over-involvement, and treating child as younger/older than their years. It is possible that the mother is trying so hard to parent differently from her own childhood experiences that in doing so she becomes overly intrusive. Furthermore, the mothers may be unaware of the impact of their intrusive and hostile behaviours especially when in abundance. As hostility was specific to mothers with BPD, psychoeducation regarding these behaviours may enable a better comprehension of the hostile behaviours identified, and how these behaviours impact on their child and their child's behaviour.

Various parenting programmes include elements of parenting psychoeducation, such as *Circle of Security* (Marvin et al., 2002) and *Toddler-Parent Psychotherapy* (Cicchetti et al., 1999) highlighting the potential usefulness of psychoeducation for reducing intrusive and hostile behaviours. Contrary to our findings of knowledge not associated with sensitivity (or structuring), some programmes did find improvements in maternal sensitivity (e.g., *Circle of Security*) however this may be due to the way in which they were defining this construct. For example, 'sensitive responsiveness' appears more in line with the EA construct of non-intrusiveness (e.g., letting the child lead) rather than maternal sensitivity. Furthermore, this construct does not seem to address the importance of maternal affect as in the EA sensitivity construct (Biringen, 2008), which is particularly important given that affect difficulties are often experienced by mothers with BPD and depression. This suggests that these

programmes alone may not be sufficient for mothers with BPD and depression. Instead programmes that tailor parenting requirements to the individual (e.g., *Project Air*, McCarthy et al., 2015) or interventions specific to maternal BPD such as *Parenting Skills for Mothers with Borderline Personality Disorder: A Group training* (Rosenbach et al., 2020) are likely to be the most effective.

Results suggest that despite knowledge being similar to that of mothers without BPD, the lack of opportunity to experience and observe positive parenting in their own childhood may impede their ability to translate knowledge of positive parenting behaviours into practice, as confirmed by observation findings. For instance, abstractly knowing that an ideal sensitive mother would “respond well when child is upset and distressed” may not be sufficient to understand exactly what needs to be done to achieve this. Alternatively, it may be that the application of the parental knowledge is being hindered by their self-perceptions of their parenting in line with the theory of planned behaviour (Ajzen, 1985, 1991; Ajzen & Fishbein, 1980), again highlighting the importance of improving parenting self-efficacy for enhancing confidence in parenting behaviours. Parenting psychoeducation alone is therefore unlikely to be effective. Instead, interventions that use additional methods such as role play scenarios, and mother-child feedback (e.g., Moss et al., 2011; Priddis et al., 2008, Tuned in Parents programme; Saunders et al., 2015 using the EAS in intervention), which via video recording enable mother-therapist discussions to identify the specific behaviours that are unhelpful, how these impact on their child, and what might be a better approach would be the most efficacious (O'Hara et al., 2019).

### **10.3.3 Implications of symptom severity and maternal sensitivity**

Symptom severity was strongly associated with maternal sensitivity, structuring and hostility and therefore warrants attention. Similarly, BPD symptoms such as emotional dysregulation and fear of rejection have been associated with maladaptive parenting (e.g., Gratz et al., 2014; Frankel-Waldheter et al., 2015). Attendance to individual symptom-specific therapy such as Schema Focussed Therapy, or DBT (if capacity restrictions and geographical location permits), or less

intensive group therapies such as *STEPPS* (Blum et al., 2002), or the NHS *Introduction to Psychological Skills and Mindfulness* (including strategies to manage anger, responsibility, challenging distorted thinking, mindfulness practices, and guidance for effective relationships) would (1) help ameliorate symptom severity and therefore improve maternal sensitivity, (2) improve symptoms such as emotional dysregulation that underpin observed behaviours such as losing cool and ability to bring conflict to resolution and (3) provide some of the tools required for effective engagement with a parenting intervention. Moreover, individual therapy is strongly recommended to accompany attendance at some group parenting programmes (e.g., Rosenbach et al., 2020).

For child EA, maternal sensitivity was uniquely associated with child responsiveness and involvement over and above mental health severity, indicating sensitivity as a crucial intervention focus. Parenting interventions that were most effective at improving sensitivity were also found to also improve the mother-child attachment relationship (Bakermans-Kranenburg et al., 2003). Further, those interventions which had one clearly defined parenting focus (e.g., maternal sensitivity) and used recorded parenting feedback (as discussed above) were more effective than those including multiple topics, reinforcing the idea of utilising behaviour specific, closely targeted interventions (for a review see Bakermans-Kranenburg et al., 2003).

Enhancing maternal sensitivity, by improving those behaviours found to be lower in mothers with BPD such as affect, timing, flexibility, response to child emotional cues, and acceptance of the child, suggests that this would create a positive feedback loop (Bandura, 1977) and promote greater child EA in involvement and response behaviours. Consequentially, and given that sensitivity underpins the other main EA constructs (Biringen, 2008), as maternal involvement and interaction improves, improvements in the other EA behaviours are likely to follow such as greater success with guidance and structuring, and reduction in maternal intrusive behaviours (e.g., by following the child's lead and entering more smoothly into play). Moreover, hostile negativity would likely reduce given that sensitivity is the antithesis of hostility. This is a powerful message for mothers with BPD: Improving sensitivity

regardless of mental health difficulties is likely to improve child emotional availability and subsequent positive child outcomes from receiving sensitive optimal parenting.

The *Watch, Wait & Wonder* (Muir et al., 1999) child-focussed parenting programme has been trialled with mothers with BPD (Newman & Stevenson, 2008). Watch, Wait & Wonder provides some important elements required for mothers with BPD such as following the child's lead and clarity of perceptions (e.g., following the child's cues), however given the over intrusiveness of mothers with BPD and the lack of structuring success, it is probable that such a parent-passive intervention would not sufficiently teach structuring skills. Furthermore, while limited sample size precluded efficacy results, mothers on this programme reported resentment at the level of attention given to the child (Newman & Stevenson, 2008), suggesting it may not support the BPD mother's insecurities due to being so heavily child centred. In contrast, the course aims of the *Parenting Skills for Mothers with Borderline Personality Disorder* (e.g., appropriate expectations for child's developmental stage, understanding and respecting the child as an individual, parenting strategies for setting limits, encouraging positive child behaviour, positive reactions to child emotions, distress tolerance, emotion regulation and conflict resolution; Rosenbach et al., 2020) closely echo the parenting deficits found in the studies in this thesis. While this programme is in a relatively early stage of implementation and efficacy is not yet fully understood, the synergy with the empirical study findings suggests this as an appropriate and potentially successful intervention for improving maternal emotional availability in mothers with BPD.

#### **10.3.4 Additional considerations for mothers with BPD**

Greater understanding from significant others and access to family-focused intervention have been highlighted as key to the intervention success of mothers with BPD (Bartsch et al., 2016; Chalker et al., 2015; Keuroghlian et al., 2016). This ties in with the systems based approach of Bronfenbrenner's ecological model of those systems external to the mother-child dyad indirectly impacting on the child (Bronfenbrenner, 1994). Programmes which provide an understanding of BPD difficulties for family members and significant others (e.g., *Family Connections*,

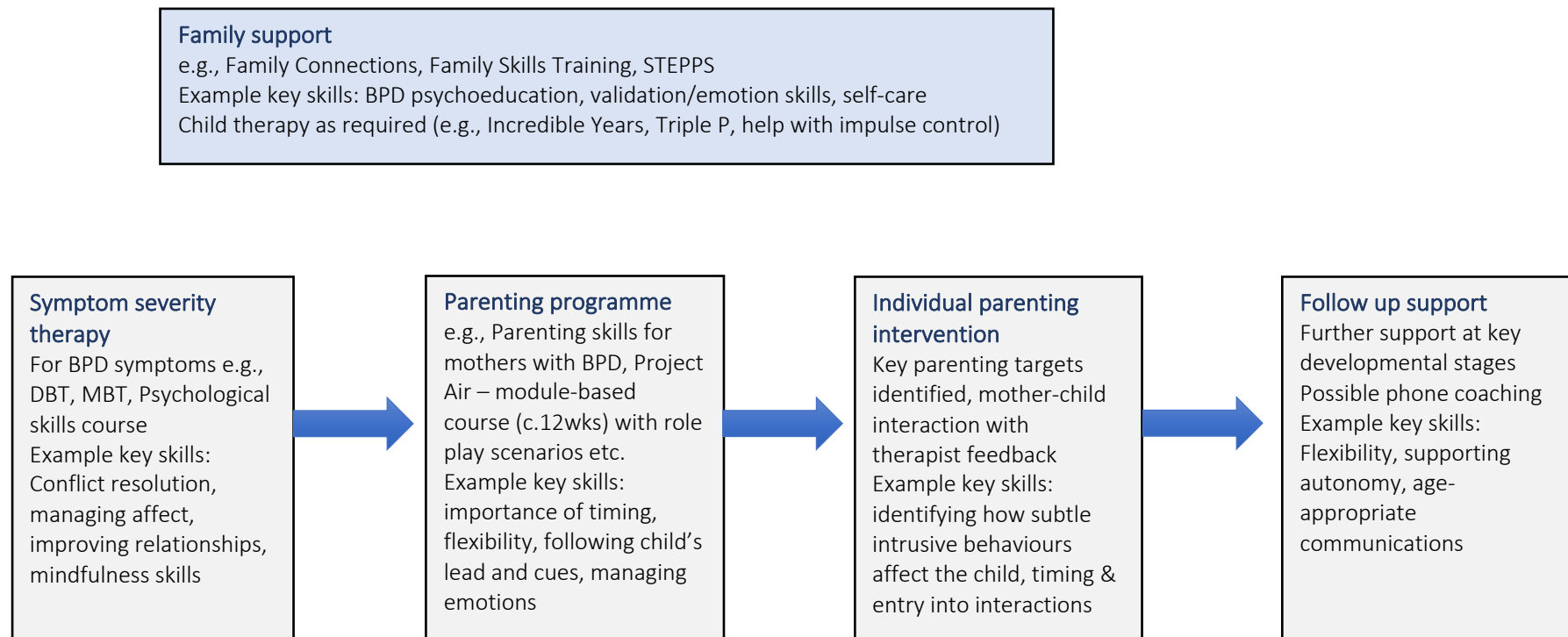
Fruzzetti & Hoffman, 2004; *Family Skills Training*, Hoffman et al., 1999; *STEPPS*, Blum et al., 2002) may therefore prove useful. Given the lower perceived social support reported by mothers with BPD, and associations with parenting self-efficacy found in this study and in previous research (Angle et al., 2015; Clifton et al., 2007; Dunn et al., 2020), interventions to help others provide better support to the individual with BPD are welcomed. Furthermore, while acknowledging that heritable predispositions cannot be altered, given the association between early vulnerabilities and an invalidating environment for potentiated development of BPD symptoms (such as impulsivity and emotional dysregulation) (Crowell et al., 2009), child interventions which mitigate these other risk factors associated with offspring development of BPD may be warranted. Help with impulse control (an early indicator for later development of emotional difficulties and/or BPD, Crowell et al., 2009)), and support with education, which leads to better behavioural modification (Gunderson, Stout, et al., 2011), might not only help lessen risk of later offspring psychopathology, but improved behavioural regulation may indirectly improve parenting via enhanced mother-child interactions.

Despite the need for symptom intervention, as highlighted in chapter one individuals with BPD can be reluctant to engage (Ben-Porath, 2004). Specifically for parenting programmes, mothers report fear of losing their child if they mention they are not coping well, concerns regarding their child being exposed to other mothers with BPD in therapy, feeling unheard (invalidated), fear of stigma, and fear of being judged as a parent by clinicians and others (Bartsch et al., 2016; Wilson et al., 2018; Zalewski et al., 2015). Acknowledgement of the behaviours associated with BPD is therefore important for engagement and sustained participation and is factored into the delivery and execution of the BPD specific parenting programme (Rosenbach et al., 2020); positive behaviours and change are encouraged which help address negativity and improve affect, and while maintaining a validating environment, problem behaviours are directly challenged. Similarly, there is clinician reluctance to parenting programmes for mothers with BPD, which requires attention (Wilson et al., 2018). This was apparent with the scepticism of some clinicians during recruitment for this study doubting the likely participation of mothers with ‘trust

issues, already critical of themselves, taking part in research recording their parenting', and this reticence was confirmed by the lack of forthcoming introductions from some. In reality, any comments from participants were related to their appearance being on camera not regarding concerns of judgement of their parenting; all agreed to the recorded observation element, consented to contact regarding future research, and anecdotally a considerable number of the clinical mothers expressed benefit from taking part (see Appendix Y). Moreover, benefits of participation in clinical research have been found to improve patient outcomes (NHS England, 2017).

Course timing and duration may inhibit participation and is an important dilemma for intervention design; too little and not enough is learnt, too much and mothers may be deterred. Findings from a pilot study of the BPD parenting programme show that while at times mothers report course content as sometimes overwhelming, they also found the course duration (12 weeks) too short (Renneberg & Rosenbach, 2016). This suggests that a series of interventions and resources similar to 'staging' as discussed in chapter one (Chanen et al., 2016; see also, Gray et al., 2019) may be the optimal solution (see Figure 10.1).

**Figure 10.1:** *Potential optimal intervention model for mothers with BPD*



#### 10.4 Implications for Clinical Research and Future Directions

Parenting knowledge requires further exploration. We know that mothers with BPD comprehend ideal sensitive parenting on an abstract level, however further understanding is required to explain why this knowledge does not directly translate into positive parenting behaviours. Qualitative follow-up of the Q-sort task could elicit greater explication by providing context around their comprehension of the mother behaviour statements in the task. Exploring how mothers would apply these maternal behaviours to an older child (i.e., the age of child they are currently parenting) may help explain whether mother's knowledge includes modification of maternal behaviours to adapt to the child's developmental stages beyond infancy. Parenting scenario-completion tasks, and maternal ratings of mother-child interaction recordings could also help elicit the mother's understanding of what specifically about the scenario or behaviour is particularly sensitive (or hostile, intrusive etc.). Helping mothers to assess other parents in mother-child interactions would also help mothers to reflect on their own parenting style and behaviours.

Pre and post intervention exploration of the EA constructs would inform the extent to which any improvements in maternal sensitivity impact on maternal structuring, intrusiveness, and hostility. Furthermore, such intervention trials will inform whether overall child EA behaviours and the behaviours that underpin child responsiveness and involvement that are specific to children of mothers with BPD or depression improve when maternal interactions are more sensitive. Feedback from current BPD parenting interventions such as Rosenbach et al. (2020) will provide valuable understanding regarding post-intervention parenting behaviour and parenting efficacy specific to mothers with BPD.

The various systems (i.e., environmental influencers) that children have, impact on the child's development with differential susceptibility to their environment and circumstances (Belsky, 2005; Bronfenbrenner & Morris, 2006). As such, what is not yet known is whether the child's EA difficulties with their mother transmits to their relationship with other significant persons in their life or whether more positive EA might be seen (Biringen, 2008) similar to attachment relationships being a facet of



the relationship not the individual. Positive relationships from others may act as a buffer (Crandall et al., 2019; Werner & Smith, 1992) protecting the child from the negative associations of the mother's EA difficulties. Exploration of significant others in the child's life and how they influence positively or negatively on the child, child EA relationships with others, and factors that make the child more resilient to adverse outcomes is warranted. Similarly, mothers may differ in their level and quality of emotional availability between offspring. Findings of mothers' lack of clarity of perceptions, lower flexibility, and higher intrusive behaviours suggest the mother is less able to adapt her behaviours. Engagement of the mother's temperament with her child's temperament may therefore result in different interaction outcomes. For instance, a child with a reserved temperament may react less favourably to over intrusive behaviours (e.g., by withdrawing from play and becoming uninvolved with the mother), whereas a sibling with a more extroverted robust nature may be less affected. Exploration of the mother's adaptability to the different temperaments of her children, and the EA behaviours of the dyads warrants investigation.

As mentioned in the limitations, there were difficulties untangling BPD from depression (severity and diagnosis). Ideally research would compare mothers with BPD to mothers with similar levels of severity of other mental health conditions, although this might be difficult to practically implement. Studies could also compare groups of mothers with BPD only to those with depression only, although given the high comorbidity of depression with BPD and the addition of negative affectivity as one of the inclusive symptoms of BPD in the alternative model of the DSM-5 (APA, 2013), it is unlikely that this would be representative of the BPD population.

The use of prospective cohort studies would not only provide longitudinal data of the temporal ordering of parenting, identifying influencing factors to parenting and child outcomes, but would also reduce sampling bias by potentially locating high BPD symptomatology non-diagnosed mothers. The Avon Longitudinal Study of Parents and Children (ALSPAC), a large prospective cohort study was initially considered for this thesis, however as BPD data was not gathered for mothers recruited to the

ALSPAC study, it precluded this approach. BPD data has since been collated on the children who are now moving into adulthood, which affords potential future research opportunities. All clinical research but especially prospective studies are costly, time consuming, and challenging due to the recruitment and retention of potential participants. Future research would be simpler if access were allowed to patient databases and support resources which are currently unavailable for non-portfolio studies (i.e., those without a research grant).

### **10.5 Overall Conclusions**

This thesis brings together two important public health topics: parenting and mental health. The findings show that mothers with BPD know what good parenting looks like, they think they are not parenting well, and observational data supports that they struggle to translate their knowledge and apply this to their parenting. BPD specific interventions with focus on improving those EA behaviours found to be lower for clinical mothers are likely to be the most effective, and improvements in maternal sensitivity should potentially ameliorate the other EA behaviours and enhance mother-child interactions. Results suggest that regardless of diagnosis, improving sensitivity should improve child EA behaviours. Furthermore, increased maternal sensitivity has the potential to reduce or prevent the plethora of adverse factors associated with low emotional availability, particularly those that coalesce into psychopathology. With research further exploring the role of parenting knowledge, the differential EA behaviours of children, and environmental risk/protective factors, interventions can be further adapted and earlier identification for intervention made. As parents are the main protagonists in a child's development, the use of maternal BPD specific programmes tailored to improve maternal parenting skills and emotional availability may then ultimately lessen the maladaptive cycle of transmission of vulnerability from mother to child.

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## APPENDICES

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- Appendix B: Characteristics for borderline personality disorder nosology
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## Appendix A: Key early descriptions of the borderline construct

Stern (1938)	Kernberg (1967) Levels of personality organisation		
Narcissism	<b>Neurotic level</b>	<b>Psychotic level</b>	<b>Borderline level</b>
Psychic Bleeding	Intact reality testing	Severely compromised reality testing	Reality testing generally intact
Inordinate hypersensitivity	<i>Can distinguish between what is real and what is not</i>	<i>Delusions, hallucinations, hearing voices</i>	<i>In the main can distinguish between reality and what is not</i>
Psychic body and rigid personality			
Negative therapeutic reactions	Consistent sense of self and others	Inconsistent sense of self and others	Fragmented sense of self and others
Apparent constitutionally rooted feelings of inferiority deeply imbedded in the personality	<i>A good sense of own strengths &amp; weaknesses, consistent goals and values, can deeply commit to and care for others</i>	<i>Blurred boundaries between self and others, difficulties distinguishing origins of thoughts (their mind or the real world)</i>	<i>Inconsistent view of self and others over time and situations, problems with interpersonal relationships</i>
Masochism			
State of deep organic insecurity & anxiety	Generally rely on mature defence mechanisms when stressed	Utilises immature defences	Rely on primitive defence mechanisms
Use of projection mechanisms			
Difficulties in reality testing particularly in personal relationships	<i>Typically adaptively copes with stressful situations</i>	<i>Extremely poor ability to cope with stress, poor functioning in society</i>	<i>Poor management of stressful situations, polarised view of the world, splitting</i>

Note: Despite being written in psychoanalytical language, and many decades ago, these descriptions bear many similarities with DSM criteria giving validity to the longevity of BPD as a diagnosis. The descriptions continue to be influential in theoretical models of internal defence mechanisms



## Appendix B: *Characteristics for borderline personality disorder nosology*

Gunderson & Singer (1975)	Gunderson & Kolb (1978)	Grinker (1979)	Spitzer et al. (1989) DSM III
History of impulsive behaviour	Impulsivity		Impulsivity (substance abuse, promiscuity)
Relationships that vacillate between transient superficiality and intense dependency	Disturbed vacillating often dependant close relationships	Anaclitic, dependent relationships	Unstable intense relationships (idealization/devaluation)
Intense affect	Heightened affectivity		Affective instability
Hostile		Anger as main or only affect	Inappropriate intense anger
Loose thinking in unstructured situations, a certain social adaptiveness	Low achievement, high socialisation	Lack of self-identity	Identity disturbance
	Manipulative suicide		Suicidal/self-mutilating behaviour
Usually depressive		Depression, characterised by loneliness	Chronic feelings of emptiness (Pessimistic outlook)
			Efforts to avoid abandonment
Brief psychotic experience	Mild psychotic experiences		Possible co-morbid diagnosis with transient psychotic symptoms

## Appendix C: *DSM-IV-TR Diagnostic criteria*

### **DSM-IV-TR diagnostic criteria**

A pervasive pattern of instability of interpersonal relationships, self-image and affects, and marked impulsivity beginning by early adulthood and present in a variety of contexts, as indicated by five (or more) of the following:

- 1) Frantic efforts to avoid real or imagined abandonment
- 2) A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation
- 3) Identity disturbance: markedly persistently unstable self-image or sense of self
- 4) Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating)
- 5) Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior
- 6) 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)
- 7) Chronic feelings of emptiness
- 8) Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)
- 9) Transient, stress-related paranoid ideation or severe dissociative symptoms

Taken directly from the manual: DSM-IV-TR (APA, 2000)

## Appendix D: DSM-5 Diagnostic criteria

### DSM-5 diagnostic criteria

The essential features of a personality disorder are impairments in personality (self and interpersonal) functioning and the presence of pathological personality traits. To diagnose borderline PD, the following criteria must be met:

**A.** Significant impairments in personality functioning manifest by:

**1. Impairments in self functioning** (a or b):

(a) **Identity:** Markedly impoverished, poorly developed, unstable self-image, often associated with excessive self-criticism; chronic feelings of emptiness; dissociative states under stress

(b) **Self-direction:** Instability in goals, aspirations, values, or career plans

AND

**2. Impairment in interpersonal functioning** (a or b):

(a) **Empathy:** compromised ability to recognize the feelings and needs of others associated with interpersonal hypersensitivity (i.e., prone to feel slighted or insulted); perceptions of others selectively biased toward negative attributes or vulnerabilities.

(b) **Intimacy:** Intense, unstable, and conflicted close relationships, marked by mistrust, neediness, and anxious preoccupation with real or imagined abandonment; close relationships often viewed in extremes of idealization and devaluation and alternating between over involvement and withdrawal.

**B.** Pathological personality traits in the following domains:

**1. Negative Affectivity**, characterized by:

(a) **Emotional lability:** Unstable emotional experiences and frequent mood changes; emotions that are easily aroused, intense, and/or out of proportion to events and circumstances

(b) **Anxiousness:** Intense feelings of nervousness, tenseness, or panic, often in reaction to interpersonal stresses; worry about the negative effects of past unpleasant experiences and future negative possibilities; feeling fearful, apprehensive, or threatened by uncertainty; fears of falling apart or losing control

(c) **Separation insecurity:** Fears of rejection by and/or separation from significant others, associated with fears of excessive dependency and complete loss of autonomy

(d) **Depressivity:** Frequent feelings of being down, miserable, and/or hopeless; difficulty recovering from such moods; pessimism about the future; pervasive shame; feeling of inferior self-worth; thoughts of suicide and suicidal behaviour.

**2. Disinhibition**, characterized by:

(a) **Impulsivity:** Acting on the spur of the moment in response to immediate stimuli; acting on a momentary basis without a plan or consideration of outcomes; difficulty establishing or following plans; a sense of urgency and self-harming behaviour under emotional distress

(b) **Risk taking:** Engagement in dangerous, risky, and potentially self-damaging activities, unnecessarily and without regard to consequences; lack of concern for one's limitations and denial of the reality of personal danger.

**3. Antagonism**, characterized by:

(a) **Hostility:** Persistent or frequent angry feelings; anger or irritability in response to minor slights and insults.

**C.** The impairments in personality functioning and the individual's personality trait expression are relatively stable across time and consistent across situations.

**D.** The impairments in personality functioning and the individual's personality trait expression are not better understood as normative for the individual's developmental stage or socio-cultural environment.

**E.** The impairments in personality functioning and the individual's personality trait expression are not solely due to the direct physiological effects of a substance (e.g., a drug of abuse, medication) or a general medical condition (e.g., severe head trauma)

Taken directly from the manual: DSM-5 (APA, 2013)

## Appendix E: ICD-10 Diagnostic criteria for EUPD

### ICD-10 Diagnostic criteria for emotionally unstable personality disorder (EUPD)

Personality disorder characterised by a definite tendency to act impulsively and without consideration of the consequences; the mood is unpredictable and capricious. There is a liability to outbursts of emotion and an incapacity to control the behavioural explosions. There is a tendency to quarrelsome behaviour and to conflict with others, especially when impulsive acts are thwarted or censored.

Two types may be distinguished:

Impulsive type: characterised predominantly by emotional instability and lack of impulse control, and

Borderline type: characterised in addition by disturbances in self-image, aims and internal preferences, by chronic feelings of emptiness, by intense and unstable interpersonal relationships, and by a tendency to self-destructive behaviour, including suicide behaviour and attempts

Personality (disorder):

Aggressive

Impulsive

Borderline

Excludes: dissocial personality disorder

Taken directly from the manual: ICD-10 (WHO, 1992)

## Appendix F: Proposed ICD-11 essential features of personality disorder severity

Mild Personality Disorder	Moderate Personality Disorder	Severe Personality Disorder
Disturbances affect some areas of personality functioning but not others (e.g., problems with self-direction in the absence of problems with stability and coherence of identity or self-worth) and may not be apparent in some contexts.	Disturbances affect multiple areas of personality functioning (e.g., identity or sense of self, ability to form intimate relationships, ability to control impulses and modulate behaviour. However, some areas of personality functioning may be relatively less affected.	There are severe disturbances in functioning of the self (e.g., sense of self may be so unstable that individuals report not having a sense of who they are or so rigid that they refuse to participate in any but an extremely narrow range of situations; self-view may be characterised by self-contempt or be grandiose or highly eccentric.
There are problems in many interpersonal relationships and/or in performance of expected occupational and social roles, but some relationships are maintained and/or some roles carried out.	There are marked problems in most interpersonal relationships and the performance of most expected social and occupational roles are compromised to some degree. Relationships are likely to be characterised by conflict, avoidance, withdrawal, or extreme dependency (e.g., few friendships maintained, persistent conflict in work relationships and consequent occupational problems, romantic relationships characterised by serious disruption or inappropriate submissiveness).	Problems in interpersonal functioning seriously affect virtually all relationships and the ability and willingness to perform expected social and occupational roles is absent or severely compromised.
Specific manifestations of personality disturbances are generally of mild severity.	Specific manifestations of personality disturbance are generally of moderate severity.	Specific manifestations of personality disturbance are severe and affect most, if not all, areas of personality functioning.
Is typically not associated with substantial harm to self or others.	Is sometimes associated with harm to self or others.	Is often associated with harm to self or others.
May be associated with substantial distress or with impairment in personal, family, social, educational, occupational or other important areas of functioning that is either limited to circumscribed areas (e.g., romantic relationships; employment) or present in more areas but milder.	Is associated with marked impairment in personal, family, social, educational, occupational or other important areas of functioning, although functioning in circumscribed areas may be maintained.	Is associated with severe impairment in all or nearly all areas of life, including personal, family, social, educational, occupational, and other important areas of functioning.

Source: Bach and First (2018)

**Appendix G: Summary of quality assessment of the systematic review studies (chapter four) using the Newcastle-Ottawa Scales**

First Author (date)	Selection (max 5 stars)	Comparability (max 2 stars)	Outcome (max 3 stars)	Total max 10
Bertino (2012)	***	**	**	7
Harvey (2011)	****	**	**	8
Herr (2008)	*****	**	**	9
Howard (1995)	*****	**	***	10
Jellinek (1991)	****	*	***	8
Whalen (2015)	*****	*	***	9
Wilson (2012)	***	**	***	8
Zalewski (2014)	****	**	**	8

**Quality assessment of case-control studies**

Study First Author (date)	Selection (max 4 stars)	Comparability (max 2 stars)	Exposure (max 3 stars)	Total max 9
Abela (2005)	***	**	**	7
Barnow (2006)	****	**	*	7
Blankley (2015)	****	**	**	8
Cheng (2010)	****	**	**	8
Crandell (2003)	***	**	**	7
Crittenden (2010)	****	**	**	8
Delavenne (2008)	****	**	*	7
Elliot (2014)	***	**	**	7
Feldman (1995)	****	**	**	8
Frankel-Waldheter (2015)	****	**	**	8
Gratz (2014)	****	**	*	7
Hobson (2005)	****	**	**	8
Hobson (2009)	****	**	**	8
Kiel (2011)	****	**	*	7
Macfie (2009)	****	**	**	8
Macfie (2014)	****	**	**	8
Marantz (1991)	****	**	*	7
Newman (2007)	****	**	**	8
Schacht (2013)	****	**	***	9
Weiss (1996)	***	*	***	7
White (2014)	****	**	**	8

**Quality assessment of cohort studies**

Study First Author (date)	Selection (max 4 stars)	Comparability (max 2 stars)	Exposure (max 3 stars)	Total max 9
Barnow (2013)	***	**	**	7
Conway (2015)	***	**	**	7
Reinelt (2014)	****	**	**	8
Stepp (2013)	***	**	**	7

## Appendix H: NHS ethics application

NHS REC Form

Reference:  
16/WM/0076

IRAS Version 5.2.1

Welcome to the Integrated Research Application System

IRAS Project Filter

The integrated dataset required for your project will be created from the answers you give to the following questions. The system will generate only those questions and sections which (a) apply to your study type and (b) are required by the bodies reviewing your study. Please ensure you answer all the questions before proceeding with your applications.

Please complete the questions in order. If you change the response to a question, please select 'Save' and review all the questions as your change may have affected subsequent questions.

**Please enter a short title for this project** (maximum 70 characters)  
Parenting of mothers with borderline personality disorder V1

**1. Is your project research?**

☒ Yes ☐ No

**2. Select one category from the list below:**

- ☐ Clinical trial of an investigational medicinal product
- ☐ Clinical investigation or other study of a medical device
- ☐ Combined trial of an investigational medicinal product and an investigational medical device
- ☐ Other clinical trial to study a novel intervention or randomised clinical trial to compare interventions in clinical practice
- ☐ Basic science study involving procedures with human participants
- ☒ Study administering questionnaires/interviews for quantitative analysis, or using mixed quantitative/qualitative methodology
- ☐ Study involving qualitative methods only
- ☐ Study limited to working with human tissue samples (or other human biological samples) and data (specific project only)
- ☐ Study limited to working with data (specific project only)
- ☐ Research tissue bank
- ☐ Research database

**If your work does not fit any of these categories, select the option below:**

☐ Other study

**2a. Please answer the following question(s):**

- a) Does the study involve the use of any ionising radiation? ☐ Yes ☒ No
- b) Will you be taking new human tissue samples (or other human biological samples)? ☐ Yes ☒ No
- c) Will you be using existing human tissue samples (or other human biological samples)? ☐ Yes ☒ No

**3. In which countries of the UK will the research sites be located?(Tick all that apply)**

☒ England

Date: 26/01/2016

1

105429/911938/1/579

- ☐ Scotland  
☐ Wales  
☐ Northern Ireland

**3a. In which country of the UK will the lead NHS R&D office be located:**

- ☒ England  
☐ Scotland  
☐ Wales  
☐ Northern Ireland  
☐ This study does not involve the NHS

**4. Which review bodies are you applying to?**

- ☐ HRA Approval  
☒ NHS/HSC Research and Development offices  
☐ Social Care Research Ethics Committee  
☒ Research Ethics Committee  
☐ Confidentiality Advisory Group (CAG)  
☐ National Offender Management Service (NOMS) (Prisons & Probation)

*For NHS/HSC R&D offices, the CI must create Site-Specific Information Forms for each site, in addition to the study-wide forms, and transfer them to the PIs or local collaborators.*

**5. Will any research sites in this study be NHS organisations?**

- ☒ Yes ☐ No

**5a. Are all the research costs and infrastructure costs for this study provided by an NIHR Biomedical Research Centre, NIHR Biomedical Research Unit, NIHR Collaboration for Leadership in Health Research and Care (CLAHRC) or NIHR Research Centre for Patient Safety & Service Quality in all study sites?**

- ☐ Yes ☒ No

*If yes and you have selected HRA Approval in question 4 above, your study will be processed through HRA Approval.*

*If yes, and you have not selected HRA Approval in question 4 above, NHS permission for your study will be processed through the NIHR Coordinated System for gaining NHS Permission (NIHR CSP).*

**5b. Do you wish to make an application for the study to be considered for NIHR Clinical Research Network (CRN) support and inclusion in the NIHR Clinical Research Network (CRN) Portfolio? Please see information button for further details.**

- ☐ Yes ☒ No

*If yes, you must complete a NIHR Clinical Research Network (CRN) Portfolio Application Form immediately after completing this project filter and before submitting other applications. If you have selected HRA Approval in question 4 above your study will be processed through HRA Approval. If not, NHS permission for your study will be processed through the NIHR Coordinated System for gaining NHS Permission (NIHR CSP).*

**6. Do you plan to include any participants who are children?**

- ☒ Yes ☐ No



**7. Do you plan at any stage of the project to undertake intrusive research involving adults lacking capacity to consent for themselves?**

☐ Yes ☒ No

*Answer Yes if you plan to recruit living participants aged 16 or over who lack capacity, or to retain them in the study following loss of capacity. Intrusive research means any research with the living requiring consent in law. This includes use of identifiable tissue samples or personal information, except where application is being made to the Confidentiality Advisory Group to set aside the common law duty of confidentiality in England and Wales. Please consult the guidance notes for further information on the legal frameworks for research involving adults lacking capacity in the UK.*

**8. Do you plan to include any participants who are prisoners or young offenders in the custody of HM Prison Service or who are offenders supervised by the probation service in England or Wales?**

☐ Yes ☒ No

**9. Is the study or any part of it being undertaken as an educational project?**

☒ Yes ☐ No

Please describe briefly the involvement of the student(s):  
The chief investigator is a doctoral level researcher training as part of a PhD at the University of Warwick.

**9a. Is the project being undertaken in part fulfilment of a PhD or other doctorate?**

☒ Yes ☐ No

**10. Will this research be financially supported by the United States Department of Health and Human Services or any of its divisions, agencies or programs?**

☐ Yes ☒ No

**11. Will identifiable patient data be accessed outside the care team without prior consent at any stage of the project (including identification of potential participants)?**

☐ Yes ☒ No

**Integrated Research Application System**  
**Application Form for Research administering questionnaires/interviews for quantitative analysis or mixed methodology study****Application to NHS/HSC Research Ethics Committee**

The Chief Investigator should complete this form. Guidance on the questions is available wherever you see this symbol displayed. We recommend reading the guidance first. The complete guidance and a glossary are available by selecting [Help](#).

Please define any terms or acronyms that might not be familiar to lay reviewers of the application.

**Short title and version number:** (maximum 70 characters - this will be inserted as header on all forms)  
Parenting of mothers with borderline personality disorder V1

*Please complete these details after you have booked the REC application for review.*

**REC Name:**  
West Midlands- Coventry & Warwickshire

**REC Reference Number:**  
16/WM/0076

**Submission date:**  
26/01/2016

**PART A: Core study information****1. ADMINISTRATIVE DETAILS****A1. Full title of the research:**

Mothers with borderline personality disorder: Parenting perceptions, observations and perceived/desired support

**A2-1. Educational projects**

Name and contact details of student(s):

**Student 1**

	Title Forename/Initials Surname
	Ms Julie Eyden
Address	Psychology Department University of Warwick Gibbet Hill Road, Coventry
Post Code	CV4 7AL
E-mail	j.eyden@warwick.ac.uk
Telephone	02476523158

Fax																																																									
Give details of the educational course or degree for which this research is being undertaken: Name and level of course/ degree: PhD in psychology  Name of educational establishment: University of Warwick																																																									
Name and contact details of academic supervisor(s):																																																									
<b>Academic supervisor 1</b>  <table style="width: 100%;"><tr><td style="width: 20%;"></td><td style="width: 20%;">Title</td><td style="width: 20%;">Forename/Initials</td><td style="width: 40%;">Surname</td></tr><tr><td></td><td>Dr</td><td>Fiona</td><td>MacCallum</td></tr><tr><td>Address</td><td colspan="3">Psychology Department University of Warwick Gibbet Hill Road, Coventry</td></tr><tr><td>Post Code</td><td colspan="3">CV4 7AL</td></tr><tr><td>E-mail</td><td colspan="3">fiona.maccallum@warwick.ac.uk</td></tr><tr><td>Telephone</td><td colspan="3">02476523182</td></tr><tr><td>Fax</td><td colspan="3"></td></tr></table> <b>Academic supervisor 2</b>  <table style="width: 100%;"><tr><td style="width: 20%;"></td><td style="width: 20%;">Title</td><td style="width: 20%;">Forename/Initials</td><td style="width: 40%;">Surname</td></tr><tr><td></td><td>Prof</td><td>Dieter</td><td>Wolke</td></tr><tr><td>Address</td><td colspan="3">Psychology Department University of Warwick Gibbet Hill Road, Coventry</td></tr><tr><td>Post Code</td><td colspan="3">CV4 7AL</td></tr><tr><td>E-mail</td><td colspan="3">d.wolke@warwick.ac.uk</td></tr><tr><td>Telephone</td><td colspan="3">02476573217</td></tr><tr><td>Fax</td><td colspan="3"></td></tr></table>			Title	Forename/Initials	Surname		Dr	Fiona	MacCallum	Address	Psychology Department University of Warwick Gibbet Hill Road, Coventry			Post Code	CV4 7AL			E-mail	fiona.maccallum@warwick.ac.uk			Telephone	02476523182			Fax					Title	Forename/Initials	Surname		Prof	Dieter	Wolke	Address	Psychology Department University of Warwick Gibbet Hill Road, Coventry			Post Code	CV4 7AL			E-mail	d.wolke@warwick.ac.uk			Telephone	02476573217			Fax			
	Title	Forename/Initials	Surname																																																						
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<b>Student(s)</b>  <b>Student 1</b> Ms Julie Eyden	<b>Academic supervisor(s)</b> <div style="border: 1px solid black; padding: 5px;"><input checked="" type="checkbox"/> Dr Fiona MacCallum <input checked="" type="checkbox"/> Prof Dieter Wolke</div>																																																								
A copy of a <u>current CV</u> for the student and the academic supervisor (maximum 2 pages of A4) must be submitted with the application.																																																									
<b>A2-2. Who will act as Chief Investigator for this study?</b>  <p><input checked="" type="radio"/> Student</p> <p><input type="radio"/> Academic supervisor</p> <p><input type="radio"/> Other</p>																																																									

**A3-1. Chief Investigator:**

	Title Forename/Initials Surname
	Ms Julie Eyden
Post	PhD Student
Qualifications	BSc (hons) Psychology (first class) MSc by Research in Psychology Post graduate certificate in teaching and learning in higher education
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* Personal Telephone/Mobile	
Fax	

*\* This information is optional. It will not be placed in the public domain or disclosed to any other third party without prior consent.*

*A copy of a current CV (maximum 2 pages of A4) for the Chief Investigator must be submitted with the application.*

**A4. Who is the contact on behalf of the sponsor for all correspondence relating to applications for this project?**

*This contact will receive copies of all correspondence from REC and HRA/R&D reviewers that is sent to the CI.*

	Title Forename/Initials Surname
	Mrs Jane Prewett
Address	University of Warwick, Research & Impact Services, University House, Kirby Corner Road Coventry
Post Code	CV4 8UW
E-mail	wmsponsorship@warwick.ac.uk
Telephone	02476522746
Fax	

**A5-1. Research reference numbers. Please give any relevant references for your study:**

Applicant's/organisation's own reference number, e.g. R & D (if available):

Sponsor's/protocol number:

Protocol Version: 1

Protocol Date:

Funder's reference number: n/a

Project website: n/a

**Additional reference number(s):**

Ref.Number	Description	Reference Number
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*Registration of research studies is encouraged wherever possible. You may be able to register your study through your NHS organisation or a register run by a medical research charity, or publish your protocol through an open access publisher. If you have registered your study please give details in the "Additional reference number(s)" section.*

**A5-2. Is this application linked to a previous study or another current application?**

☐ Yes ☒ No

*Please give brief details and reference numbers.*

**2. OVERVIEW OF THE RESEARCH**

*To provide all the information required by review bodies and research information systems, we ask a number of specific questions. This section invites you to give an overview using language comprehensible to lay reviewers and members of the public. Please read the guidance notes for advice on this section.*

**A6-1. Summary of the study.** *Please provide a brief summary of the research (maximum 300 words) using language easily understood by lay reviewers and members of the public. Where the research is reviewed by a REC within the UK Health Departments' Research Ethics Service, this summary will be published on the Health Research Authority (HRA) website following the ethical review. Please refer to the question specific guidance for this question.*

Borderline Personality Disorder (BPD) is a complex mental condition characterised by emotional, behavioural, and interpersonal difficulties. It affects around 1-6% of the general population and is more often diagnosed in women. Research has shown that parenting may be particularly challenging for mothers diagnosed with BPD and that their offspring may be at risk for personal, social, and future mental health difficulties. The aim of our study is to investigate the understanding that mothers with BPD have regarding both optimal parenting, their own parenting, and the support they would like with parenting. This information may help to target future interventions to support mothers with BPD and their children.

To explore maternal parenting perceptions in phase 1, a research visit will be conducted in the participant's home (or another location if preferred). The study will comprise of a task to rank ideal parenting behaviours, questionnaires exploring mother's own perceived parenting, and the level of social support they receive, and an observation of mother and child interacting in play. This visit is anticipated to take around 2 to 2½ hours. Mothers will be recruited from the Coventry & Warwickshire NHS partnership trust initially (and subsequently from other NHS trusts) and will include three groups of mothers: those with BPD, those with depression and those with no psychiatric diagnosis.

Phase 2 of the research will adopt a focus group design to explore the kind of support that mothers with BPD would like from a parenting programme. The topic will be introduced and guided to facilitate a group discussion. By providing a supportive open environment it will enable members of the group to collectively share their thoughts, suggestions and elaborate on those of other members. Should participants wish to be included but prefer not to discuss in a group, then there will be an option for individual interviews.

**A6-2. Summary of main issues.** *Please summarise the main ethical, legal, or management issues arising from your study and say how you have addressed them.*

*Not all studies raise significant issues. Some studies may have straightforward ethical or other issues that can be identified and managed routinely. Others may present significant issues requiring further consideration by a REC, R&D office or other review body (as appropriate to the issue). Studies that present a minimal risk to participants may raise complex organisational or legal issues. You should try to consider all the types of issues that the different reviewers may need to consider.*

This study will form part of the chief investigator's doctoral research programme in psychology and will enable the student to gain experience in multiple methodologies. The research proposal has been developed in collaboration with two academic supervisors, a clinical consultant, and an expert parenting researcher from the US. Prior to designing the study the chief investigator met with the manager and head psychiatrist of a personality disorders clinic

in order to gain knowledge of the kind of challenges individuals with BPD face and to learn how research can be best undertaken without exacerbating participant symptoms. The chief investigator has met with other relevant clinicians (psychiatrists, clinical psychologist and the Birmingham Mother and Baby Unit) to discuss identification of potential participants and how they could be recruited. Additionally, the chief investigator has completed the Introduction to Good Clinical Practice eLearning (Primary Care) course.

#### Purpose and design

BPD is a complex disorder affecting around 1-6% of the general population and is more commonly diagnosed in women. It is characterised by poor emotional, behavioural and cognitive functioning. Symptoms include dysregulated emotions, difficulties with interpersonal relationships, fear of abandonment and poor sense of self. Those with the disorder may self-harm or attempt suicide. As such, having these difficulties could make parenting particularly challenging. We have recently conducted a systematic search of the existing literature to review all studies pertaining to the parenting of mothers with BPD and their offspring's outcomes. Findings showed that mothers with BPD display more maladaptive parenting behaviours such as overprotection, hostility and insensitivity compared to mothers without the disorder. Their offspring are also more vulnerable to adverse outcomes, including various psychopathologies, compared with children of mothers with no diagnosis. The aim of this study is to explore their understanding of ideal, sensitive parenting (seeing how this compares to their own parenting using mother report and observational methods) and to investigate the kind of support that mothers with BPD receive and need. The measures used will assess the quality of parent-child interaction in mothers with clinical and non-clinical backgrounds and is in no way designed as a critique or judgement of parenting style. Research shows that those with BPD are likely to have experienced poor parenting in their childhood therefore it may be that mothers with BPD have a limited concept of what good parenting might look like. This question has yet to be explored and study findings would help to identify target areas for parenting programmes to support mothers with this disorder and their children.

To enable triangulation of findings, we chose three methods to evaluate the parenting and parental perceptions of mothers with BPD: a self-report questionnaire mother's perceived parenting, a sort task ranking ideal mother behaviours, and an observation of the mother and child interacting in play. For the mother's report of their own parenting, the 'Tool to Measure Parenting Self Efficacy' (TOPSE, Kendall & Bloomfield, 2005) was chosen for its ease to administer/complete and because it assesses eight key areas of parenting: emotion and affection, play and enjoyment, empathy and understanding, control, discipline and setting boundaries, parenting pressure, parenting self-acceptance, and parenting knowledge and learning. An observation study was also chosen in order to compare mother's report of parenting with a current objectively observed parenting scenario. The Etch-a-Sketch task was chosen as it requires a degree of communication and co-operation in order to complete the drawing task and will therefore enable the interaction between mother and child to be explored. We recognise that younger children may not have yet developed the dexterity to operate the Etch-a-Sketch dials therefore alternative tasks will be available. Younger children (i.e. 18m to 5 years) and their mothers will be asked to complete a building blocks task/puzzle task, whilst very young infant-mother dyads will be observed in an unstructured play session (i.e. mothers playing as they would usually do with their infant). Mothers' views of 'ideal, sensitive parenting' will be measured using the Mother Behaviour Q-Sort task (MBQS). Mothers will be given a series of maternal behaviour statements to rank from those that best fit behaviours of an ideal mother to behaviours that least fit those of an ideal mother. As this Q-sort task is interactive, it is considered to be more interesting than mothers answering further questions via questionnaire/interview. Furthermore, findings from this task will provide an objective 'sensitivity belief score' that can be compared to the MBQS criterion that reflects behaviours indicative of a sensitive mother (Pederson, et al., 1999).

Additionally, mothers will be asked about the level of support they receive. Unlike some social support questionnaire, which only report the mother's perceived level of support of the significant people in her life (e.g., Social Support Scale; Zimet et al., 1988), the Significant Others Scale (Power, Champion, & Aris, 1988) also gathers information regarding the mother's preferred level of support on each of the measures for each of her significant others. Information will also be gathered of the views of mothers with BPD regarding what additional parental support they would like and how this support might be provided. Focus groups were chosen as a preferred method as group discussion enables opinions and suggestions to be explored and elaborated on from other members of the group, thus providing well-developed, collective responses. Individual interviews will also be available to enable those who prefer not to discuss in a group scenario to still offer their views and suggestions.

#### Recruitment

Recruitment of participants will be made via NHS professionals (e.g., psychiatrists, personality disorder clinics and IAPT services). It is recognised that recruitment opportunities may be limited. For example participants need to (a) be mothers, (b) be willing to take part, (c) be not currently experiencing exacerbation of symptoms, and (d) have had their child living with them for the majority of its life. Therefore, recruitment may need to take place across multiple NHS sites. Contact has already been made with psychiatrists and professionals within the Coventry and Warwickshire NHS trust, South Warwickshire NHS Foundation Trust and Birmingham and Solihull Mental Health NHS Foundation Trust, who have agreed to help identify potential participants. Professor Weich (R&D Director for Coventry and Warwickshire Partnership Trust) has also agreed to contact colleagues within the trust once Research Ethics Committee approval has been gained. Further contact will be made with other psychiatrists, personality disorder units, complex needs

service and clinical psychologists for the additional NHS trust sites. Recruitment procedures have been developed in conjunction with Coventry Perinatal Psychiatrist and the Birmingham Mother and Baby Unit (BMBU) team. Participants will be initially identified by the appropriate mental health care professional who will give the participant information sheet (developed with Coventry and Warwickshire R&D - see attached) and consent to contact form (see attached). Consent to contact will always be obtained before passing patient contact details to the chief investigator. For the BMBU, the chief investigator would (after verbal agreement from the patient) be present in clinic assessments/follow ups; after the consultation if the patient meets criteria and are interested in taking part in the research, then the chief investigator will take them to another room to explain more detail about the project. All potential participants will be given a participant information sheet explaining what taking part would mean for the participant. After consent to contact has been obtained, the chief investigator will contact the potential participant and answer any questions before gaining verbal consent to take part. A mutually convenient time and location will be arranged, and prior to commencement of the study signed informed consent will be obtained. Fliers will also be placed in clinics to invite potential participants to take part. Again, consent to contact (or contact direct from the client) would be received prior to gaining access to any personal participant contact information.

#### Inclusion/Exclusion

Inclusion of participants to the study will be based on: their clinical diagnosis (i.e. presence or not of BPD or depression); the child having been in their care for the majority of its life; the mothers current level of health (i.e. not currently experiencing exacerbation of symptoms); their ability to understand English fluently; and their agreement to take part.

#### Consent

Informed consent will be obtained with every participant, including informing the participant of their right to withdraw from the study at any time without reason. Non-participation or withdrawal from the study will not affect any current or future care/treatment. Potential participants will not be identified for participation if deemed unable to do so (e.g., due to exacerbation of symptoms) therefore would not be considered for inclusion in the study. Every attempt will be made to fully inform of what involvement in the study would entail, and to answer any questions that any potential participant may have. The participants' wellbeing will be paramount throughout the study and if compromised at any point, the study will be immediately halted and the necessary professionals contacted.

#### Risks, burdens and benefits

Some mothers may find it difficult discussing their parenting behaviours. They will have the option at any point to not answer any questions they find particularly difficult. Mothers may, however, welcome discussing their parenting and the challenges they face, and enjoy knowing they have been part of a study that will help to target support for other mothers with this condition. The study is not designed in anyway to be a critique or judgement of the mother's parenting and reassurance will be given that any information gathered will be confidential and only reported at a group, not individual, level. Reassurance will also be given that taking part (or not) in this research will not affect any treatment they receive or are entitled to. A protocol will be in place to ensure the safeguard of the participant, their child and the chief investigator (see safeguarding protocol). All participants will be given a list of contacts in case any concerns or worries emerge after the study has ended. In the event that a mother might exhibit signs of extreme distress during the study, the study would be stopped and the necessary professionals would be informed.

#### Confidentiality

Every consideration has been made to only ask information that is considered relevant to the study, either when screening for inclusion or when gathering data for analysis. Participant numbers will be assigned and only these recorded on the data collected. Any private contact information will remain separate from and be only available to the chief investigator and the first academic supervisor - the second researcher (i.e. the researcher responsible for coding a proportion of the observations) will not have access to any identifiable personal contact details. Video recordings will only be available to the chief investigator, the supervisor and a second researcher who will code a proportion of the observations in order to complete reliability checks. All paper data will be locked in a cabinet at the university accessible only to the chief investigator, and all identifiable digital data will be encrypted and password protected.

#### Conflict of interest

Gaining participant data is a seminal part of the chief investigator's doctoral thesis, therefore, the need for recruitment of participants (versus participant needs) could be deemed a conflict of interest. At no point, however, will the participants' wellbeing and concerns be overlooked for the gain of the research study.

**A6-3. Proportionate review of REC application** *The initial project filter has identified that your study may be suitable for proportionate review by a REC sub-committee. Please consult the current guidance notes from NRES and indicate whether you wish to apply through the proportionate review service or, taking into account your answer to A6-2, you consider there are ethical issues that require consideration at a full REC meeting.*

☐ Yes - proportionate review ☒ No - review by full REC meeting

Further comments (optional):

Note: This question only applies to the REC application.

**3. PURPOSE AND DESIGN OF THE RESEARCH****A7. Select the appropriate methodology description for this research. Please tick all that apply:**

- ☐ Case series/ case note review  
☒ Case control  
☐ Cohort observation  
☐ Controlled trial without randomisation  
☒ Cross-sectional study  
☐ Database analysis  
☐ Epidemiology  
☐ Feasibility/ pilot study  
☐ Laboratory study  
☐ Metanalysis  
☒ Qualitative research  
☒ Questionnaire, interview or observation study  
☐ Randomised controlled trial  
☐ Other (please specify)

**A10. What is the principal research question/objective? Please put this in language comprehensible to a lay person.**

Primary research question: Does having a diagnosis of borderline personality disorder affect parenting behaviours and views of ideal parenting?

**A11. What are the secondary research questions/objectives if applicable? Please put this in language comprehensible to a lay person.**

1. Parenting
  - a) How do mothers' perceptions of 'ideal' parenting compare between mothers with borderline personality disorder (BPD), mothers with depression and mothers with no psychiatric disorder (control mothers)
  - b) How do self-reported parenting of mothers with BPD compare to their views of optimal parenting and to control mothers' parenting.
  - c) How do observations of mother-child interaction in mothers with BPD compare with control groups and how do they compare with the mother-reported parenting.
2. Support
  - a) What social support do mothers with BPD have?
  - b) What social support and parenting support would mothers with BPD desire?

**A12. What is the scientific justification for the research? Please put this in language comprehensible to a lay person.**

There is growing evidence that mothers with borderline personality disorder (BPD) are more likely to display maladaptive parenting behaviours than mothers without the disorder. We recently carried out a systematic review of the literature pertaining to parenting in mothers with BPD and the outcomes of their offspring (Eyden, Winsper, Wolke, Broome, & MacCallum, manuscript submitted for publication). Studies showed that parenting of mothers with BPD



was more insensitive, intrusive, overprotective and hostile than mothers without the disorder. Furthermore, comparison to clinical groups suggests that some behaviours may be unique to mothers with BPD, for instance overprotection was significantly more prevalent in mothers with BPD when compared to mothers with depressive disorder, cluster C personality disorders (i.e. anxious and fearful) or mothers with no psychiatric disorder (Barnow, Spitzer, Grabe, Kessler & Freyberger, 2006). Additionally, mothers with BPD report low efficacy and satisfaction with their parenting (Elliot, Campbell, Melville, McCabe, Newman & Loughland, 2014; Newman, Stevenson, Bergman & Boyce, 2007).

Reasons for such parenting are likely to be complex and may include the mother's BPD symptoms (such as emotional dysregulation, fear of abandonment, interpersonal difficulties) and her current and past experiences. For instance, research shows that individuals with BPD are likely to have experienced invalidating parenting in their own childhood (e.g. Bandelow, Krause, Wedekind, Brooks, Hajak, & Ruther, 2005), which may have resulted in poor parenting schemas. The studies that assessed overprotection report measures that indicate a concern for the health and safety of the child, suggesting a strong desire to care for their child. To this aim, we propose to investigate whether mothers with BPD have sufficient understanding of normative parenting yet find it difficult to execute, or whether they are less aware of effective parenting skills. This study would be the first to explore this question.

Several adverse offspring outcomes (including various psychopathology) were also identified in our systematic review. In order to prevent transmission of such outcomes it is vital that mothers with BPD gain the support they need with both managing their symptoms and assisting with parenting challenges. The second part of our study aims to assess what support mothers with BPD believe are important and would like to be offered. By undertaking this study in focus groups, we aim to give the mother a 'voice' to more effectively inform target areas for potential future intervention programmes. A study in the US by Zalewski and colleagues (Zalewski, Stepp, Whalen, & Scott, 2015) specifically looked at the potential integration of parenting support with current treatment. Our study will investigate whether the needs of mothers with BPD in the UK are similar to those in the US and will further extend their research by exploring the level of social support mothers with BPD may receive and need. This is an important aspect, as social support has been identified as a potential protective factor in the development of psychopathology in offspring of mothers with BPD (Bartsch, Roberts, Davies & Proeve, 2015).

This research project will also provide multi-methodological and analytical training for the chief investigator. Experience will be gained in observational procedures and measures, questionnaire and semi-structured question based interviews, focus group procedures, and subsequent transcribing, coding and analyses. Furthermore, by working directly with mothers with borderline personality disorder it will enable the researcher to have a more rich understanding of the challenges that these mothers may face; something that cannot be obtained from solely analysing previously gathered data.

#### References

- Bandelow, B., Krause, J., Wedekind, D., Brooks, A., Hajak, G., & Ruther, E. (2005). Early traumatic life events, parental attitudes, family history, and birth risk factors in patients with borderline personality disorder and healthy controls. *Psychiatry Research*, 134, 169-179.
- Barnow, S., Spitzer, C., Grabe, H. J., Kessler, C., & Freyberger, H. J. (2006). Individual Characteristics, Familial Experience, and Psychopathology in Children of Mothers with Borderline Personality Disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 45(8), 965-972.
- Bartsch, D. R., Roberts, R. M., Davies, M., & Proeve, M. (2015). The impact of parental diagnosis of borderline personality disorder on offspring: Learning from clinical practice. *Personal Ment Health*, 9(1), 33-43. doi: 10.1002/pmh.1274
- Elliot, R. L., Campbell, L., Hunter, M., Cooper, G., Melville, J., McCabe, K., . . . Loughland, C. (2014). When I look into my baby's eyes: Infant emotion recognition by mothers with borderline personality disorder. *Infant Mental Health Journal*, 35(1), 21-32.
- Eyden, Winsper, Wolke, Broome, & MacCallum (submitted). A systematic review of the parenting experiences and outcomes of offspring of mothers with BPD: Potential mechanisms and clinical implications
- Newman, L. K., Stevenson, C. S., Bergman, L. R., & Boyce, P. (2007). Borderline personality disorder, mother-infant interaction and parenting perceptions: Preliminary findings. *Australian and New Zealand Journal of Psychiatry*, 41(7), 598-605.
- Zalewski, M., Stepp, S. D., Whalen, D. J., & Scott, L. N. (2015). A qualitative assessment of the parenting challenges and treatment needs of mothers with borderline personality disorder. *Journal of Psychotherapy Integration*, 25, 71-89.

**A13. Please summarise your design and methodology.** *It should be clear exactly what will happen to the research participant, how many times and in what order. Please complete this section in language comprehensible to the lay person. Do not simply reproduce or refer to the protocol. Further guidance is available in the guidance notes.*

This study will compare parenting, and parental perceptions of mothers with BPD using mother self-report of their

parenting, observations of their parenting interaction with their child, and their ratings of 'ideal' mother behaviours. Comparisons will be made with mothers with depression, and mothers with no psychiatric disorder. As research shows that mothers with BPD often have co-morbidity with depression, including mothers with depression as a comparison group will enable us to identify any differences specific to BPD. Also we hypothesise that mothers with BPD will differ from healthy control mothers regarding the level of social support they have but may not significantly differ from mothers with depression. A multi-method approach will be employed in order to triangulate findings.

Potential participants will initially be approached by their clinician and given a participant information sheet and consent to contact form. If interested, the potential participant will then either give consent for the chief investigator to contact, or will have the option to contact the chief investigator directly (by phone or email). Once contact has been made, the chief investigator will discuss the details of the study and answer any questions. A few screening questions will be asked to ascertain eligibility (see participant screening questionnaire) and if the participant is happy to go ahead then a mutually convenient time and location will be agreed. In order to reduce the duration of the study visit, participants may be given the option to complete a questionnaire beforehand of general demographics and the support they receive from significant others. This information will be otherwise obtained at the study visit.

#### PHASE 1

##### Consent and general information

The study will take place in the participant's home or at a university site if preferred. Informed consent will be obtained and the participant will be briefed on the contents and order of the session. The study will commence by gathering demographic information (if not already completed) and mothers will complete a questionnaire to ascertain the level of symptom severity of BPD and depression.

##### Mothers' self-report of parenting

For the mothers' report of their own parenting, participants will complete the 'Tool to Measure Parenting Self Efficacy' (TOPSE, Kendall & Bloomfield, 2005) is a 48 item self-report questionnaire used to measure parenting efficacy. Mothers will rate their answer to 48 statements on an 11-point Likert scale (six questions in each of the parenting domains: emotion and affection, play and enjoyment, empathy and understanding, control, discipline and setting boundaries, parenting pressure, parenting self-acceptance, and parenting knowledge and learning).

##### Social support

Mothers' rating of social support will be explored using a questionnaire measuring the participants perceived and preferred levels of social support. Mothers will rate the support they actually receive and the support they would like to receive for each significant person in their life (e.g., mother, father, partner/spouse, best friend).

##### Observation of mother-child interaction

An observation exercise will follow using age appropriate tasks. Mothers with children aged 0-18 months will complete a 2½ minute unstructured play task. Mothers with children aged 18 months to 5 years will complete a building blocks/puzzle task. Mothers with a child aged 5 or over will complete an Etch-a-Sketch drawing task together. An observation task was chosen in order to compare to mother-reported parenting with researcher observed parenting. The specific tasks were chosen as they require interaction between the mother and child. All observations will be video-recorded for subsequent coding and interpretation. Measures will be coded for parenting behaviours such as sensitivity, harmony and control using the Play Observation Scheme and Emotion Rating (Wolke, 1986) and/or the Assessment of Mother-Child Interaction with the Etch-a-Sketch (Wolke & Meyer, 1999; 2001) coding scales. Children and adolescents will be given an age appropriate participant information sheet, have any questions answered and those above age five will either sign an assent for (children aged 5-16, see attached) or an adolescent consent form (aged 16-18, see attached).

##### Mothers' ratings of ideal parenting

Mothers will then perform a Q-sort exercise to rate 'ideal, sensitive parenting behaviours'. The Q-sort procedure is a rigorous process and is considered to be an interactive and enjoyable task. This task will involve the mothers sorting 90 cards with statements of maternal parenting behaviours (e.g., "suddenly stops playing with her child to talk to a visitor"; "makes sure her child can see or hear her" - see the attached Q-sort statements document for the complete list). Mothers will be explicitly told that this exercise is not about their own parenting behaviour but what an ideal mother would do. For the initial sort the mother will be asked to sort each statement into one of three piles of statements that: "do not fit the ideal mother at all"; "fit the ideal mother really well"; or "somewhere in between". Mothers will be explicitly told that this exercise is not about their own parenting behaviour but what an ideal mother would do. Once the initial 3 piles are made, the mothers will be asked to redistribute to ensure there are even numbers in each pile. They will then be asked to sort each pile into a further 3 piles of which statements most fits to least fits an ideal mother, making 9 piles in total.

##### Debrief

The session will end with a study debrief. Contact details will be given including who to contact if the participant has any further questions, and who to contact if the study has evoked any emotions or distress. Mothers with BPD will also be given the option to participate in a subsequent focus group (or individual interview) to explore the kind of parenting

support required.

#### PHASE 2:

Focus group discussions will be facilitated to understand the kind of support that mothers with BPD would like from a parenting programme. Focus group methodology represents an ideal way to efficiently gather collective group opinions. The group dynamic provides a supportive environment allowing participants to share thoughts and suggestions, which can be expanded on by other group members, resulting in a more comprehensive collective view. The option to have an individual interview will be also offered for those who wish to participate but are less comfortable with a group environment. Focus groups will be carried out at the university or an alternative suitable place.

#### Consent and debrief

As before, consent will be obtained prior to the session (see attached phase 2 consent form) and at the end the group will be given a list of contact numbers in case any questions or difficulties arise after the study has ended. To ensure that the researcher is correctly interpreting what is being discussed, clarification will be sought as necessary throughout the focus group discussions. Any participants who did not complete phase 1 of the study will be asked demographics questions and asked to complete the Significant Others Scale of perceived and preferred social support. Where possible this will be completed prior to the focus group session. Each focus group session (or individual interview) will be audio-taped (or video recorded according to the group preference) to enable subsequent transcribing, coding and analyses.

#### Analysis check

Phase 1 - To ensure there is no researcher bias, 30% of the observations will be coded by a second researcher and inter-rater agreement obtained. Analyses of the TOPSE questionnaires and Q-sort findings will also be discussed and checked by the chief investigator's first supervisor.

Phase 2 - A percentage of the transcripts will be assessed by the chief investigators first supervisor to ensure emerging themes are consistent with the chief investigator's themes.

The research is estimated to follow the following timeline:

Jan 2016 Pilot study

Feb/Mar 2016 - May 2017: Recruitment, data collection, transcribing and coding

Jun 2017 - Dec 2017: Analysis and interpretation of findings, commence write up

Jan 2018 - May 2018: Write up of studies for thesis

Mar 2018 and beyond Preparation of manuscript for publication

#### A14-1. In which aspects of the research process have you actively involved, or will you involve, patients, service users, and/or their carers, or members of the public?

- ☒ Design of the research
- ☐ Management of the research
- ☐ Undertaking the research
- ☐ Analysis of results
- ☐ Dissemination of findings
- ☐ None of the above

*Give details of involvement, or if none please justify the absence of involvement.*

A pilot of the study will be undertaken with members of the public in order to assess the following: its ease of use and understanding, the ordering and timing of the individual elements of the study, a more precise overall timing of the study session. Adjustments will be made based on their feedback.

#### 4. RISKS AND ETHICAL ISSUES

#### RESEARCH PARTICIPANTS

#### A17-1. Please list the principal inclusion criteria (list the most important, max 5000 characters).

Individuals will be included if they:

- are mothers aged 18 or over
- have BPD as specified within ICD-10/DSM IV-TR/DSM 5, or symptoms and difficulties consistent with BPD, OR depression as indicated by the PDQ-9 or a similar depression assessment tool OR have no previous diagnosis of mental health and score below the diagnosis cut-point on the depression and BPD assessment tools (for the BPD, depression and healthy control groups, respectively).
- are the biological mother of at least one child under the age of 18
- are currently living with their child and have been for the majority of the child's life
- are fluent in English

**A17-2. Please list the principal exclusion criteria (list the most important, max 5000 characters).**

Individuals will be excluded if they:

- do not meet the inclusion criteria
- are unable to provide informed consent
- are considered to be too unwell as identified by their mental health practitioner
- have extensive learning difficulties

**RESEARCH PROCEDURES, RISKS AND BENEFITS**

**A18. Give details of all non-clinical intervention(s) or procedure(s) that will be received by participants as part of the research protocol. These include seeking consent, interviews, non-clinical observations and use of questionnaires.**

Please complete the columns for each intervention/procedure as follows:

1. Total number of interventions/procedures to be received by each participant as part of the research protocol.
2. If this intervention/procedure would be routinely given to participants as part of their care outside the research, how many of the total would be routine?
3. Average time taken per intervention/procedure (minutes, hours or days)
4. Details of who will conduct the intervention/procedure, and where it will take place.

Intervention or procedure	1	2	3	4
<b>RECRUITMENT</b> Identify potential participants, give participant information sheet. Obtain consent to contact.	1	n/a	5 mins	To be carried out by mental health professionals at their clinic/PD unit
<b>RECRUITMENT</b> Phone potential participant after consent to contact has been received. Give study information, answer questions, ask screening questions and arrange time and date for the study	1	n/a	15 mins	To be conducted by the chief investigator (Julie Eyden) at a private space in the university or at home
<b>PHASE 1</b> Participant information sheet/consent form	1	n/a	10 mins	To be conducted by the chief investigator (Julie Eyden) at the participant's home or other agreed space
Demographics questions (if not completed at the recruitment stage)	1	n/a	5 mins	To be conducted by the chief investigator (Julie Eyden) at the participant's home
Clinical questionnaire screening for BPD and depression	1	n/a	15 mins	To be conducted by the chief investigator (Julie Eyden) and completed by the participant at their home
TOPSE questionnaire	1	n/a	20 mins	To be conducted by the chief investigator (Julie Eyden) at the participant's home. Completed by the participant.
Significant Others Scale (SOS)	1	n/a	10	To be conducted by the chief investigator

			mins	(Julie Eyden) at the participant's home. Completed by the participant.
Mother-child interaction observation:	1	n/a	25 mins	Observation to be conducted by the Chief Investigator (Julie Eyden) at the participant's home
Etch-a-Sketch task (5-18 years)			max	Mother and child will complete the observation task
Building blocks/puzzle (18m-5 years)				
Unstructured play task/musical toy task (0-18m)				
Q-sort task of "ideal mother" statements	1	n/a	45 mins	To be conducted by the chief investigator (Julie Eyden) at the participant's home. Mother will complete the sort task
Participant debrief and information sheet including a list of potential contacts.	1	n/a	10 mins	To be conducted by the chief investigator (Julie Eyden) at the participant's home
PHASE 2	1	n/a	10 mins	To be conducted by the chief investigator (Julie Eyden) at the place of interview/focus group (participant's home or university, respectively)
Participant information sheet/consent form				
Focus group of mothers desired parenting support	1	n/a	60-90 mins	To be conducted by the chief investigator (Julie Eyden) at a designated space e.g. university
Participant debrief and information sheet including a list of potential contacts.	1	n/a	10 mins	To be conducted by the chief investigator (Julie Eyden) at the place of the focus group or interview (university/NHS site or participant's home, respectively)

**A21. How long do you expect each participant to be in the study in total?**

The participant will be contacted prior to each phase of the study in order to confirm participation and screen for inclusion criteria – this contact is anticipated to take around 15 minutes. Phase 1 of the study is anticipated to take around 2 to 2 ½ hours. Phase 2 is anticipated to take around 1 to 1 ½ hours.

**A22. What are the potential risks and burdens for research participants and how will you minimise them?**

*For all studies, describe any potential adverse effects, pain, discomfort, distress, intrusion, inconvenience or changes to lifestyle. Only describe risks or burdens that could occur as a result of participation in the research. Say what steps would be taken to minimise risks and burdens as far as possible.*

Some mothers may find discussing their parenting difficult and it may bring awareness of their own parenting efficacy and satisfaction, which could cause distress. At the start of the study it will be explained that this study is in no way meant as a critique or judgement of the mother's parenting but will be used to provide a general guide of the parenting styles of different family types in clinical and non-clinical communities. Participants will assured that their information will be aggregated with other data rather than being reported on an individual basis. The typical content of the questionnaires, Q-sort cards and observational task will be discussed with the participant prior to consent and the participant will be reassured that they can refrain from answering any difficult questions at any point and without needing to provide a reason. During the debrief session the chief investigator will encourage the participant to ask any questions and further support will be offered as appropriate. All participants will be given a list of contact numbers should any worries, concerns or distress arise after the study has ended (see attached contact details flier).

Participants may also have concerns regarding whether their decision to participate affects their routine treatment. Assurance will be given that the research is completely separate from any current or future treatment programmes.

Mothers may find that travelling to a location to take part in the study is either costly or inconvenient. Phase 1 of the study will typically take place in the mother's home. All travel expenses will be reimbursed for the phase 2 focus groups and for phase 1 if the participant chooses for the study to take place at an alternative location (such as the university). It is appreciated that participants may have time constraints therefore, in order to minimise this, the chief investigator will aim to be as flexible as possible arranging mutually agreeable times. As a thank you gesture for their time given in participating, participants will be given a £10 voucher.

**A23. Will interviews/ questionnaires or group discussions include topics that might be sensitive, embarrassing or upsetting, or is it possible that criminal or other disclosures requiring action could occur during the study?**

☒ Yes    ☐ No

*If Yes, please give details of procedures in place to deal with these issues:*

It is possible that some mothers may find it difficult to answer questions regarding their parenting. All participants will be advised that they do not have to answer any questions that they find too difficult or upsetting. Support contact details (see contact details flier) will be given to all mothers following their participation, in case they experience any unforeseen distress, which requires support after the researcher has departed. In the event that a participant becomes unduly distressed during the study, the session would be terminated. Data already collected would still be used, however the participant's rights to withdraw their data from the study at a later date would still remain. Should the chief investigator be sufficiently concerned regarding the participant's wellbeing, following discussion with the participant (unless considered unsafe or inappropriate to discuss with the participant), their mental health support co-ordinator will be informed and crisis support line phone numbers given to the participant.

Should participants disclose information that leads the investigator to believe either the participant or another person may be at risk (i.e. their child), the investigator will discuss their concerns with the participant (again only if considered appropriate to do so) and inform them of the need to share this information with other appropriate services. Any concerns will be discussed at the earliest opportunity with the investigator's supervisor, the University of Warwick's safeguarding officer and the appropriate professional services in order to seek support for the participant (and/or their child). A protocol will be in place prior to commencement of the study. The same procedure will be used for the second study phase, although in the focus group scenario the participant would be taken to a private area to discuss the next steps.

**A24. What is the potential for benefit to research participants?**

Participants may find it beneficial to talk about their parenting experiences and the support they would like. The process of engaging with their child in play may also be an enjoyable experience. Furthermore, knowing that they have taken part in research that enhances knowledge of the difficulties mothers with BPD may experience and which may ultimately inform parenting support strategies, could provide feelings of satisfaction.

**A26. What are the potential risks for the researchers themselves? (if any)**

As research may be conducted at the participant's own home, the chief investigator will follow the guidelines of the NHS Trust's lone working policies (including dynamic risk assessment), the University of Warwick guidelines on conducting research in the community, and the Social Research Association's Code of Practice for the Safety of Social Researchers. Visits may take place in the evening, therefore, due care will be taken when walking between the car and the participant's home and the chief investigator will adhere to procedures as set out in the 'lone working and vehicles' section of the NHS Lone Working document. The following procedures are in place for confirming the chief investigator's safe departure from the study location.

- 1) The chief investigator's supervisor (or a designated 'buddy' if the supervisor is unavailable) will have a timetable of study appointments, names, addresses and contact numbers and estimated arrival/departure times.
- 2) The chief investigator will contact their supervisor when they arrive at the participants home and will state the expected time that they are due to leave.
- 3) The chief investigator will contact their supervisor when they leave the participant's home.
- 4) Should no call be received to advise that the chief investigator has left the participant's home, then the supervisor would attempt contact with the chief investigator (via mobile or by calling her home number).
- 5) If the supervisor cannot make contact then she would call the participant's home to check if the chief investigator has arrived/left.
- 6) If the chief investigator's location is still unknown the police will be contacted and the University of Warwick Security team advised.

The Chief Investigator will also follow University of Warwick safeguarding procedures, which will be in place prior to the commencement of the study.

Additionally, the chief investigator will be supported throughout the research process by her academic supervisor. Should the need arise, the chief investigator has access to the University of Warwick Counselling Service. Contact has been made with the Head of Counselling (Samantha Tarren) and the chief investigator is aware of the process required in order to gain an appointment with a named counsellor.

#### RECRUITMENT AND INFORMED CONSENT

*In this section we ask you to describe the recruitment procedures for the study. Please give separate details for different study groups where appropriate.*

**A27-1. How will potential participants, records or samples be identified? Who will carry this out and what resources will be used?** For example, identification may involve a disease register, computerised search of GP records, or review of medical records. Indicate whether this will be done by the direct healthcare team or by researchers acting under arrangements with the responsible care organisation(s).

Participants with BPD will be identified by their mental health professional. The potential participant will be given a leaflet inviting them to take part, including a consent to contact slip and a participant information sheet (see attached). The patient will either contact the chief researcher direct or complete the consent to contact form (from which the chief investigator will then make contact). Procedures may vary slightly according to the preference of the clinician (e.g. BMBU have agreed for the chief investigator to be present at assessment of follow up clinics (after verbal consent has been given). If deemed appropriate at the end of the session, the clinician will mention the study and if the patient is interested the chief investigator will take the potential participant to another room to give more details of the study, including the participant information sheet). Patients with depression will be identified in a similar manner by their health care professional and consent to contact obtained. Mothers with no psychiatric diagnosis will be recruited via advertisements at nurseries, schools and shopping centres (see attached advertisement). Advertisements may also be used in personality disorder units and mental health care centres and clinics, and will contain contact details and the consent to contact form.

**A27-2. Will the identification of potential participants involve reviewing or screening the identifiable personal information of patients, service users or any other person?**

☒ Yes ☐ No

*Please give details below:*

Participants will need to be identified as having a diagnosis of BPD, however this screening process will be conducted by a mental health professional (e.g., psychiatrist, personality disorders unit) who will have access to details of their diagnosis. Likewise, mothers with depression will be identified by their diagnosis and approached via their health care professional. At no point will the chief investigator (or other members of the research team) have access to the participant's medical records. Only once participants have consented to contact will their personal contact details be available to the chief investigator. A copy of the chief investigator's visiting timetable and contact details will be kept separately from any subsequent data collection and will be password protected with access to this file only by the chief investigator and the first supervisor. Participant ID numbers will be allocated for subsequent paper and digital data.

**A27-4. Will researchers or individuals other than the direct care team have access to identifiable personal information of any potential participants?**

☐ Yes ☒ No

**A28. Will any participants be recruited by publicity through posters, leaflets, adverts or websites?**

☒ Yes ☐ No

*If Yes, please give details of how and where publicity will be conducted, and enclose copy of all advertising material (with version numbers and dates).*

For the recruitment of the clinical groups, adverts and participant information sheets may be placed in clinic waiting rooms (see attached). For the recruitment of the control group of mothers with no diagnosis, advertisements may be placed in nurseries, mother-child groups and other public areas such as shopping centres.

**A29. How and by whom will potential participants first be approached?**

Potential participants will initially be approached by a member of their mental health team. Should they show interest in taking part, potential participants will be given the participant information sheet and complete a consent-to-contact form. On receipt of the consent to contact, the chief investigator would make contact with the potential participant, screen for inclusion, give further details of the study and answer any questions. There will also be an option for the participant to contact the researcher direct if they prefer (via phone or email).

At the Birmingham Mother and Baby Unit verbal consent will be gained from the patient for the chief investigator to be present at the assessments or follow ups with the clinician. After the consultation if the patient meets the criteria, the clinician will ask them if they would be interested in taking part in the research. If they are interested, the chief investigator would take them to another room to explain more detail about the project. Both recruitment procedures were developed with the BMBU team, and the Coventry Perinatal Unit psychiatrist.

**A30-1. Will you obtain informed consent from or on behalf of research participants?**

☒ Yes ☐ No

*If you will be obtaining consent from adult participants, please give details of who will take consent and how it will be done, with details of any steps to provide information (a written information sheet, videos, or interactive material). Arrangements for adults unable to consent for themselves should be described separately in Part B Section 6, and for children in Part B Section 7.*

*If you plan to seek informed consent from vulnerable groups, say how you will ensure that consent is voluntary and fully informed.*

Informed written consent will be obtained from all participants prior to commencing the study. A participant information sheet (attached) will be given to each potential participant, with the opportunity to have any questions answered by the chief investigator prior to completing the consent form (attached). The participant will be advised of the nature of the study, what is involved in taking part and any benefits or potential risks will be explained. Consent forms will inform that their data will be anonymous and that they can cease participation and withdraw their data collected at any time prior to anonymisation (6 months from the study visit date), with no explanation required. Consent will also be obtained from the parent for their child (if under the age of 16) or directly from the child if aged 16 or over; assent will be obtained from children under the age of 16 who are able to write their name (see attached consent/assent forms). All children will be given an explanation of what is involved in them taking part in the study in age appropriate language. A participant information sheet will also be given to all children aged 5 and over (see attached child and adolescent participant information sheets). Should the child show strong resistance to taking part the observation element of the study would be omitted.

*If you are not obtaining consent, please explain why not.*

n/a

*Please enclose a copy of the information sheet(s) and consent form(s).*

**A30-2. Will you record informed consent (or advice from consultees) in writing?**

☒ Yes ☐ No

**A31. How long will you allow potential participants to decide whether or not to take part?**

Potential participants will only be contacted when consent to contact has been received. This will allow at least 48 hours from receipt of the participant information sheet before contact is made. Alternatively, potential participants may contact the chief investigator direct (either by email or phone) if they choose. Once contact has been made and further details of the study have been explained, potential participants can either immediately decide to take part (or decline to take part) or can take further time to decide (the only time constraint is to have decided by the end of data collection). When the participant is confident they would like to take part, the chief investigator will screen for eligibility and arrange a mutually convenient time for the visit. There will also be a further opportunity to discuss aspects of the research prior to obtaining consent immediately before commencement of the study. At each stage the participant will have the opportunity to withdraw from participating should they wish to do so.

**A33-1. What arrangements have been made for persons who might not adequately understand verbal explanations or**



**written information given in English, or who have special communication needs?(e.g. translation, use of interpreters)**

Participants will only be included in this study if they are fluent in English as the study involves reading and understanding questions and statements. Potential participants who have severe learning difficulties, which prevent them from adequately understanding the information asked of them, will be excluded from the study. For all children participating in the study, the study details and what will be required of them will be given in language that is age appropriate.

**A35. What steps would you take if a participant, who has given informed consent, loses capacity to consent during the study? Tick one option only.**

- ☐ The participant and all identifiable data or tissue collected would be withdrawn from the study. Data or tissue which is not identifiable to the research team may be retained.
- ☒ The participant would be withdrawn from the study. Identifiable data or tissue already collected with consent would be retained and used in the study. No further data or tissue would be collected or any other research procedures carried out on or in relation to the participant.
- ☐ The participant would continue to be included in the study.
- ☐ Not applicable – informed consent will not be sought from any participants in this research.
- ☐ Not applicable – it is not practicable for the research team to monitor capacity and continued capacity will be assumed.

*Further details:*

Any data collected up to the point of ceasing the study would remain included, however, the participant's right to withdraw their data at a later date would still remain.

*If you plan to retain and make further use of identifiable data/tissue following loss of capacity, you should inform participants about this when seeking their consent initially.*

**CONFIDENTIALITY**

In this section, personal data means any data relating to a participant who could potentially be identified. It includes pseudonymised data capable of being linked to a participant through a unique code number.

**Storage and use of personal data during the study****A36. Will you be undertaking any of the following activities at any stage (including in the identification of potential participants)?(Tick as appropriate)**

- ☐ Access to medical records by those outside the direct healthcare team
- ☐ Access to social care records by those outside the direct social care team
- ☒ Electronic transfer by magnetic or optical media, email or computer networks
- ☐ Sharing of personal data with other organisations
- ☐ Export of personal data outside the EEA
- ☒ Use of personal addresses, postcodes, faxes, emails or telephone numbers
- ☒ Publication of direct quotations from respondents
- ☐ Publication of data that might allow identification of individuals
- ☒ Use of audio/visual recording devices
- ☐ Storage of personal data on any of the following:
- ☒ Manual files (includes paper or film)
- ☐ NHS computers
- ☐ Social Care Service computers

- ☐ Home or other personal computers
- ☒ University computers
- ☐ Private company computers
- ☒ Laptop computers

**Further details:**

No personal participant information will be stored on a home computer or laptop; these devices will only be used for statistical analyses and write up of anonymised data. Storage on a university computer will be on a secure server and password protected (known only by the chief investigator and the supervisor). Paper copies may be made of the transcripts for use during analyses but all data will be anonymised. Direct quotations may be used in the researcher's thesis and/or any peer reviewed publications of the research findings. At no point will this information be identifiable with the participant.

**A38. How will you ensure the confidentiality of personal data?** *Please provide a general statement of the policy and procedures for ensuring confidentiality, e.g. anonymisation or pseudonymisation of data.*

Only data essential to the completion of the study will be accessed. All data files (computer files and paper records) will be assigned a study number to ensure anonymity. The link between participants' names and unique numerical identifiers will be stored in a locked filing cabinet at Psychology Department, University of Warwick. All computer identifiable data will be stored on an encrypted memory stick (encrypted using e.g. TrueCrypt) that will remain at the University of Warwick. All materials will be stored in a locked filing cabinet. No participating individual will be identified personally in any presentation or publication. The audio and video recording data will be available to the research team for coding. Each of these members of the research team will adhere to the NHS code of confidentiality at all times. For the focus groups, the consent form will include the need to respect and maintain confidentiality and anonymity within the group (i.e. not to discuss personal details beyond the group).

**A40. Who will have access to participants' personal data during the study?** *Where access is by individuals outside the direct care team, please justify and say whether consent will be sought.*

Only the chief investigator and her supervisor will have access to a shared file containing the study schedule and the participant's personal contact details. Audio and video recordings will be available only to the chief investigator, her supervisor and a member of the research team who will be responsible for coding a proportion of the observations. This will not contain details of which group the participant is in (i.e. BPD, depression or mothers with no diagnosis) or any personal data but participants potentially could be identifiable from their audio or video recording.

**Storage and use of data after the end of the study**
**A43. How long will personal data be stored or accessed after the study has ended?**

- ☐ Less than 3 months
- ☐ 3 – 6 months
- ☐ 6 – 12 months
- ☐ 12 months – 3 years
- ☒ Over 3 years

*If longer than 12 months, please justify:*

As per the University of Warwick's Research Code of Conduct, data will be retained intact in paper or electronic format as appropriate, normally for a period of at least 10 years from the date of any publication, which is based upon it.

**INCENTIVES AND PAYMENTS**
**A46. Will research participants receive any payments, reimbursement of expenses or any other benefits or incentives for taking part in this research?**

☒ Yes ☐ No

*If Yes, please give details. For monetary payments, indicate how much and on what basis this has been determined. All travel expenses will be reimbursed to ensure the participant is not at a financial loss by taking part. Additionally, each participant will be offered a £10 voucher as an incentive to participate in the study.*

**A47. Will individual researchers receive any personal payment over and above normal salary, or any other benefits or incentives, for taking part in this research?**

☐ Yes ☒ No

**A48. Does the Chief Investigator or any other investigator/collaborator have any direct personal involvement (e.g. financial, share holding, personal relationship etc.) in the organisations sponsoring or funding the research that may give rise to a possible conflict of interest?**

☐ Yes ☒ No

#### NOTIFICATION OF OTHER PROFESSIONALS

**A49-1. Will you inform the participants' General Practitioners (and/or any other health or care professional responsible for their care) that they are taking part in the study?**

☐ Yes ☒ No

*If Yes, please enclose a copy of the information sheet/letter for the GP/health professional with a version number and date.*

#### PUBLICATION AND DISSEMINATION

**A50. Will the research be registered on a public database?**

☐ Yes ☒ No

*Please give details, or justify if not registering the research.  
No suitable register exists.*

*Registration of research studies is encouraged wherever possible.  
You may be able to register your study through your NHS organisation or a register run by a medical research charity, or publish your protocol through an open access publisher. If you are aware of a suitable register or other method of publication, please give details. If not, you may indicate that no suitable register exists. Please ensure that you have entered registry reference number(s) in question A5-1.*

**A51. How do you intend to report and disseminate the results of the study? Tick as appropriate:**

- ☒ Peer reviewed scientific journals
- ☒ Internal report
- ☒ Conference presentation
- ☐ Publication on website
- ☐ Other publication
- ☐ Submission to regulatory authorities
- ☐ Access to raw data and right to publish freely by all investigators in study or by Independent Steering Committee on behalf of all investigators

☐ No plans to report or disseminate the results

☒ Other (please specify)

The study findings will be written as part of the principal researcher's doctoral thesis

**A53. Will you inform participants of the results?**

☒ Yes ☐ No

*Please give details of how you will inform participants or justify if not doing so.*

The option will be given for participants to receive a summary of the study findings. It will be explained that the information gathered from all participants will be analysed together and that findings will be given on a general level rather than a report of specific individual data. This information will not be available until after completion of the thesis.

**5. Scientific and Statistical Review**

**A54. How has the scientific quality of the research been assessed? Tick as appropriate:**

☒ Independent external review

☐ Review within a company

☐ Review within a multi-centre research group

☒ Review within the Chief Investigator's institution or host organisation

☒ Review within the research team

☒ Review by educational supervisor

☐ Other

*Justify and describe the review process and outcome. If the review has been undertaken but not seen by the researcher, give details of the body which has undertaken the review:*

This research forms part of a doctoral thesis and has been reviewed by the chief investigator's supervisors (Dr Fiona MacCallum and Professor Dieter Wolke), a clinical consultant (Dr Matthew Broome, a former consultant psychiatrist in Coventry and presently at Oxford Health NHS Foundation Trust) and a expert parenting researcher from the US (Dr Marc Bornstein).

*For all studies except non-doctoral student research, please enclose a copy of any available scientific critique reports, together with any related correspondence.*

*For non-doctoral student research, please enclose a copy of the assessment from your educational supervisor/ institution.*

**A56. How have the statistical aspects of the research been reviewed? Tick as appropriate:**

☐ Review by independent statistician commissioned by funder or sponsor

☐ Other review by independent statistician

☐ Review by company statistician

☐ Review by a statistician within the Chief Investigator's institution

☐ Review by a statistician within the research team or multi-centre group

☒ Review by educational supervisor

☐ Other review by individual with relevant statistical expertise

☐ No review necessary as only frequencies and associations will be assessed – details of statistical input not required

*In all cases please give details below of the individual responsible for reviewing the statistical aspects. If advice has been provided in confidence, give details of the department and institution concerned.*

	Title Forename/Initials Surname
	Dr Fiona MacCallum
Department	Psychology
Institution	University of Warwick
Work Address	Gibbet Hill Road Coventry
Post Code	CV4 7AL
Telephone	02476523182
Fax	
Mobile	
E-mail	fiona.maccallum@warwick.ac.uk

Please enclose a copy of any available comments or reports from a statistician.

**A57. What is the primary outcome measure for the study?**

Primary measure: Measures of observed parenting interactions (from the Etch-a-Sketch task), mother-reported parenting skills (from the TOPSE questionnaire) and 'ideal mother' ratings (from Q-sort task).

**A58. What are the secondary outcome measures?(if any)**

Secondary measures: Mothers' social support scores (from the Significant Others Scale) and themes identified from the transcripts of the focus groups (or individual interview) of the parenting support desired.

**A59. What is the sample size for the research? How many participants/samples/data records do you plan to study in total? If there is more than one group, please give further details below.**

Total UK sample size: 85  
Total international sample size (including UK):  
Total in European Economic Area:

*Further details:*

There will be approximately 75 mother-child dyads in phase 1:

25 Mothers with BPD  
25 Mothers diagnosed with depression  
25 Mothers with no mental health diagnosis.

A further 10-15 mothers with BPD may be required (assuming not all mothers from phase1 of the study will be able to commit to a second study phase).

**A60. How was the sample size decided upon? If a formal sample size calculation was used, indicate how this was done, giving sufficient information to justify and reproduce the calculation.**

Previous published studies cite similar sample sizes (e.g. Frankel-Waldheter et al, 2015; Hobson, 2005, 2009; Newman et al, 2007). As BPD is not a common disorder (and given that a study of this nature is restricted to mothers with children, living in the same household) potential participant numbers may be limited. Furthermore, mothers may need to be excluded if their condition is particularly active at the time of study. A power analysis showed power of 0.84 for identifying a moderately sized effect with an estimated sample size of 75.

**References**

Frankel-Waldheter, M., Macfie, J., Strimpfel, J. M., & Watkins, C. D. (2015). Effect of maternal autonomy and relatedness and borderline personality disorder on adolescent symptomatology. *Personality Disorders: Theory, Research, and Treatment*, 6, 152-160.  
Hobson, R. P., Patrick, M., Crandell, L., Garcia-Perez, R., & Lee, A. (2005). Personal relatedness and attachment in infants of mothers with borderline personality disorder. *Development and Psychopathology*, 17(2), 329-347.  
Hobson, R. P., Patrick, M. P. H., Hobson, J. A., Crandell, L., Bronfman, E., & Lyons-Ruth, K. (2009). How mothers with

borderline personality disorder relate to their year-old infants. *British Journal of Psychiatry*, 195(4), 325-330.  
Newman, L. K., Stevenson, C. S., Bergman, L. R., & Boyce, P. (2007). Borderline personality disorder, mother-infant interaction and parenting perceptions: Preliminary findings. *Australian and New Zealand Journal of Psychiatry*, 41(7), 598-605.

**A61. Will participants be allocated to groups at random?**

☐ Yes ☒ No

**A62. Please describe the methods of analysis (statistical or other appropriate methods, e.g. for qualitative research) by which the data will be evaluated to meet the study objectives.**

All quantitative analyses will be performed using SPSS software.

Descriptive statistics (frequencies and means comparisons) will be performed. These will compare differences including (but not limited to) group demographics and differences between those included in the study and mothers who withdraw.

Relevant TOPSE questions will be reversed scored and added to the other scores to create an overall parenting score. ANOVA's will be performed to report any between-group differences. For the Q-sort task, an 'ideal mother belief score' will be created by correlating the mother's sorts of the 90 statements, with an a priori criterion sort of the MBQS (Pederson et al., 1999) which reflects a highly sensitive mother. The higher the correlation, the closer the overlap between the mother's belief score and the sensitive mother criterion. Between-group analyses will also be performed. For the observational task the 'Assessment of mother-child interaction with the Etch-a-sketch' (AMCIES) and Play Observation Scheme and Emotion Rating (POSER) coding scales will be used. These coding scales will include assessments of mother and child in areas such as: verbal and non-verbal control, emotional tone, harmony etc.), and have been used in previous research to rate the quality of mother-child and mother-infant interactions. Correlations will then be performed between mother's scores and dimensional BPD measures, and group differences between mother scores and group membership (BPD, depression or no psychiatric diagnosis) will be examined using ANOVAs.

Comparisons will be made between the mothers' self-report parent scores and their rating of optimal parenting responses (and observed parenting if possible), and also comparisons made of these findings between mother groups (BPD, depression and healthy controls). For the Significant Others Scale, comparisons will be made of perceived versus desired support. Comparisons will be made between groups for each significant other (i.e. partner, mother, friend) scores.

Where there is missing data (i.e. answers missing within a questionnaire or where the mother is unable to complete all tasks in the study) the frequencies and demographics will again be reported and a test such as MCAR (missing completely at random) will be performed to understand the impact.

Qualitative analyses will be performed using thematic analyses (i.e. creating common themes and sub themes across the findings). Thematic analysis provides flexibility across different methods of data collection (i.e. focus groups and interviews). Member checking (i.e. the process of ensuring that the information presented is representative and not biased) will be carried out throughout the interviews. The investigator will restate and summarise information throughout the interview to determine its accuracy and completeness, thereby giving the participants the opportunity to clarify or add further contributions. The focus group transcripts will be analysed qualitatively using Braun and Clarke (2006) six phases of thematic analysis (familiarising with data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report). Data will be transcribed and identified themes will be manually coded from the transcripts. Themes will also be checked for accuracy and representation by the chief investigator's supervisor.

**6. MANAGEMENT OF THE RESEARCH**

**A63. Other key investigators/collaborators.** Please include all grant co-applicants, protocol co-authors and other key members of the Chief Investigator's team, including non-doctoral student researchers.

	Title Forename/Initials Surname Dr Matthew Broome
Post	Senior Clinical Research Fellow & Consultant Psychiatrist
Qualifications	BSc (Hons) MBChB (Hons) PhD (London et Warwick) PGCAP MRCPsych
Employer	Department of Psychiatry, University of Oxford and Warneford Hospital, Oxford NHS Foundation Trust, Oxford
Work Address	Warneford Hospital, Oxford NHS Foundation Trust Warneford Lane Oxford
Post Code	OX3 7JX
Telephone	
Fax	
Mobile	
Work Email	matthew.broome@psych.ox.ac.uk
	Title Forename/Initials Surname Dr Marc Bornstein
Post	Senior Investigator and Head of Child and Family Research in NICHD; serves on the Executive Committee of the International Society of Infancy Studies B.A. from Columbia College, M.S. Ph.D. degrees from Yale University, and an honorary doctorate from the University of Padua.
Qualifications	J. S. Guggenheim Foundation Fellow Obtained many awards Author and editor of numerous publications, journals and books
Employer	
Work Address	
Post Code	
Telephone	
Fax	
Mobile	
Work Email	

**A64. Details of research sponsor(s)****A64-1. Sponsor****Lead Sponsor**Status: ☐ NHS or HSC care organisation

Commercial status:

☒ Academic☐ Pharmaceutical industry☐ Medical device industry☐ Local Authority☐ Other social care provider (including voluntary sector or private organisation)☐ Other

*If Other, please specify:*

**Contact person**

Name of organisation University of Warwick  
Given name Jane  
Family name Prewett  
Address University of Warwick, Research & Impact Services,  
Town/city University House, Kirby Corner Road, Coventry  
Post code CV4 8UW  
Country UNITED KINGDOM  
Telephone 02476522746  
Fax  
E-mail wmssponsorship@warwick.ac.uk

**Is the sponsor based outside the UK?**

☐ Yes ☒ No

*Under the Research Governance Framework for Health and Social Care, a sponsor outside the UK must appoint a legal representative established in the UK. Please consult the guidance notes.*

**A65. Has external funding for the research been secured?**

- ☐ Funding secured from one or more funders  
☐ External funding application to one or more funders in progress  
☒ No application for external funding will be made

What type of research project is this?

- ☐ Standalone project  
☐ Project that is part of a programme grant  
☐ Project that is part of a Centre grant  
☒ Project that is part of a fellowship/ personal award/ research training award  
☐ Other

Other – please state:

**A67. Has this or a similar application been previously rejected by a Research Ethics Committee in the UK or another country?**

☐ Yes ☒ No

*Please provide a copy of the unfavourable opinion letter(s). You should explain in your answer to question A6-2 how the reasons for the unfavourable opinion have been addressed in this application.*

**A68-1. Give details of the lead NHS R&D contact for this research:**



	Title Forename/Initials Surname
	Ms Elizabeth Vassell
Organisation	Coventry & Warwickshire Partnership Trust
Address	2 Manor Court Avenue Nuneaton
Post Code	CV11 5HX
Work Email	elizabeth.vassell@nhs.net
Telephone	02476322746
Fax	
Mobile	

Details can be obtained from the NHS R&D Forum website: <http://www.rdforum.nhs.uk>

**A69-1. How long do you expect the study to last in the UK?**

Planned start date: 01/02/2016

Planned end date: 31/05/2017

Total duration:

Years: 1 Months: 3 Days: 31

**A71-2. Where will the research take place? (Tick as appropriate)**

- ☒ England  
☐ Scotland  
☐ Wales  
☐ Northern Ireland  
☐ Other countries in European Economic Area

Total UK sites in study

**Does this trial involve countries outside the EU?**☐ Yes ☒ No**A72. Which organisations in the UK will host the research? Please indicate the type of organisation by ticking the box and give approximate numbers if known:**

- ☒ NHS organisations in England 7  
☐ NHS organisations in Wales  
☐ NHS organisations in Scotland  
☐ HSC organisations in Northern Ireland  
☐ GP practices in England  
☐ GP practices in Wales  
☐ GP practices in Scotland  
☐ GP practices in Northern Ireland  
☒ Joint health and social care agencies (eg community mental health teams)  
☐ Local authorities

<input type="checkbox"/> Phase 1 trial units <input type="checkbox"/> Prison establishments <input type="checkbox"/> Probation areas <input type="checkbox"/> Independent (private or voluntary sector) organisations <input type="checkbox"/> Educational establishments <input type="checkbox"/> Independent research units <input type="checkbox"/> Other (give details)	Total UK sites in study: 7
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**A76. Insurance/ indemnity to meet potential legal liabilities**

*Note: in this question to NHS indemnity schemes include equivalent schemes provided by Health and Social Care (HSC) in Northern Ireland*

**A76-1. What arrangements will be made for insurance and/or indemnity to meet the potential legal liability of the sponsor(s) for harm to participants arising from the management of the research? Please tick box(es) as applicable.**

*Note: Where a NHS organisation has agreed to act as sponsor or co-sponsor, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For all other sponsors, please describe the arrangements and provide evidence.*

- ☐ NHS indemnity scheme will apply (NHS sponsors only)  
☒ Other insurance or indemnity arrangements will apply (give details below)

The University has in force a Public and Products Liability policy and a Clinical Trials Insurance Policy, which provides cover for claims for "negligent harm" and the activities here are included within that coverage subject to the terms, conditions and exceptions of the policy.

*Please enclose a copy of relevant documents.*

**A76-2. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of the sponsor(s) or employer(s) for harm to participants arising from the design of the research? Please tick box(es) as applicable.**

*Note: Where researchers with substantive NHS employment contracts have designed the research, indemnity is provided through NHS schemes. Indicate if this applies (there is no need to provide documentary evidence). For other protocol authors (e.g. company employees, university members), please describe the arrangements and provide evidence.*

- ☐ NHS indemnity scheme will apply (protocol authors with NHS contracts only)  
☒ Other insurance or indemnity arrangements will apply (give details below)

The University has in force a Public and Products Liability policy and a Clinical Trials Insurance Policy, which provides cover for claims for "negligent harm" and the activities here are included within that coverage subject to the terms, conditions and exceptions of the policy.

*Please enclose a copy of relevant documents.*

**A76-3. What arrangements will be made for insurance and/ or indemnity to meet the potential legal liability of investigators/collaborators arising from harm to participants in the conduct of the research?**

*Note: Where the participants are NHS patients, indemnity is provided through the NHS schemes or through professional indemnity. Indicate if this applies to the whole study (there is no need to provide documentary evidence). Where non-NHS sites are to be included in the research, including private practices, please describe the arrangements which will be made at*

these sites and provide evidence.

- ☐ NHS indemnity scheme or professional indemnity will apply (participants recruited at NHS sites only)
- ☒ Research includes non-NHS sites (give details of insurance/ indemnity arrangements for these sites below)

Where the University is acting as Sponsor, the University has in place a Public and Products Liability policy which provides cover for 'negligent harm' and the activities here are included within that coverage, subject to terms, conditions and exceptions of the policy.

Please enclose a copy of relevant documents.

## PART B: Section 7 - Children

### 1. Please specify the potential age range of children under 16 who will be included and give reasons for carrying out the research in this age group.

It is important to include children in the mother-child task in order to observe objectively how the mother interacts with her child in a given situation rather than solely relying on mother-report. Children will be included ranging from 0 to 18 years.

### 2. Indicate whether any children under 16 will be recruited as controls and give further details.

Children of mothers with BPD, children of mothers with depression and children of mothers with no psychiatric illness will be invited to take part. They will be recruited as part of the mother recruitment but should any child not wish to take part on the day of the study, then the observation element of the study will be omitted for that mother-child dyad.

### 3-2. Please describe the arrangements for seeking informed consent from a person with parental responsibility and/or from children able to give consent for themselves.

For children under the age of 16, the mothers will sign the consent for their child to take part. Instructions of the task will be explained to the child in age appropriate language. If the mother has signed consent, assent will still be sought from the child and a form signed. If the child is showing clear signs of not wanting to participate in the task then the observation task will be omitted. For children over the age of 16 consent will be obtained directly from the child (see attached adolescent consent form). Again they will have the choice whether to take part or not.

### 4. If you intend to provide children under 16 with information about the research and seek their consent or agreement, please outline how this process will vary according to their age and level of understanding.

All children will be asked whether they would like to play a game with their mother. For children over the age of 4 It will be explained (in age appropriate language) that we are looking at how mothers play games with their children and how this might differ between different families. Adolescent participants will be asked to take part in a task that looks at the way mothers and their children interact when doing something together (see attached participant information sheet).

Copies of written information sheet(s) for parents and children, consent/assent form(s) and any other explanatory material should be enclosed with the application.

**PART C: Overview of research sites**

**Please enter details of the host organisations (Local Authority, NHS or other) in the UK that will be responsible for the research sites.** For NHS sites, the host organisation is the Trust or Health Board. Where the research site is a primary care site, e.g. GP practice, please insert the host organisation (PCT or Health Board) in the Institution row and insert the research site (e.g. GP practice) in the Department row.

Research site		Investigator/ Collaborator/ Contact	
Institution name	Coventry & Warwickshire Partnership Trust	Title	
Department name	R&D Department	First name/ Initials	Elizabeth
Street address	2 Manor Court Avenue	Surname	Vassell
Town/city	Nuneaton		
Post Code	CV11 5HX		
Institution name	South Warwickshire NHS Foundation Trust	Title	
Department name	Room 3 Education Centre/Medical School Building	First name/ Initials	Jo
Street address	Lakin Road	Surname	Williams
Town/city	Warwick		
Post Code	CV34 5BW		
Institution name	Northamptonshire Healthcare NHS Foundation Trust	Title	
Department name	Mental Health and Community Services	First name/ Initials	Leanne
Street address	St Mary's Hospital, Carey Block	Surname	Holman
Town/city	Kettering		
Post Code	NN15 7PW		
Institution name	Milton Keynes University Hospital NHS Foundation T	Title	
Department name	R&D Department	First name/ Initials	Rowena
Street address	Standing Way, Eaglestone	Surname	Fletcher
Town/city	Milton Keynes		
Post Code	MK6 5LD		
Institution name	Birmingham & Solihull Mental Health NHS Foundation	Title	
Department name	Research and Innovation Department	First name/ Initials	Emma
Street address	The Barberry Centre, 25, Vincent Drive	Surname	Patterson
Town/city	Birmingham		
Post Code	B15 2FG		
Institution name	Oxford Health NHS Foundation Trust	Title	
Department name	Research & Development	First name/ Initials	Victoria
Street address	Warneford Hospital, Warneford Lane	Surname	Rush
Town/city	Oxford		
Post Code	OX3 7JX		

NHS REC Form

Reference:  
16/WM/0076

IRAS Version 5.2.1

Institution name	Birmingham Women's NHS Foundation Trust	Title	
Department name	R&D Management Services	First name/	Kelly
Street address	Mindelsohn Way, Edgbaston	Initials	
Town/city	Birmingham	Surname	Hard
Post Code	B15 2TG		

Date: 26/01/2016

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105429/911938/1/579

**PART D: Declarations****D1. Declaration by Chief Investigator**

1. The information in this form is accurate to the best of my knowledge and belief and I take full responsibility for it.
2. I undertake to abide by the ethical principles underlying the Declaration of Helsinki and good practice guidelines on the proper conduct of research.
3. If the research is approved I undertake to adhere to the study protocol, the terms of the full application as approved and any conditions set out by review bodies in giving approval.
4. I undertake to notify review bodies of substantial amendments to the protocol or the terms of the approved application, and to seek a favourable opinion from the main REC before implementing the amendment.
5. I undertake to submit annual progress reports setting out the progress of the research, as required by review bodies.
6. I am aware of my responsibility to be up to date and comply with the requirements of the law and relevant guidelines relating to security and confidentiality of patient or other personal data, including the need to register when necessary with the appropriate Data Protection Officer. I understand that I am not permitted to disclose identifiable data to third parties unless the disclosure has the consent of the data subject or, in the case of patient data in England and Wales, the disclosure is covered by the terms of an approval under Section 251 of the NHS Act 2006.
7. I understand that research records/data may be subject to inspection by review bodies for audit purposes if required.
8. I understand that any personal data in this application will be held by review bodies and their operational managers and that this will be managed according to the principles established in the Data Protection Act 1998.
9. I understand that the information contained in this application, any supporting documentation and all correspondence with review bodies or their operational managers relating to the application:
  - ◊ Will be held by the REC (where applicable) until at least 3 years after the end of the study; and by NHS R&D offices (where the research requires NHS management permission) in accordance with the NHS Code of Practice on Records Management.
  - ◊ May be disclosed to the operational managers of review bodies, or the appointing authority for the REC (where applicable), in order to check that the application has been processed correctly or to investigate any complaint.
  - ◊ May be seen by auditors appointed to undertake accreditation of RECs (where applicable).
  - ◊ Will be subject to the provisions of the Freedom of Information Acts and may be disclosed in response to requests made under the Acts except where statutory exemptions apply.
  - ◊ May be sent by email to REC members.
10. I understand that information relating to this research, including the contact details on this application, may be held on national research information systems, and that this will be managed according to the principles established in the Data Protection Act 1998.
11. Where the research is reviewed by a REC within the UK Health Departments Research Ethics Service, I understand that the summary of this study will be published on the website of the National Research Ethics Service (NRES), together with the contact point for enquiries named below. Publication will take place no earlier than 3 months after issue of the ethics committee's final opinion or the withdrawal of the application.

**Contact point for publication***(Not applicable for R&D Forms)*

*NRES would like to include a contact point with the published summary of the study for those wishing to seek further information. We would be grateful if you would indicate one of the contact points below.*

☒ Chief Investigator

- ☐ Sponsor
- ☐ Study co-ordinator
- ☐ Student
- ☐ Other – please give details
- ☐ None

**Access to application for training purposes** *(Not applicable for R&D Forms)**Optional – please tick as appropriate:*

☒ I would be content for members of other RECs to have access to the information in the application in confidence for training purposes. All personal identifiers and references to sponsors, funders and research units would be removed.

This section was signed electronically by Miss Julie Eyden on 21/01/2016 13:47.

Job Title/Post: PhD student, Chief Investigator  
Organisation: University of Warwick  
Email: j.eyden@warwick.ac.uk

**D2. Declaration by the sponsor's representative**

*If there is more than one sponsor, this declaration should be signed on behalf of the co-sponsors by a representative of the lead sponsor named at A64-1.*

I confirm that:

1. This research proposal has been discussed with the Chief Investigator and agreement in principle to sponsor the research is in place.
2. An appropriate process of scientific critique has demonstrated that this research proposal is worthwhile and of high scientific quality.
3. Any necessary indemnity or insurance arrangements, as described in question A76, will be in place before this research starts. Insurance or indemnity policies will be renewed for the duration of the study where necessary.
4. Arrangements will be in place before the study starts for the research team to access resources and support to deliver the research as proposed.
5. Arrangements to allocate responsibilities for the management, monitoring and reporting of the research will be in place before the research starts.
6. The duties of sponsors set out in the Research Governance Framework for Health and Social Care will be undertaken in relation to this research.

Please note: *The declarations below do not form part of the application for approval above. They will not be considered by the Research Ethics Committee.*

7. Where the research is reviewed by a REC within the UK Health Departments Research Ethics Service, I understand that the summary of this study will be published on the website of the National Research Ethics Service (NRES), together with the contact point for enquiries named in this application. Publication will take place no earlier than 3 months after issue of the ethics committee's final opinion or the withdrawal of the application.
8. Specifically, for submissions to the Research Ethics Committees (RECs) I declare that any and all clinical trials approved by the HRA since 30th September 2013 (as defined on IRAS categories as clinical trials of medicines, devices, combination of medicines and devices or other clinical trials) have been registered on a publicly accessible register in compliance with the HRA registration requirements for the UK, or that any deferral granted by the HRA still applies.

This section was signed electronically by Mrs Jane Prewett on 18/01/2016 17:07.

Job Title/Post: Deputy Director, R&IS  
Organisation: University of Warwick  
Email: jane.prewett@warwick.ac.uk



**D3. Declaration for student projects by academic supervisor(s)**

1. I have read and approved both the research proposal and this application. I am satisfied that the scientific content of the research is satisfactory for an educational qualification at this level.

2. I undertake to fulfil the responsibilities of the supervisor for this study as set out in the Research Governance Framework for Health and Social Care.

3. I take responsibility for ensuring that this study is conducted in accordance with the ethical principles underlying the Declaration of Helsinki and good practice guidelines on the proper conduct of research, in conjunction with clinical supervisors as appropriate.

4. I take responsibility for ensuring that the applicant is up to date and complies with the requirements of the law and relevant guidelines relating to security and confidentiality of patient and other personal data, in conjunction with clinical supervisors as appropriate.

**Academic supervisor 1**

This section was signed electronically by Professor Dieter Wolke on 21/01/2016 14:56.

Job Title/Post: Professor  
Organisation: University of Warwick  
Email: D.Wolke@warwick.ac.uk

**Academic supervisor 2**

This section was signed electronically by Dr Fiona MacCallum on 21/01/2016 13:57.

Job Title/Post: Associate Professor  
Organisation: 1973  
Email: Fiona.MacCallum@warwick.ac.uk

## Appendix I: NHS ethics substantial and non-substantial amendments log

Amendment	Substantial/non	Date	Reason
1	Non substantial	29.9.16 <b>13.10.16</b>	Site added: Central and North West London Foundation Trust
2	Non-substantial	7.12.16 <b>13.12.16</b>	Additional line on the posters to include REC reference and project ID Amendment to useful contact details flier to revise the complaints procedure
3	Substantial 1	17.10.16 <b>15.12.16</b>	ACE-IQ childhood adversity questionnaire added to the study, amendments made to patient materials to reflect this
4	Non-substantial	4.1.17 <b>23.1.17</b>	Amendments to patient facing materials required by the REC in response to Substantial amendment 1
5	Non-substantial	30.3.17	Inclusion of a combined BPD and depression poster and consent to contact form
	Substantial 2	8.5.17 <b>4.7.17</b>	Inclusion of PIS for symptoms consistent with BPD
6	Substantial	26.5.17 Declined 8.6.17	Accessing NHS patient records (suggested by CWPT but declined by University of Warwick RIS)

Notes: dates in bold denote the approval date

Abbreviations: ACE-IQ = adverse childhood experiences - international questionnaire; BPD = borderline personality disorder; CWPT = Coventry & Warwickshire Partnership Trust; PIS = participant information sheet; REC = research ethics committee; RIS = research and impact services at the University of Warwick

## Appendix J: Participant consent to contact form (BPD version)



### Mothers with borderline personality disorder needed for a parenting study

- Do you have a child under the age of 18?
- We are looking to gather information, which may go on to help support mothers with mental health difficulties.
- We would love to talk to you about being a mum.



- Those taking part will be given a £10 Love2shop voucher

For further information of the study or how to take part please contact:

Julie Eyden: [j.eyden@warwick.ac.uk](mailto:j.eyden@warwick.ac.uk) / 07519102119

or complete and return the slip below.

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#### PARENTING UNDERSTANDING OF MOTHERS WITH MENTAL HEALTH DIFFICULTIES

I agree to being contacted about the above study. I understand that I will then have a choice whether I take part or not.

Name: ..... Phone: .....

Email: ..... Signature: .....

Please return to:

Julie Eyden, Psychology Department H1.44, University of Warwick, FREEPOST, Coventry CV4 7BR

## Appendix K: Study advertisement (generic mental health version)



### Mothers with mental health difficulties needed for a parenting study

- **Do you have difficulty regulating your emotions?**
- Do you have a child under the age of 18?
- We are looking to gather information, which may go on to help support mothers with mental health difficulties.
- We would love to talk to you about being a mum.



For further information of the study or how to take part please contact Julie Eyden at the University of Warwick:

Email: [j.eyden@warwick.ac.uk](mailto:j.eyden@warwick.ac.uk)

Tel: [07519102119](tel:07519102119)

Address: [Julie Eyden, Department of Psychology H1.44, University of Warwick, FREEPOST, Coventry CV4 7BR](#)

This study has gained approval from the Research Ethics Committee & the Health Research Authority: 16/WM/0076, project ID 105429

Version 3: 7 Nov 16

## Appendix L: Participant information sheets for mother and child

### Mother's participant information sheet (mental health difficulties version)



#### Participant Information Sheet

### Study of parenting thoughts of mothers with different mental health difficulties

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#### We invite you to take part in a research study

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- Before you decide to take part, it is important for you to understand why this research is being done and what will be expected of you.
- Please take time to read the following information carefully and discuss with friends and family if you wish.
- You are free to decide whether to take part or not and your decision will not affect any care that you receive.
- This study has been reviewed and approved by the Research Ethics Committee (an independent group of people), NHS partnership trusts in England, and the University of Warwick.
- Please ask if you would like any more information or if anything is unclear.

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#### Important things you need to know

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- **Why are we doing this study?** We want to look at the kind of parenting challenges that mothers who have difficulties managing their emotions may face. We will explore whether parenting is the same or different for mothers with different types of mental health difficulties. By looking at this we can better understand the needs of these mothers.
- **Why have you been chosen?** We are looking for mothers with mental health difficulties who can tell us what they feel it is like to parent their child. We want to understand this from your perspective.
- **What will be expected of me if I choose to participate?** You will be asked some questions about your usual parenting (there are no right or wrong answers). You will be asked to rank different statements of general (not your own) parenting behaviours from 'ideal' to 'not ideal'. You will be asked to play a game with your child so we can see how you like to interact with them. This will be video recorded so that we can look at it at a later date. You will also be asked some questions about your childhood experiences.
- **How long will it take?** The study will take around 2 - 2½ hours.
- **Where will it take place?** The researcher will travel to your home or if you prefer an alternative place will be arranged.
- **Will my parenting be judged?** This research will not critique or judge your parenting in any way. Your information will be combined with information we gather from other mothers to give an overall picture.

- **What are the risks to me?** Everyone is different so some mothers may find it difficult to talk about their parenting or childhood experiences and this could cause some distress. You will not have to answer any questions that you would prefer not to, and you would be able to withdraw from the study at any time. Before I leave I would give you a list of contacts in case you have any questions or become distressed after the study has ended. If you became distressed during the study we would discuss together how best to help you; this may involve contacting a member of your healthcare team/crisis resolution team.
- **What are the benefits to me?** You may find it enjoyable being able to say what it is like for you to be a parent. You may also feel good knowing you have participated in something that will improve our understanding of the support mothers with mental health difficulties may need.
- **What if I change my mind?** If you change your mind you can stop taking part at any time, without the need to give a reason, and any future treatment will not be affected.
- **Will my information be confidential?** All your information (data) will be confidential and made anonymous so that it is not identifiable to you. Only the research team will see any video recorded data. Your personal details will not be disclosed or used in any way. The only exception would be if there were serious concerns regarding your or another person's wellbeing or safety. In such an instance we would let you know that we would need to inform a healthcare professional to help you.
- **How will my information be stored and what will happen to it?** All data will be stored securely and confidentially at the University of Warwick. The results of the study may be published, as research such as this may help to find ways to support mothers with mental health difficulties. None of the information published will be identifiable to you.
- **What do I need to do now?** To take part in this study, or for more information please phone or text Julie Eyden on **07519102119** email **j.eyden@warwick.ac.uk** or complete the 'consent to contact' form you were given with this information sheet and return it to:

Julie Eyden  
Psychology Department (H144)  
University of Warwick  
Coventry  
CV4 7AL




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### Thank you!

If you decide to take part in this research study you will be given a £10 Love2Shop voucher as a thank you for your time.




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### Concerns or complaints

If you have any comments about this research or wish to make a complaint you can contact Julie Eyden in the first instance: [j.eyden@warwick.ac.uk](mailto:j.eyden@warwick.ac.uk), or the overseeing supervisor of the study Dr Fiona MacCallum: [fiona.maccallum@warwick.ac.uk](mailto:fiona.maccallum@warwick.ac.uk)

If any concerns remain unresolved please contact: Head of Research Governance, Research & Impact Services, University House, University of Warwick, Coventry, CV4 8UW;  
Tel: 02476522746; Email: [researchgovernance@warwick.ac.uk](mailto:researchgovernance@warwick.ac.uk)

Participant Information Sheet - Children

## How mums and children play together

My name is Julie and I am looking at what mums and children do when they play together.

Would you like to play a game with your Mum?

**What game is it?**

The game is Etch-a-Sketch and you and your mum would draw a picture using the dials on the game. You will have one dial and your mum will have the other one. The game will take between 10 and 20 minutes.



**Who would be watching?**

I would be watching and filming so that I can look at the game you played on another day. Only myself, and two other people (who need to check my work) will see the film of you and your mum.

**Do I have to play?**

It is up to you whether you play this game or not.

**What if I change my mind?**

You can stop playing when you want to.

....Do you have any questions?

## Appendix M: Participant Health Questionnaire for Depression (PHQ-9)

PATIENT HEALTH QUESTIONNAIRE-9 (PHQ-9)				
Over the last 2 weeks, how often have you been bothered by any of the following problems? (Use "✓" to indicate your answer)	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself — or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed? Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

FOR OFFICE CODING 0 + \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_  
=Total Score: \_\_\_\_\_

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If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all	Somewhat difficult	Very difficult	Extremely difficult
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Developed by Drs. Robert L. Spitzer, Janet B.W. Williams, Kurt Kroenke and colleagues, with an educational grant from Pfizer Inc. No permission required to reproduce, translate, display or distribute.



## Appendix N: Adverse Childhood Experience – International Questionnaire (ACE-IQ)

### Adverse Childhood Experiences

When you were growing up, during the first 18 years of your life...		
1	Did your parents understand your problems and worries?	Always Most of the time Sometimes Rarely Never Prefer not to answer
2	Did your parents/guardians really know what you were doing with your free time when you were not at school or work?	Always Most of the time Sometimes Rarely Never Prefer not to answer
3	How often did your parents/guardians not give you enough food even when they could easily have done so?	Many times A few times Once Never Prefer not to answer
4	Were your parents/guardians too drunk or intoxicated by drugs to take care of you?	Many times A few times Once Never Prefer not to answer
5	How often did your parents/guardians not send you to school even when it was available?	Many times A few times Once Never Prefer not to answer
6	Did you live with a household member who was a problem drinker or alcoholic, or misused street or prescription drugs?	Yes No Prefer not to answer
7	Did you live with a household member who was depressed, mentally ill or suicidal?	Yes No Prefer not to answer
8	Did you live with a household member who was ever sent to jail or prison?	Yes No Prefer not to answer
9	Were your parents ever separated or divorced?	Yes No Not applicable Prefer not to answer
10	Did your mother, father or guardian die?	Yes No Not sure/don't know Prefer not to answer
<p>These next questions are about certain things you may actually have heard or seen IN YOUR HOME. These are things that may have been done to another household member but not necessarily to you.</p> <p>When you were growing up, during the first 18 years of your life...</p>		
11	Did you see or hear a parent or household member in your home being yelled at, screamed at, sworn at, insulted or humiliated?	Many times A few times Once Never Prefer not to answer

Source: Adverse Childhood Experiences International Questionnaire (ACE-IQ), World Health Organisation  
Version 1: 21 Nov 2016

12	Did you see or hear a parent or household member in your home being slapped, kicked, punched or beaten up?	Many times A few times Once Never Prefer not to answer
13	Did you see or hear a parent or household member in your home being hit or cut with an object, such as a stick (or cane), bottle, club, knife, whip etc.?	Many times A few times Once Never Prefer not to answer
<p>These next questions are about certain things YOU may have experienced</p> <p>When you were growing up, during the first 18 years of your life...</p>		
14	Did a parent, guardian or other household member yell, scream or swear at you, insult or humiliate you?	Many times A few times Once Never Prefer not to answer
15	Did a parent, guardian or other household member threaten to, or actually, abandon you or throw you out of the house?	Many times A few times Once Never Prefer not to answer
16	Did a parent, guardian or other household member spank, slap, kick, punch or beat you up?	Many times A few times Once Never Prefer not to answer
17	Did a parent, guardian or other household member hit or cut you with an object, such as a stick (or cane), bottle, club, knife, whip etc.?	Many times A few times Once Never Prefer not to answer
18	Did someone touch or fondle you in a sexual way when you did not want them to?	Many times A few times Once Never Prefer not to answer
19	Did someone make you touch their body in a sexual way when you did not want them to?	Many times A few times Once Never Prefer not to answer
20	Did someone attempt oral, anal, or vaginal intercourse with you when you did not want them to?	Many times A few times Once Never Prefer not to answer
21	Did someone actually have oral, anal, or vaginal intercourse with you when you did not want them to?	Many times A few times Once Never Prefer not to answer
<p>These next questions are about BEING BULLIED when you were growing up. Bullying is when a young person or group of young people say or do bad and unpleasant things to another young person. It is also bullying when a young person is teased a lot in an unpleasant way or when a young person is left out of things on purpose. It is not bullying when two young people of about the same strength or power argue or fight or when teasing is done in a friendly and fun way.</p> <p>When you were growing up, during the first 18 years of your life...</p>		

Source: Adverse Childhood Experiences International Questionnaire (ACE-IQ), World Health Organisation  
Version 1: 21 Nov 2016

22	How often were you bullied?	Many times A few times Once Never (END of questionnaire) Prefer not to answer
23	How were you bullied most often?	I was hit kicked, pushed, shoved around or locked indoors I was made fun of because of my race, nationality or colour I was made fun of because of my religion I was made fun of with sexual jokes, comments or gestures I was left out of activities on purpose or completely ignored I was made fun of because of how my body or face looked I was bullied in some other way Prefer not to answer

Source: Adverse Childhood Experiences International Questionnaire (ACE-IQ), World Health Organisation  
Version 1: 21 Nov 2016

## Appendix O: *Significant Others Scale (SOS)*

NB the SOS form given to participants allowed for report on up to 4 persons

### Significant Others Scale

- Please list below people who are most important in your life. Possible relationships include friends, partner, mother, father, brothers, sisters, other relatives, work colleagues, and so on.
- For each person you list, circle a number from 1 to 7 to show how well he or she provides the type of help listed.
- The second part of each question asks you to rate how you would like things to be if they were exactly as you would most hope for. Again circle a number from 1 to 7 to show what rating this would be.

---

Relationship of significant person 1 (e.g. mother).....

		Never		Sometimes			Always	
1a)	Can you trust, talk frankly and share your feelings with this person?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7
2a)	Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7
3a)	Does he or she give you practical help?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7
4a)	Can you spend time with him or her socially?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7

---

Relationship of significant person 2 (e.g. mother).....

		Never		Sometimes			Always	
1a)	Can you trust, talk frankly and share your feelings with this person?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7
2a)	Can you lean on and turn to this person in times of difficulty?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7
3a)	Does he or she give you practical help?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7
4a)	Can you spend time with him or her socially?	1	2	3	4	5	6	7
b)	What rating would your ideal be?	1	2	3	4	5	6	7

Appendix P: *Tool to Measure Parenting Self-Efficacy (TOPSE)*



Participant number:

Date:

- When answering the following questions, please focus on how you view your **own** parenting with your child
- There are no right or wrong answers
- Your answers will **not** be used to judge or critique your parenting
- Your answers will not be looked at individually. They will be grouped with other mother's answers to gain overall patterns of mother parenting behaviours
- You will see a series of statements and asked to rate each one with how much you 'agree' or 'disagree' with the statements

**The following section is about emotion and affection.**

Using the scale below, please enter in the boxes how much you agree with each statement.

The scale ranges from 0 (completely disagree) to 10 (completely agree).

You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree				Moderately agree				Completely agree		

- ☐ I am able to show affection towards my child.
- ☐ I can recognise when my child is happy or sad.
- ☐ I am confident my child can come to me if they're unhappy.
- ☐ When my child is sad I understand why.
- ☐ I have a good relationship with my child.
- ☐ I find it hard to cuddle my child.

**The following section is about play and enjoyment.**

Using the scale below, please enter in the boxes how much you agree with each statement.  
The scale ranges from 0 (completely disagree) to 10 (completely agree).  
You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree			Moderately agree				Completely agree			

<input checked="" type="radio"/> I am able to have fun with my child.	<input type="text"/>
<input checked="" type="radio"/> I am able to enjoy each stage of my child's development.	<input type="text"/>
<input checked="" type="radio"/> I am able to have nice days with my child.	<input type="text"/>
<input checked="" type="radio"/> I can plan activities that my child will enjoy.	<input type="text"/>
<input checked="" type="radio"/> Playing with my child comes easily to me.	<input type="text"/>
<input checked="" type="radio"/> I am able to help my child reach their full potential.	<input type="text"/>



**The following section is about empathy and understanding.**

Using the scale below, please enter in the boxes how much you agree with each statement.  
The scale ranges from 0 (completely disagree) to 10 (completely agree).  
You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree				Moderately agree				Completely agree		

☒ I am able to explain things patiently to my child.

☒ I can get my child to listen to me.

☒ I am able to comfort my child.

☒ I am able to listen to my child.

☒ I am able to put myself in my child's shoes.

☒ I understand my child's needs.

**The following section is about control.**

Using the scale below, please enter in the boxes how much you agree with each statement.

The scale ranges from 0 (completely disagree) to 10 (completely agree).

You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree			Moderately agree				Completely agree			

- As a parent I feel I am in control.
- My child will respond to the boundaries I put in place.
- I can get my child to behave well without a battle.
- I can remain calm when facing difficulties.
- I can't stop my child behaving badly.
- I am able to stay calm when my child is behaving badly.


**The following section is about discipline and setting boundaries.**

Using the scale below, please enter in the boxes how much you agree with each statement.

The scale ranges from 0 (completely disagree) to 10 (completely agree).

You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree				Moderately agree				Completely agree		

- Setting limits and boundaries is easy for me.
- I am able to stick to the rules I set for my child.
- I am able to reason with my child.
- I can find ways to avoid conflict.
- I am consistent in the way I use discipline.
- I am able to discipline my child without feeling guilty.


**The following section is about pressures.**

Using the scale below, please enter in the boxes how much you agree with each statement.  
The scale ranges from 0 (completely disagree) to 10 (completely agree).  
You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree			Moderately agree				Completely agree			

- It is difficult to cope with other people's expectations of me as a parent.
- I am not able to assert myself when other people tell me what to do with my child.
- Listening to other people's advice makes it hard for me to decide what to do.
- I can say 'no' to other people if I don't agree with them.
- I can ignore pressure from other people to do things their way.
- I do not feel a need to compare myself to other parents.

**The following section is about self-acceptance.**

Using the scale below, please enter in the boxes how much you agree with each statement.  
The scale ranges from 0 (completely disagree) to 10 (completely agree).  
You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree				Moderately agree				Completely agree		

- ☐ I know I am a good enough parent.
- ☐ I manage the pressures of parenting as well as other parents do.
- ☐ I am not doing that well as a parent.
- ☐ As a parent I can take most things in my stride.
- ☐ I can be strong for my child.
- ☐ My child feels safe around me.

**The following section is about learning and knowledge.**

Using the scale below, please enter in the boxes how much you agree with each statement.

The scale ranges from 0 (completely disagree) to 10 (completely agree).

You may use any number between 0 and 10. Please answer all statements.

0	1	2	3	4	5	6	7	8	9	10
Completely disagree			Moderately agree				Completely agree			

- I am able to recognise developmental changes in my child.
- I can share ideas with other parents.
- I am able to learn and use new ways of dealing with my child.
- I am able to make the changes needed to improve my child's behaviour.
- I can overcome most problems with a bit of advice.
- Knowing that other people have similar difficulties with their children makes it easier for me.


## Appendix Q: *Q-set of ideal sensitive mother behaviour statements*

1. Gives her child little opportunity to play along or to respond.
2. Is always aware of what her child is doing.
3. Her responses to her child are unpredictable.
4. Is not aware of what her child is doing when she is busy with a visitor.
5. Is not at ease when she is holding her child close (e.g., on her lap).
6. Supports contact of her child with a visitor.
7. Treats her child as an object when holding him/her.
8. Lets her child know when she leaves the room.
9. Does not respond when her child makes sounds, smiles, or reaches.
10. Gets her child's attention before talking to him/her.
11. Speaks slowly and repeats the words when she talks to her child.
12. Mother decides when her child has to sleep, whether her child is tired or not.
13. Uses brothers/sisters or television to keep her child entertained.
14. Suddenly stops playing with her child to do something else or talk to a visitor.
15. Tries to involve her child in games or activities that are too difficult for her child but does not notice that.
16. Does not realise when things become too much for her child.
17. Ignores her child's signals, mother dictates what happens and how fast things go.
18. The house does not look like a child is living there.
19. Puts her child in another room when her child is in a bad mood or cranky.
20. Responds well when her child is upset or distressed.
21. Finds it difficult to take care of her child.
22. Seems to be unaware when her child is asking for attention.
23. Makes sure that her child can come close to her.
24. Makes sure she can hear or see her child.
25. Is not good at dividing her attention between her child and other tasks, so does not always see what her child needs.
26. Responds immediately when her child cries.
27. Attends to her child's needs even when she is busy e.g., talking to a visitor.
28. Offers her child something else to do to distract him/her from something that is not allowed.
29. When her child is upset or distressed, mother understands why.
30. Uses mainly physical contact to interact with her child instead of speaking (e.g., moves child's hand to a toy).
31. Quickly distracts her child to something else when her child wants to come close to her.
32. Mother's interactions are out of sync with her child's behaviours (e.g., interferes with an activity the child is enjoying, or is loud when the child is quiet)
33. Tries several different things to satisfy her child, without a clear plan.
34. Her interactions are appropriate for her child's current state (e.g., does not push child to complete a task when tired).
35. Finishes activities and games with her child properly so that her child is content.
36. Steps in when her child does something dangerous.
37. Steps in when her child does something that can make him/her dirty.

38. Provides healthy snacks.
39. Uses play as a time to teach her child things.
40. Encourages her child to feed him/herself.
41. Her contact with her child mostly involves objects (e.g., with toys or food).
42. Her way of showing affection to her child seems insincere or mechanical.
43. Is enthusiastic when she does things with her child.
44. Knows what her child can and cannot do at his/her age when it comes to self-control.
45. Praises her child/acknowledges achievements.
46. Mother moulds her body to her child when cuddling or holding her child.
47. Shows her affection for her child by gently touching her child.
48. Points to interesting things in her child's environment and tells him/her what they are called.
49. Seeks contact with her child.
50. Makes sure that the environment is interesting for her child.
51. Makes sure that there are toys that fit the age of her child.
52. If she wants to forbid her child something, she does so with words, without touching or restraining the child.
53. Waits for her child's response when they are doing something together.
54. Teases her child to keep/gain child's attention (e.g., offers toy, then moves it out of reach when child shows interest).
55. Sees her child as a person with own personality and accepts child's behaviours even if not the same as she would do.
56. Has fixed ideas about how her child needs to be taken care of and keeps to routines rather than meeting child's immediate needs.
57. Shows that she enjoys doing things with her child.
58. Takes her child's needs into account in the way the house is furnished/organised.
59. Lets her child do (appropriate) things he/she likes without interruption.
60. Often scolds or criticizes her child.
61. Is irritated when her child wants to be near to her.
62. Understands her child well as can be seen from her child's reactions.
63. Shows that she is aware of her child's distress but does not respond.
64. Greets her child when she comes back into the room.
65. Responds to what her child does or says.
66. Never responds to her child.
67. Responds only when her child shows prolonged or intense distress.
68. Adapts her tempo and tone to her child's level of activity or enthusiasm when playing together.
69. Notices when her child is distressed (e.g., cries, fusses, or whimpers).
70. Is so late in her responses that it is not clear for the child what she is responding to.
71. Joins in with what her child is interested in rather than introducing a new activity.
72. Notices when her child smiles and makes sounds.
73. When she is irritated with her child, she stops doing things with him/her.
74. Worries when her child tries new things, even when they are not dangerous.
75. Encourages her child to try new things.
76. Holds her child close to her to comfort him/her.



- 77. Talks to her child constantly.
- 78. Plays games together with her child.
- 79. Becomes irritable or tense when her child needs a lot of attention.
- 80. Is annoyed if her child does not cooperate.
- 81. Clearly shows her child love and acceptance.
- 82. Restricts her child's movements.
- 83. Is aloof/distant when doing things with her child.
- 84. The feelings that she shows do not match the feelings of the child (e.g., mother laughs when child is upset).
- 85. Suddenly stops what she is doing with her child.
- 86. Stops physical contact before her child is contented.
- 87. Clearly opposes her child's wishes.
- 88. Often disagrees or argues with her child (underlying hostility).
- 89. The way she handles her child makes her child settled and content.
- 90. Is negative and hostile towards her child.

## Appendix R: Participant consent form



Participant Identification Number:

### CONSENT FORM

#### Exploring parenting and parental understanding of mothers with mental health difficulties

Researcher: Julie Eyden

Please initial box

1. I confirm that I have read the information sheet dated..... (version.....) for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily. ☐
2. I understand that my participation is voluntary and that I am free to withdraw from the study (or any aspect of the study) at any time, without giving any reason, without my medical care or legal rights being affected. ☐
3. I understand that the information collected about me will be used to support other research in the future and may be shared anonymously with other researchers. ☐
4. I understand that my information will remain completely confidential except in an instance where the researcher has a serious concern for mine or another's safety. ☐
5. I agree to take part in the above study. ☐
6. I agree for my child to take part in the above study. ☐
7. I agree to be contacted for possible participation in a later phase of this research. ☐

_____	_____	_____
Name of Participant	Date	Signature

<u>Julie Eyden</u>	_____	_____
Name of Researcher	Date	Signature

Appendix S: Participant assent form



Participant Identification Number:

**ASSENT FORM**

**A study looking at how mums and children play together**

Researcher: Julie Eyden

Please initial box

- 1. I understand what I will be asked to do and I have had the chance to ask questions
- 2. I understand that I do not have to take part and that I can stop if I want to
- 3. I agree to take part in a play task with my mum

☐

☐

☐

\_\_\_\_\_

Name of Child

\_\_\_\_\_

Date

\_\_\_\_\_

Signature

Julie Eyden

Name of Researcher

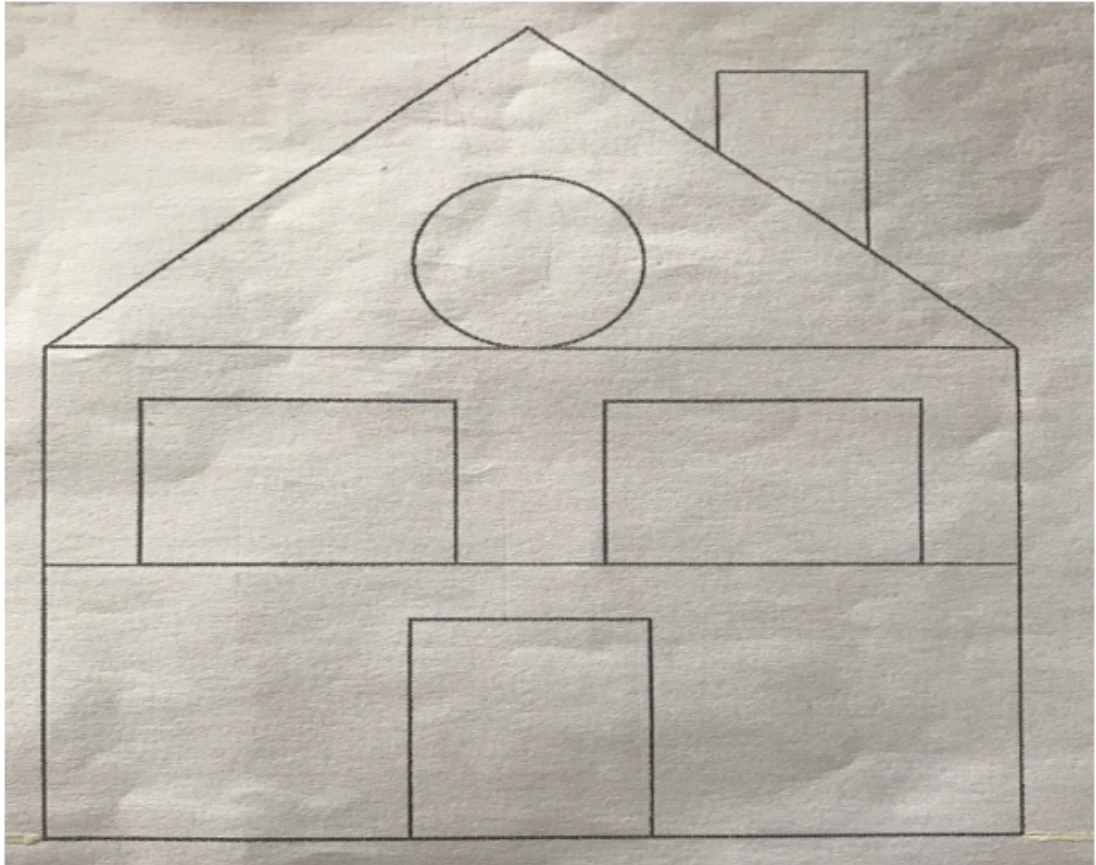
\_\_\_\_\_

Date

\_\_\_\_\_

Signature

Appendix T: *Etch-A-Sketch* house diagram



## Appendix U: Post study contact information/details



### Useful contact details after the study has ended

#### Questions about the study

If you have any questions about the study please contact me, Julie Eyden.

Email: [j.eyden@warwick.ac.uk](mailto:j.eyden@warwick.ac.uk) or t: 07519102119 or write to Julie Eyden, Department of Psychology H1.44, University of Warwick, Coventry, CV4 7AL.

#### Concerns or complaints

If you have any comments with the way you have been dealt with during the study please contact me and I will try to resolve any questions or concerns: email: [j.eyden@warwick.ac.uk](mailto:j.eyden@warwick.ac.uk) or t: 07519102119. Alternatively you can contact my supervisor, Fiona MacCallum email: [fiona.maccallum@warwick.ac.uk](mailto:fiona.maccallum@warwick.ac.uk) or t: 024 7652 3182.

This study is covered by the University of Warwick's insurance and indemnity cover. Any complaint about the way you have been dealt with during the study or any possible harm you might have suffered will be addressed. Please address your complaint to the person below, who is a senior University of Warwick official entirely independent of this study:

**Head of Research Governance**, Research & Impact Services, University House, University of Warwick, Coventry, CV4 8UW; Tel: 024 76 522746; Email: [jane.prewett@warwick.ac.uk](mailto:jane.prewett@warwick.ac.uk)

#### Distress or Crisis

If you feel unwell or have been affected in any way, which is altering the way you feel, **contact your community mental health team or your crisis support team straight away**. They will be able to help.

**Or call Mental Health Matters (24 hours, 7 days a week):**

**0800 616171 (from a landline) 0300 330 5487 (from a mobile phone)**

You may also find the organisations listed below useful for additional information or support.

Family Lives (for advice on parenting and family issues): [familylives.org.uk](http://familylives.org.uk) 0808 800 2222

Mind (for information and support on mental health issues): [mind.org.uk](http://mind.org.uk) 0300 123 3393

Relate (for support and information on all relationships): [relate.org.uk](http://relate.org.uk) 0300 100 1234

NAPAC (for support on recovering from child abuse): [napac.org.uk](http://napac.org.uk) 0808 801 0331

Samaritans (for someone to talk to about difficulties): [www.samaritans.org](http://www.samaritans.org) (freecall) 116 123

Julie Eyden, Department of Psychology

University of Warwick

Coventry CV4 7AL

EUPD/BPD - Version 3: 3 Jan 2017 (project ID 105429)

## Appendix V: Missing data

For participants with any missing data, all means were compared to their group means for all measures and outcome variables. Those greater than or less than the standard deviation for the group mean were highlighted (see table V1) and are discussed below.

Missing section of the TOPSE (pages turned together):

The HC mother was higher than the means (and above the standard deviation for the mean) on the ACE-IQ binary and frequency, and lower on the TOPSE score. The DPN mother was lower on the depression score than the DPN group PHQ-9 mean and scored higher on the TOPSE.

Missed question on the PAI-BOR:

The mother with BPD who missed one of the questions on the PAI-BOR scored higher than the mean (and above the standard deviation for the mean) on the PAI-BOR, higher on the ACE-IQ binary and frequency scores, higher on the TOPSE score, MBQS, MBQS discrepancy, and maternal sensitivity, and her child scored higher on responsiveness than the means for these measures.

ACE-IQ Prefer not to answer (PNA):

Of the three mothers with BPD who chose PNA for one of the ACE-IQ questions, one scored higher on the PHQ-9 and also on the PAI-BOR (the other two scored within the standard deviations but lower than the mean on the PAI-BOR). Each scored lower on the ACE binary and frequency (two of these would still have been below the standard deviation of the group mean even if they had scored positive for the PNA question). One scored lower on the TOPSE and also on the number of significant others; one scored higher on the MBQS and lower on MBQS discrepancy. For sensitivity one was higher, one lower, and the other was within the standard deviation for the mean. For structuring, non-intrusiveness, and non-hostility, one mother was higher than the SD of the mean for all these EA measures; similarly for her child's responsiveness and involvement.

**Table V1: Missing data means and standard deviations**

Participant	Measures: <i>M (SD)</i>													
	PHQ-9	PAI	ACE B	ACE F	% TOPSE	No SOS	MBQS	MBQS disc	Sensitivity	Structuring	Non-intrusive	Non-hostility	Responsive	Involvement
<b>BPD</b>	16.15 (5.6)	82.96 (11.65)	8.0 (1.88)	6.73 (2.03)	64.92 (17.39)	3.0 (1.02)	0.79 (0.05)	12.12 (3.66)	4.38 (1.02)	4.64 (0.82)	4.5 (1.15)	5.08 (1.14)	4.12 (1.21)	4.38 (1.26)
6	16.00	80.00	<b>6.00</b>	<b>2.00</b>	82.00	4.00	0.80	12.00	<b>6.00</b>	<b>5.50</b>	<b>7.00</b>	<b>6.50</b>	<b>6.00</b>	<b>6.00</b>
14 <sup>b</sup>	17.00	<b>97.00</b>	<b>11.00</b>	<b>9.00</b>	<b>90.00</b>	2.00	<b>0.86</b>	<b>7.00</b>	<b>5.50</b>	5.00	5.00	5.50	<b>5.50</b>	5.50
19	19.00	78.00	<b>5.00</b>	4.00	<b>43.00</b>	<b>1.00</b>	0.82	9.00	n/a	n/a	n/a	n/a	n/a	n/a
21	<b>22.00</b>	<b>98.00</b>	<b>5.00</b>	<b>3.00</b>	66.00	4.00	0.78	13.00	<b>3.00</b>	4.00	4.00	4.00	4.00	5.50
<b>HC</b>	2.16 (2.12)	43.36 (7.05)	3.84 (2.90)	2.24 (2.44)	87.76 (8.91)	3.76 (0.44)	0.81 (0.03)	9.80 (3.23)	6.26 (0.89)	6.06 (0.85)	6.02 (0.80)	6.52 (0.84)	6.08 (1.0)	5.84 (1.02)
28 <sup>a</sup>	2.00	48.00	<b>9.00</b>	<b>6.00</b>	<b>68.00</b>	4.00	0.80	10.00	6.00	5.50	5.50	6.00	5.50	6.00
<b>DPN</b>	11.24 (6.05)	63.80 (12.22)	5.64 (2.68)	4.08 (3.10)	74.20 (15.78)	3.56 (0.71)	0.79 (0.05)	11.80 (3.85)	5.16 (1.35)	5.14 (1.32)	4.76 (1.29)	6.06 (1.36)	4.78 (1.38)	4.50 (1.43)
34	<b>17.00</b>	71.00	8.00	5.00	76.00	4.00	0.80	11.00	4.00	4.00	<b>3.00</b>	6.00	4.00	3.50
54	14.00	<b>77.00</b>	<b>9.00</b>	<b>8.00</b>	79.00	<b>2.00</b>	<b>0.73</b>	14.00	<b>2.00</b>	<b>2.00</b>	<b>2.50</b>	<b>4.00</b>	<b>1.50</b>	<b>1.50</b>
57	12.00	<b>87.00</b>	4.00	2.00	61.00	3.00	0.83	10.00	<b>3.00</b>	<b>2.00</b>	<b>5.50</b>	6.50	4.00	3.50
65	<b>20.00</b>	74.00	8.00	<b>8.00</b>	<b>59.00</b>	4.00	<b>0.86</b>	8.00	<b>3.50</b>	4.00	4.00	5.50	3.50	3.50
71 <sup>a</sup>	<b>4.00</b>	61.00	4.00	2.00	<b>90.00</b>	4.00	0.81	8.00	6.00	5.50	5.00	5.50	5.50	5.00

Notes: ACE = adverse childhood experiences; ACE B = ACE Binary i.e., whether an adverse experience occurred; ACE F = ACE Frequency i.e., the frequency with which the ACE occurred; BPD = borderline personality disorder; DPN = mothers with depression; HC = healthy comparison mothers; MBQS = mother behaviour Q-set i.e., parenting knowledge score; MBQS disc = discrepancy score i.e. those statements ranked in a different category; PAI = Personality Assessment Inventory for borderline personality disorder; PHQ-9 = depression severity measure; %TOPSE = % score for the Tool to Measure Parenting Self-Efficacy.

<sup>a</sup> = missed section on the TOPSE; <sup>b</sup> = missing question on the PAI-BOR; all others are 'prefer not to answer' responses to questions on the ACE-IQ questionnaire; figures in bold > or < the standard deviation of the mean of the measure.

Of the four mothers with depression who chose PNA for one of the ACE-IQ questions, two scored higher than the SD of the group mean for depression, with the other two mothers scoring higher on the PAI-BOR than the group mean. One scored higher on ACE binary and two on ACE frequency scores. One mother scored lower on the TOPSE, one scored lower on the number of significant others. One mother scored higher and one scored lower on the MBQS. Three out of four mothers scored lower on the maternal sensitivity score, two lower on structuring, two lower and one higher on non-intrusiveness, and one lower on hostility. For the child responsiveness and involvement scores, all but one child were within the standard deviation of the mean; this child scored lower than the standard deviation of the group mean.

Unanswered questions on the TOPSE questionnaire were excluded from the overall percentage score. The single data point missing on the PAI-BOR was replaced with the mean value for that sub section, and where participants selected 'prefer not to answer' on the ACE-IQ, these data were omitted from the total ACE scores. Missing data was completely at random. Visual inspection of the profiles and scores from each of these participants showed no particular pattern and there was nothing to suggest that these participants had a different profile to those without missing data. All participants were retained in the analyses.



**Appendix W: Descriptive statistics and ANCOVA results for maternal EA including method of play as a covariate**

*ANCOVA for Maternal EA controlling for method of play*

EA direct score measures	BPD ( <i>n</i> =25) <i>M (SD)</i>	DPN ( <i>n</i> =25) <i>M (SD)</i>	HC ( <i>n</i> =25) <i>M (SD)</i>	Between group comparisons			
				<i>df</i>	<i>F</i>	<i>p</i>	$\eta_p^2$
Sensitivity	4.38 (1.02)	5.16 (1.32)	6.26 (0.89)	2,69	13.830	<b>&lt;.001</b>	.305
Structuring	4.64 (0.82)	5.14 (1.29)	6.06 (0.85)	2,69	10.068	<b>&lt;.001</b>	.242
Non-intrusiveness	4.50 (1.15)	4.76 (1.36)	6.02 (0.80)	2,69	9.823	<b>&lt;.001</b>	.238
Non-hostility	5.08 (1.14)	6.06 (0.78)	6.52 (0.84)	2,69	8.313	<b>.001</b>	.209

Note: there were no main effects of the covariates: age of mother, working status, or method of play

## Appendix X: Full hierarchical multiple regression statistics for maternal EA

### Exploring the relative contribution of variables on maternal and child emotional availability

Variables	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>p</i>
<i>Maternal sensitivity</i>									
<b>STEP 1</b>						.407	.166	.166	.005
Constant	3.019	.661		4.570	.000				
Mother's age	.064	.022	.367	2.946	.004				
Qualifications 1	.183	.372	.065	.491	.625				
Qualifications 2	.209	.398	.072	.524	.602				
<b>STEP 2</b>						.532	.283	.117	.001
Constant	4.609	.776		5.953	.000				
Mother's age	.043	.021	.245	2.012	.048				
Qualifications 1	.245	.348	.087	.704	.484				
Qualifications 2	.278	.372	.096	.747	.457				
ACE-IQ (binary)	-.158	.047	-.360	-3.382	.001				
<b>STEP 3</b>						.643	.413	.130	.000
Constant	4.483	.708		6.336	.000				
Mother's age	.032	.020	.183	1.628	.108				
Qualifications 1	.285	.317	.102	.900	.371				
Qualifications 2	.153	.341	.053	.449	.655				
ACE-IQ (binary)	-.072	.048	-.165	-1.508	.136				
MH severity	-.573	.147	-.429	-3.907	.000				
<b>STEP 4</b>						.663	.440	.027	.204
Constant	.387	2.436		.159	.874				
Mother's age	.029	.019	.169	1.516	.134				
Qualifications 1	.214	.319	.077	.672	.504				
Qualifications 2	.059	.346	.020	-.172	.864				
ACE-IQ (binary)	-.070	.048	-.160	-1.472	.146				
MH severity	-.478	.083	-.358	-2.617	.011				
PSE	.006	.010	.077	.620	.537				
Knowledge	4.722	3.029	.153	1.559	.124				
<i>Structuring</i>									
<b>STEP 1</b>						.416	.173	.173	.003
Constant	3.311	.573		5.780	.000				
Mother's age	.055	.019	.362	2.919	.005				
Qualifications 1	.249	.322	.102	.771	.443				
Qualifications 2	.204	.345	.081	.591	.556				
<b>STEP 2</b>						.487	.237	.064	.018
Constant	4.334	.697		6.222	.000				

Variables	<i>B</i>	SE	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>p</i>
Mother's age	.041	.019	.272	2.165	.034				
Qualifications 1	.289	.312	.118	.924	.359				
Qualifications 2	.249	.334	.098	.744	.460				
ACE-IQ (binary)	-.101	.042	-.266	-2.423	.018				
<b>STEP 3</b>						.589	.347	.109	.001
Constant	4.234	.650		6.513	.000				
Mother's age	.033	.018	.215	1.814	.074				
Qualifications 1	.321	.291	.132	1.102	.274				
Qualifications 2	.149	.313	.059	.475	.636				
ACE-IQ (binary)	-.033	.044	-.087	-.753	.454				
MH severity	-.458	.135	-.394	-3.400	.001				
<b>STEP 4</b>						.599	.359	.012	.527
Constant	2.257	2.270		.994	.324				
Mother's age	.031	.018	.204	1.712	.091				
Qualifications 1	.299	.297	.123	1.006	.318				
Qualifications 2	.120	.322	.048	.373	.711				
ACE-IQ (binary)	-.034	.044	-.088	-.758	.451				
MH severity	-.366	.170	-.315	-2.148	.035				
PSE	.007	.009	.105	.786	.435				
Knowledge	1.893	2.823	.071	.671	.505				
<i>Non-intrusive</i>									
<b>STEP 1</b>						.329	.108	.108	.042
Constant	3.288	.666		4.934	.000				
Mother's age	.054	.022	.317	2.460	.016				
Qualifications 1	-.050	.375	-.018	-.135	.893				
Qualifications 2	.108	.402	.038	.268	.789				
<b>STEP 2</b>									
Constant	5.002	.773		6.470	.000	.501	.251	.143	.000
Mother's age	.031	.021	.182	1.464	.148				
Qualifications 1	.016	.347	.006	.047	.962				
Qualifications 2	.182	.371	.065	.492	.625				
ACE-IQ (binary)	-.170	.046	-.398	-3.658	.000				
<b>STEP 3</b>						.535	.287	.035	.069
Constant	4.938	.761		6.490	.000				
Mother's age	.025	.021	.150	1.210	.231				
Qualifications 1	.037	.341	.014	.109	.914				
Qualifications 2	.119	.367	.042	.324	.747				
ACE-IQ (binary)	-.126	.051	-.296	-2.460	.016				
MH severity	-.291	.158	-.224	-1.849	.069				

Variables	<i>B</i>	<i>SE</i>	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>p</i>
<b>STEP 4</b>						.582	.339	.052	.079
Constant	-.393	2.582		-.152	.879				
Mother's age	.024	.021	.139	1.151	.254				
Qualifications 1	-.094	.338	-.035	-.279	.781				
Qualifications 2	-.055	.366	-.020	-.151	.880				
ACE-IQ (binary)	-.119	.050	-.278	-2.359	.021				
MH severity	-.315	.194	-.242	-1.629	.108				
PSE	-.005	.010	-.071	-.529	.698				
Knowledge	7.365	3.212	.245	2.293	.025				
<i>Non-hostility</i>									
<b>STEP 1</b>						.381	.145	.145	.011
Constant	4.173	.554		7.526	.000				
Mother's age	.050	.018	.349	2.766	.007				
Qualifications 1	-.052	.312	-.023	-.168	.867				
Qualifications 2	.192	.334	.080	.576	.567				
<b>STEP 2</b>						.509	.259	.114	.002
Constant	5.474	.653		8.377	.000				
Mother's age	.033	.018	.229	1.845	.069				
Qualifications 1	-.002	.293	-.001	-.005	.996				
Qualifications 2	.249	.314	.104	.794	.430				
ACE-IQ (binary)	-.129	.039	-.356	-3.286	.002				
<b>STEP 3</b>						.575	.330	.071	.009
Constant	5.397	.626		8.615	.000				
Mother's age	.026	.017	.182	1.521	.133				
Qualifications 1	.023	.281	.010	.083	.934				
Qualifications 2	.172	.302	.072	.572	.570				
ACE-IQ (binary)	-.077	.042	-.211	-1.810	.075				
MH severity	-.351	.130	-.318	-2.707	.009				
<b>STEP 4</b>						.620	.384	.054	.061
Constant	.530	2.118		.250	.803				
Mother's age	.024	.017	.168	1.435	.156				
Qualifications 1	-.082	.277	-.035	-.296	.768				
Qualifications 2	.033	.300	-.014	-.109	.913				
ACE-IQ (binary)	-.071	.041	-.197	-1.730	.088				
MH severity	-.319	.159	-.288	-2.005	.049				
PSE	-3.80SE-5	.009	-.001	-.004	.996				
Knowledge	6.271	2.634	.246	2.381	.020				
<i>Child responsive</i>									
<b>STEP 1</b>						.443	.196	.196	.001
Constant	2.365	.705		3.356	.001				
Mother's age	.074	.023	.390	3.185	.002				

Variables	<i>B</i>	SE	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>p</i>
Qualifications 1	.350	.397	.115	.883	.380				
Qualifications 2	.205	.425	.065	.483	.631				
<b>STEP 2</b>						.542	.293	.097	.003
Constant	3.938	.837		4.708	.000				
Mother's age	.053	.023	.279	2.303	.024				
Qualifications 1	.412	.375	.135	1.098	.276				
Qualifications 2	.274	.402	.087	.682	.498				
ACE-IQ (binary)	-.156	-.328	-.328	-3.103	.003				
<b>STEP 3</b>						.632	.357	.107	.001
Constant	3.814	.777		4.907	.000				
Mother's age	.042	.021	.222	1.957	.054				
Qualifications 1	.452	.348	.149	1.297	.199				
Qualifications 2	.151	.374	.048	.402	.689				
ACE-IQ (binary)	-.072	.052	-.151	-1.366	.176				
MH severity	-.564	.161	-.389	-3.504	.001				
<b>STEP 4</b>						.913	.833	.433	.000
Constant	-.370	.519		-.712	.479				
Mother's age	.012	.012	.065	1.060	.293				
Qualifications 1	.186	.186	.061	.997	.322				
Qualifications 2	.008	.199	.002	.038	.970				
ACE-IQ (binary)	-.004	.028	-.009	-.157	.875				
MH severity	.030	.095	-.020	.314	.754				
Mum sensitivity	.933	.070	.859	13.284	.000				
<i>Child involvement</i>						.427	.182	.182	.002
<b>STEP 1</b>									
Constant	2.590	.689		3.761	.000				
Mother's age	.064	.023	.349	2.826	.006				
Qualifications 1	.551	.388	.187	1.421	.160				
Qualifications 2	.024	.415	.008	.057	.955				
<b>STEP 2</b>						.479	.229	.047	.043
Constant	3.649	.847		4.310	.000				
Mother's age	.050	.023	.272	2.150	.035				
Qualifications 1	.592	.380	.201	1.561	.123				
Qualifications 2	.070	.406	.023	.172	.864				
ACE-IQ (binary)	-.105	.051	-.228	-2.063	.043				
<b>STEP 3</b>						.529	.280	.051	.030
Constant	3.566	.825		4.323	.000				
Mother's age	.043	.023	.232	1.871	.066				
Qualifications 1	.619	.370	.210	1.675	.098				
Qualifications 2	-.013	.397	-.004	-.032	.975				

Variables	<i>B</i>	SE	$\beta$	<i>t</i>	<i>p</i>	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$	<i>p</i>
ACE-IQ (binary)	-.048	.056	-.105	-.870	.387				
MH severity	-.378	.171	-.269	-2.214	.030				
<b>STEP 4</b>						.813	.661	.381	.000
Constant	-.237	.717		-.330	.742				
Mother's age	.016	.016	.085	.975	.333				
Qualifications 1	.377	.257	.128	1.468	.147				
Qualifications 2	-.143	.275	-.047	-.519	.606				
ACE-IQ (binary)	.013	.039	.027	.324	.747				
MH severity	.108	.131	.077	.824	.413				
Mum sensitivity	.848	.097	.806	8.7467	.000				

Notes: MH = Mental health; PSE = Parenting self-efficacy; Qualification 1 = dummy variable A-levels/diploma; Qualifications 2 = dummy variable degree/post graduate qualification; Reference dummy variable = GCSE/no formal qualifications

**Appendix Y:** *Examples of post-study comments from mothers with BPD and depression regarding participation*

I was happy to help but also found it helpful for myself..... please let me know if I can be of any help in the future. Thank you so much again!

[my daughter] loved the time spent together. She even asked me if we could come back again soon. Please contact me later when you are doing another part [of research]

If there is anything else I can do please let me know – stuff like this is the biggest positive I take from the whole [BPD] experience

I enjoyed it and my son did too

Thank you and I hope it helps for the future

It's been good – I really didn't know what to expect but it's been good and my daughter enjoyed it too

Thanks again for your help

It was lovely to meet you and I actually quite enjoyed the activities! Challenged my thinking

Thank you. My son asked if you are coming back!

Glad I could help

It was lovely to meet you and feel like a negative has turned to a positive to get a greater understanding of mental health. Thank you for your patience. Take care and good luck with all your research

I really enjoyed it...

I'm really glad I got involved

Thank you so much for coming round I really enjoyed helping you and meeting you... as I say anymore help needed in future, please keep me in mind I'm willing to help for an amazing cause!!! Thank you again so much. Best of luck in everything you do!

Thank you so much. It was really lovely to meet you. Best of luck with the study!  
I really appreciate you speaking to me

Thank you for coming, good luck with everything and I can't wait to hear the results from it

We enjoyed it. I hope your research continues to go well and it really makes a difference

I hope my answers help with your research. Was lovely to meet you and thank you for being so patient with my children