

**USING MIXED METHODS TO EXPLAIN MATERNAL ANGER: EXAMINING THE
RELATIONSHIPS BETWEEN SLEEP AND ANGER AND EXPLORING MOTHERS'
DEVELOPMENT OF ANGER**

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Abstract

Maternal anger has been overlooked as a postnatal mood disturbance. The empirical literature supports a strong relationship between sleep and mental health. Proportions of women experiencing anger and whether maternal-infant sleep problems are associated with anger as a postpartum mood disturbance are unknown.

Social media was used to recruit Canadian mothers of infants between 6 and 12 months of age to complete an online survey about maternal-infant sleep after receiving ethical approval. The survey inquired about maternal-infant sleep quality, maternal fatigue, cognitions about infant sleep, support, anger, and depressive symptoms. A subset of women completing the online survey participated in telephone interviews, with the goal of generating a theory about anger after childbirth. Phone interviews were transcribed and data were analyzed using grounded theory methods.

Of the 278 women who completed the survey, 70% perceived their infant's sleep as problematic. Regarding mood, 31% had high levels of anger and 26% had depressive symptoms above the cut-off score. Robust regression analysis revealed that parity ($b = 1.93, p < .001$), depression ($b = .50, p = .008$), and anger about infant sleep ($b = .46, p < .001$), predicted maternal postpartum anger. An interaction term between anger about infant sleep and infant age also predicted maternal anger ($b = 0.13, p < .001$).

Eighteen mothers described their experiences of anger in their first two postpartum years. Mothers' violated expectations, compromised needs, and being on edge contributed to feeling angry. Appropriate support from partners, family, and others, helped women manage their anger. Absent and inappropriate support prolonged maternal anger about violated expectations and

compromised needs, particularly about infant sleep issues. Participants expressed or suppressed their anger with differing effects on support, relationships, and control.

Anger in the postpartum period has negative effects for women and families; it can be comorbid with insomnia and depression symptoms. Clinician support around evidence-based strategies to promote maternal-infant sleep and family members' support to help meet women's psychosocial and physical needs can reduce anger. Women require screening for anger and sleep problems after childbirth. Policy change required include structural support for women and families in the postnatal period.

Lay Summary

Little is known about mothers' anger in the first year after childbirth. Mental health has been shown to be affected by sleep. We explored links between poor maternal-infant sleep quality and maternal anger using a survey study about sleep and mood. Canadian women with infants between 6 and 12 months of age completed the survey and a subset of women, with high anger scores, were interviewed. Having more children, higher levels of depressive symptoms, and more anger about infant sleep predicted mothers' overall anger. From interviews, women reported that the combination of broken expectations, especially around infant sleep, unmet needs, and being on edge contributed to feeling angry. Mothers should be assessed for anger and sleep problems after childbirth and be supported by clinicians and family members to meet their sleep and emotional needs. More structural supports are needed for women and families in the postnatal period.

Preface

This dissertation is the original, unpublished, and independent work of the author, Christine Ou. The research described in this dissertation was approved by the UBC Behavioral Research Ethics Board (H18-03761). The members of the supervisory committee, Dr. W.A. Hall, Dr. P. Rodney, and Dr. R. Stremler, provided guidance and support with developing this project, data analysis, and critical review of the written dissertation. Christine developed the research question, designed the research methodology, collected the survey and interview data, performed all statistical and qualitative analyses, and wrote all the drafts of this dissertation.

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List of Abbreviations

BISQ – Brief Infant Sleep Questionnaire

EPDS – Edinburgh Postnatal Depression Scale

ISP – Infant Sleep Problems

MAF – Multidimensional Assessment of Fatigue

PMAD – Perinatal Mood and Anxiety Disorders

PND – Postnatal Depression

PPPPSS – Pacific Post Partum Support Society

PSQI – Pittsburgh Sleep Quality Index

SAS – State Anger Scale

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Dedication

I dedicate this dissertation to all the women who courageously shared their experiences with me,
and to all individuals and families who have been affected by perinatal mood and anxiety
disorders.

Chapter 1: Introduction

Unlike postpartum depression and anxiety, anger has been a neglected mood disturbance after childbirth (Ou & Hall, 2018). There is a lack of clarity about the factors that are associated with maternal anger although evidence supports a connection between postpartum depressive symptoms and anger (Ou & Hall, 2018). This dissertation demonstrates the connections between anger and maternal-infant sleep in the latter half of the first year after childbirth using a quantitative study. A qualitative study was also used to generate a theory about maternal anger in the first two years after childbirth.

1.1 Dissertation Outline

This dissertation has six chapters. This chapter (Chapter 1) provides an overview of the background, aims, significance, problem and purpose, and research questions. I introduce maternal postnatal mood disturbances (PMD), namely anger and depression, and their relationship with maternal-infant sleep in brief. In Chapter 2, I describe a relational theory of autonomy, which is the theoretical framework that is used to guide this study. I elaborate upon PMD and maternal-infant sleep by providing a review of the empirical and theoretical literature that supports the variables that I have examined. The review also highlights knowledge gaps that inform my research questions. In Chapter 3, I provide the rationale for using mixed methodology and a detailed description of how I operationalized the variables that I examined, recruited participants, analysed variables, developed a grounded theory about maternal anger, and managed ethical considerations and procedures for this research. Chapter 4 consists of the results of the cross-sectional survey, constituting the quantitative portion of this mixed methods study, while Chapter 5 provides the results of the grounded theory study, constituting the qualitative portion of this mixed methods study. Finally, Chapter 6 includes the discussion of the key

quantitative and qualitative findings, meta-inferences made from the two studies as situated in the current literature, the knowledge mobilization portion of this dissertation and a discussion of implications for future research, and nursing education and practice. The time frame after childbirth is frequently referred to as the postpartum or postnatal period (World Health Organization, 2010). Throughout this dissertation, the term ‘postnatal’ and ‘postpartum’ are used interchangeably.

1.2 Background

Contrary to popular notions of childbirth being a joyous occasion, the postnatal period can be a tumultuous time for some women (Darvill, Skirton, and Farrand, 2010). Childbearing increases vulnerability to postnatal mood disturbances such as anxiety, posttraumatic stress, and, most commonly, depressive symptoms (O’Hara & Wisner, 2014). Arguably the most commonly recognized PMD is postnatal depression (PND) with estimates indicating that 13 to 18% of childbearing women are affected (Hahn-Holbrook, Cornwell-Hinrichs, & Anaya, 2018; O’Hara & McCabe, 2013). PND has been described as a mood disorder and as maternal psychological distress (Beck 2006; Wells, Hobfoll, & Lavin, 1999), with many documented adverse effects for the wellbeing of women, their children, and their families (Field, 2010). In the process of exploring PND, women have also reported anger arising from personal losses and increased stress associated with motherhood without adequate support (Beck, 2002; Horowitz, Chang, & Hayes, 2001; Wells et al., 1999). But maternal anger during the postpartum period has been largely neglected in perinatal research. In general, women’s postnatal mood disturbances have been associated with reports of fragmented and curtailed sleep (Bhati & Richards, 2015; Posmontier, 2008; Sadeh, Tikotzky, & Scher, 2010; Teti & Crosby, 2012). Maternal sleep is influenced by infant sleep and infant night waking after childbirth (Sadeh et al., 2010). However,

the relationship between maternal anger and maternal sleep quality is unclear; current literature does not clearly delineate relationships between maternal sleep problems, anger, and PND. In this chapter, I provide a broad overview of relevant empirical findings about maternal anger, PND, maternal and infant sleep problems, and highlight the gaps in knowledge pertaining to maternal sleep and mood problems.

1.3 Postnatal Mood Disturbances

After childbirth, PMDs may manifest in a variety of forms, often temporally starting with the postnatal blues. This section will describe maternal anger and depressive symptoms as distinct yet frequently co-occurring mood problems after an explanation of how PND has been used as a label for all PMD to the detriment of recognizing anger as a distinct mood problem.

1.3.1 Postnatal Blues

Many women report experiencing postnatal or maternity blues during the postnatal period (O'Hara & Wisner, 2014). In contrast to PND, postnatal blues are characterized by a collection of mild overlapping symptoms such as dysphoric mood, crying, and emotional lability; the blues are limited to the first 10-12 days postpartum, and often resolve without intervention (O'Hara & Wisner, 2014). Postnatal blues are thought to be caused by fluctuations in levels of hormones such as estradiol, progesterone, and prolactin after childbirth (O'Keane et al., 2011; Yim et al., 2015). Although postnatal blues represent a mood disorder relatively independent of PND, they are a predictor of PND (Watanabe et al., 2008; Yim et al., 2015). Some researchers have argued that postnatal blues arise from the change in sleeping patterns of new mothers because they experience more fragmented sleep and more time awake at night in response to infant feeding and signaling (Swain, O'Hara, Starr, & Gorman, 1997). Hence, it is possible that initial hormonal

disruption followed by subjective poor sleep quality and daytime dysfunction could contribute to postnatal blues and subsequent PND (Bei, Milgrom, Ericksen, & Trinder, 2010).

1.3.2 Postnatal Maternal Distress as a Spectrum of Mood Disturbances

Depressive symptoms are often equated with PMD in the community (Highet, Gemmill, & Milgrom, 2011) and by clinicians (Leddy, Farrow, Joseph, & Schulkin, 2012). When other mood disturbances in the spectrum of PMD are not recognized by clinicians and women themselves, many women miss being diagnosed and treated, thus suffer the consequences of untreated PMD. Obstacles to identifying PMDs are related to people's conceptualizations of what PMDs look like; PMD is typically viewed as melancholic in nature (Beck & Indman, 2005) which can prevent women who do not present to clinicians (e.g., public health nurses, obstetricians, lactation consultants) as sad and withdrawn from being recognized as needing support. Clinicians and researchers have advocated for the definition of PMD being broadened beyond 'sad' depression to be more inclusive of other psychological distress and mood disturbances such as anxiety; PMD should be seen as involving a constellation of symptoms given that comorbidities with conditions such as anxiety and intrusive thoughts are common (Affonso et al., 1992; Apter et al., 2012; Parfitt & Ayers, 2014; Putnam et al., 2015; Ross & McLean, 2006). The concurrence of depression and anxiety is reflected in the items of popular screening tools used for assessing women during the postnatal period, such as the Edinburgh Postnatal Depression Scale¹ (EPDS) and Beck Depression Inventory-II (BDI-II) (Boyd, Le, & Somberg, 2005). In

¹ When reading the PND literature, it is necessary to distinguish between studies that use a clinical interview to ascertain a diagnosis of major depression, and those that use a screening measure such as the Edinburgh Postnatal Depression Scale (EPDS) to detect the presence of the symptoms of PND. Screening measures serve as tools for detecting possible PND rather than diagnosing PND; even for women who score in the range of possible depression requiring further

contrast to anxiety, anger is rarely recognized as a mood disturbance during the postnatal period by itself or concurrently with PND. The purpose of this research is to examine anger as a mood disturbance in the postnatal period because it has been understudied. It is important to recognize that any of these mood disturbances alone or in combination (e.g., depression, anxiety, anger, and intrusive thoughts) can be distressing for women.

1.3.3 Maternal Anger

Anger is an uncomfortable emotional state that varies in intensity, e.g., from irritation to anger to rage and fury (Spielberger & Reheiser, 2010). As an emotion, anger has been characterized as a transient and multifaceted state that includes physiological, cognitive, and behavioral effects (Kassinove & Sukhodolsky, 1995). Anger, like depression or anxiety, is an emotional response to difficult times (Tavris, 1989). It has been theorized to serve two important purposes – as an expression of objection to undesirable conditions and to serve as a beneficial impetus to remove barriers to achieve a person's goals (Fischer & Roseman 2007; Novaco 2010). People can experience anger when their reality differs from their expectations of a situation due to perceived injustice, wrongdoing, harm, or violation of norms (DiGiuseppe & Tafrate, 2007). Tavris (1989) argued that anger is a process that communicates a breach in a perceived social contract between people. Anger is fluid and complex because it may engender other emotions such as sadness, resentment, guilt, and shame (Tavris, 1989).

Following childbirth, women often assume the primary responsibility for an infant's care, along with managing the increase in household responsibilities from having an additional family

assessment, it would be problematic to equate symptoms of depression with clinical depression (Boyd, Le, & Somberg, 2005).

member (Arendell, 2000; Barnes, 2015). Tronick and colleagues (1997) found that, while mothers can experience heightened positive emotions such as interest, joy, and surprise after childbirth, those feelings do not preclude women from experiencing negative emotions such as anger and sadness.² It is plausible that maternal expressions of anger and distress are reflective of constrained autonomy and inadequate relational supports. Motherhood carries some cost; mothers have reported the transition to motherhood as exhausting, lonely, and associated with loss of personal identity and decreases in time, autonomy, and intimate partner relationship quality (Barclay et al., 1997).

In the postpartum period, women's anger may arise as a result of such changes and in response to the reality of unequal distribution of work and stress related to childcare relative to their partners (Arendell, 2000); excessive responsibilities and stress may be viewed by women as injustices. It may also be the case that anger is a reaction to mothers' unfulfilled expectations for support from those who could be reasonably expected to provide support; lack of adequate support has been identified as a predictor of PND (Yim et al., 2014). Women's sense of autonomy is affected because the relational theory of autonomy proposes that individual autonomy is not possible without the support of others, and support is necessary for wellbeing (Dove et al., 2017; Macleod & Sherwin, 2000; Sherwin & Stockdale, 2017). Relational autonomy is useful as a theoretical perspective for understanding maternal anger in the postnatal period. Relational autonomy illuminates sociopolitical challenges to women's postnatal experiences, such as through the experience of poverty or social isolation. Relational autonomy

² The core empirical argument made by Tronick et al. (1997), supported by their findings, is summarized by the title of the paper "*Postpartum exuberance: Not all women in a highly positive emotional state in the postpartum period are denying depression and distress*".

also highlights relational challenges (e.g., unsupportive in-laws or unhelpful partners) that may affect women's childrearing experience. Anger may serve as a means to call attention to a mother's dissatisfaction or distress with inadequate support and as a mechanism to attempt to change the situation.

Many researchers have demonstrated a relationship between anger and depression outside of the postpartum time frame (Goldman & Haaga, 1995; Kopper & Epperson 1996; Luutonen 2007; Novaco, 2010; Rude, Chrisman, Burton Denmark, & Maestas, 2012); however, the association between anger and depression during the postnatal time frame has been largely overlooked. A small body of literature points to anger as a mood disturbance that may accompany PND for some women (see Affonso et al., 1992; Graham, Lobel, & DeLuca, 2002; Phillips, 2013; Vliegen et al., 2013; Wells et al., 1999). For example, a meta-synthesis of PND found anger and rage to be a recurrent theme in women's PND experiences, which resulted from the frustration of meeting the demands of motherhood and feeling suffocated (Beck, 2002). Some infant sleep literature suggests that mothers who were angrier about their children's sleep were also more likely to be depressed (Hall et al., 2015; Hall et al., 2017).

It is worthwhile to note that although anger has not always been explicitly associated with depression, irritability in association with depression has been recognized. The term 'dysphoria' has been used to describe a mixed state of irritability and depressed mood (Starcevic, 2007). Conceptually, irritability can be difficult to delineate. Dutton (2010) described irritation as low intensity anger and categorized irritability as 'sub-anger' alongside frustration and annoyance. Some researchers consider irritability to be a reduced threshold for anger rather than anger itself (Barata, Holtzman, Cunningham, O'Connor, & Stewart, 2015; Born & Steiner, 1999). Hence, although irritability is a relevant and related feature of postnatal mood disorders, I and others

regard it as a different concept from anger (Ou & Hall, 2018). I argue that the study of irritability does not adequately address anger. Therefore, a specific examination of the construct of anger is necessary.

1.3.4 Postnatal Depression

The Diagnostic and Statistical Manual of Mental Disorders 5th edition (American Psychiatric Association, 2013; DSM-5) characterizes PND as a *major depressive episode* with peripartum onset occurring during pregnancy to 4 weeks after childbirth. However, many clinicians and researchers have argued for longer periods of onset including up to a year postpartum (Gavin et al., 2005; Jones & Cantwell, 2010; O'Hara & McCabe, 2013). According to the DSM (2013), the diagnostic criteria for *major depressive episode* within and outside of the perinatal period include 5 or more of the following: depressed mood, anhedonia, weight loss, insomnia or hypersomnia, fatigue, psychomotor agitation, feelings of worthlessness and guilt, diminished ability to concentrate, and suicidal thoughts among other symptoms. Qualitative studies substantiate these criteria because women have reported feeling mechanical and joyless while going through the motions of providing care for their infants and experiencing progressive despair and isolation (Beck, 1996; Holopainen & Hakulinen, 2019; Knudson-Martin & Silverstein, 2009).

Although PND is one of the most common and incapacitating complications of childbearing, it is frequently underdiagnosed and treated (Stewart & Vigod, 2019). The symptoms of PND vary in their intensity for individuals and in how they are compounded (Knudson-Martin & Silverstein, 2009). Complicating matters is the difference between PND as a clinical psychiatric diagnosis entailing a major depressive episode and less severe forms of depression (e.g., 'minor' or 'subclinical' depression), which can still be distressing for women

and have consequences for maternal functioning and wellbeing (Tietz, Zietlow, & Reck, 2014; Weinberg et al., 2001). Delaney and colleagues (2015) have argued that current research neglects women and families affected by lower levels of depression and anxiety and that addressing mild to moderate mental health symptoms is important given their negative consequences for maternal health and infant health and developmental outcomes. In addition, the empirical and clinical attention given to PND does not adequately address other mood disturbances that mothers experience such as anger and anxiety. By only focusing on PND and not the other facets of maternal postnatal distress, we miss the opportunity to recognize and address other mood disturbances that also have negative impacts on maternal mental health.

1.4 Challenges with Recognizing Anger as a Postnatal Mood Disturbance

Beck and Indman (2005) noted that depression is not necessarily the first or foremost mood disturbance mothers experience; women may identify feelings of irritation and hostile anger but healthcare providers and the public may fail to recognize anger as a valid postnatal mood disturbance requiring management. Moreover, health care providers' use of informal assessment parameters (e.g., relying on impressions of despondency or the mother having a flat affect) contribute to the under-identification of postnatal mood disturbances (Dennis & Lee, 2006). Health care providers hold a wide variety of conceptualizations about postnatal mood disturbances and these conceptualizations are frequently based on DSM criteria for Major Depressive Episode (Place et al., 2015). Delaney and colleagues (2015) found that health care providers were more likely to consciously screen for select symptoms based on severity (e.g., sadness and crying), which risks under-identifying problematic but sub-clinical levels of PND and neglects anger as a mood disturbance. It is possible, and likely, that mothers refrain from displaying any angry affect during interactions with health care providers because women are

more prone to be triggered to anger by individuals within their family circles than by those with whom they do not have a close relationship; women are also aware of the stigma related to public anger displays as being ‘out of control’ (Sharkin, 1993; Thomas, 2005; Praill, Gonzalez-Prendes, & Kernsmith, 2015). Given the rather inconsistent ways that postnatal mood disturbances are conceptualized and understood by health care providers (Place et al., 2015; Legere et al., 2017), it is highly likely that anger as a mood disturbance has been overlooked during the perinatal period. DiGiuseppe and Tafrate (2007) and Cassiello-Robins and Barlow (2016) have argued that anger is the “forgotten” mood problem in clinical research as emotion research has tended to focus on depression and anxiety³.

Mothers often have a difficult time recognizing their own postnatal mood disturbances (Delaney, Dalmeda, & Gaydos, 2015; Dennis & Lee, 2006). Women may view their stress and emotional distress as par for the course or a ‘normal’ development of motherhood – a notion that is often echoed and reinforced by health care providers and family members (Dennis & Lee, 2006). When mothers do recognize their mood disturbances they often experience shame, guilt, and fear of the stigma of mental illness as a result of entrenched and prevailing socio-cultural ideals about motherhood (Arendell, 2000; Henderson, Harmon, & Newman, 2016; Sevon, 2012). Mothers’ perceptions of their depression as personal weakness or failure or not a legitimate illness, as well as their perceived time constraints, also prevent them from disclosing their distress (Kantrowitz-Gordon, 2013; Parvin, Jones, & Hull, 2004). When mothers do recognize their mood disturbances and disclose them to others, facing indifferent, placating, or negative

³ Cassiello-Robins and Barlow (2016) and DiGiuseppe and Tafrate (2007) have underscored the chronic lack of attention to anger as a disorder in the DSM-IV-TR and DSM-5.

responses from family members, friends, and/or health care providers may increase the risk of not pursuing or receiving treatment (Dennis & Lee, 2006; Goodman, 2009).

Complicating the picture is the incongruity between anger as a mood disturbance and societal expectations about childbearing as a joyous time (Johnston & Swanson, 2003). The gaps between expectations and maternal realities may prompt women to silence themselves and suppress anger for the fear of being judged because anger is viewed as unfeminine and not maternal (Fischer & Evers, 2011; Jack, 2001). Anger may even be regarded as potentially dangerous when it is pathologized as a precursor to child-abuse (Mammen, Pilkonis, & Kolko, 2000; Shay & Knutson, 2008). Western societies have viewed anger as a destructive emotion that is irrational and maladaptive; hence it is an emotion that is avoided (Potegal & Novaco, 2010; Tavis, 1989). Societal disapproval about anger as an emotion, in combination with sanctions placed on women's anger likely contribute to clinicians' and researchers' neglect of anger as a mood disturbance for women during the postnatal period.

1.5 Links between Infant Sleep Problems and Maternal Mental Health

Adequate sleep is essential for health, wellbeing, and quality of life for all individuals (Buysse, 2014; Grandner, 2017; Weinberg, Noble, & Hammond, 2016). This is true for infants whose normal growth and development requires adequate sleep (Bathory & Tomopolous, 2017; Paruthi et al., 2016) and for parents who need to be well rested in order to optimally care for their infants (Montgomery-Downs, Stremler, & Insana, 2013) and carry out functions of daily living.

Complicating maternal and infant sleep characteristics are the steady changes to infant sleep-wake patterns and maturation of sleep physiology over the first year of life (Anders, Halpern, & Hua, 1992; Henderson, France, Owens, & Blampied, 2011). By six months of age,

between 20 to 30% of infants are identified as having behavioral sleep problems, which may manifest as high numbers of night wakes, difficulties settling to sleep at bedtime and returning to sleep after night wakes, or a combination of these elements (Bayer, Hiscock, Hampton, & Wake, 2007; Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006; Sadeh, 2004).

Infant sleep problems (ISP) are one of the most common concerns identified by parents who seek out health care providers (Kuhn, 2014; Sinai & Tikotzky, 2012). Not only have chronic ISP been associated with deleterious effects on children's cognitive and behavioral development and health outcomes (Bell & Zimmerman, 2010; Fields, 2017; Hysing, Sivertsen, Garthus-Niegel, & Eberhard-Gran, 2015; Sadeh et al., 2015), they also have negative effects on maternal/parental sleep (Bhati & Richards, 2015; Stremler, Wolfson, & Sharkey, 2016), marital relationships (Medina, Lederhos, & Lillis, 2009; Meijer & van den Wittenboer, 2007), parental mental health (Hall et al., 2015; Martin, Hiscock, Hardy, Davey, & Wake, 2007; Meltzer & Mindell, 2007), and perceived parenting competence (Zaidman-Zait & Hall, 2015). Fatigue, as a result of fragmented maternal sleep from tending to an infant with sleep problems at night, is thought to play a key role in mediating poorer maternal mental health (Bhati & Richards, 2015).

Numerous studies have supported a relationship between ISP and poorer maternal mental health, although the order of occurrence is still a subject of debate in the literature. Problematic maternal cognitions such as feeling angry about infant night wakes or maternal doubt about setting limits around sleep have been associated with depressive symptoms (Hall et al., 2015; Morrell & Steele, 2003) but generalized maternal anger has not been studied. Some researchers have taken the stance that maternal psychopathology and dysfunctional cognitions lead to ISP (Teti & Crosby, 2012) while others characterize ISP as preceding maternal distress and poorer mental health (Bayer, Hiscock, Hampton, & Wake, 2007; Hall et al., 2015; Muscat, Obst,

Cockshaw & Thorpe, 2014). Sadeh and colleagues (2010) have proposed a bidirectional pathway between maternal mental health and infant sleep situated within a web of contextual complexity (e.g., accounting for cultural, environmental, and familial factors) in their transactional model of infant sleep and parenting. Although the transactional model of infant sleep is centered on infant sleep, it is helpful for identifying specific variables (e.g., maternal cognitions about sleep, sleep, and fatigue) that contribute to maternal mental health. Factors contributing to maternal mental health will be explored in depth in the next chapter.

1.6 Significance

Postnatal mood disturbances left untreated are associated with many negative effects. Consequences of untreated postnatal mood disturbances include prolonged maternal depression (Yawn et al., 2012), paternal depression (Paulson, Bazemore, Goodman, & Leiferman, 2016), partner relationship dissatisfaction, partner conflict (Dennis & Ross, 2006; Zelkowitz & Milet, 1996) and relationship breakdown (Reichman, Corman, & Noonan, 2015), impaired mother-infant interactions and attachment (Vliegen et al., 2013; Teti, Gelfand, Messinger, & Isabella, 1995), impaired father-infant interactions (Goodman, 2008; Saxbe et al., 2016), risk for impaired cognitive or psychosocial development for the child (Field, 2010), and, in extreme situations, maternal suicide or infanticide (Lindahl, Pearson & Colpe, 2005; O'Hara & Wisner, 2014).

It is important to study anger as one of the postnatal mood disturbances. Anger as a recurrent mood disturbance confers a unique set of risks. Studies have demonstrated that children are at greater risk of developing their own psychopathology when they have continuous exposure to anger that is directed towards them and to high levels anger between parents (Davies & Cummings, 1994). Anger can occur because of the stressors associated with having young children, underlying parental relationship problems, or financial stress (Kerig, 1998; Turcotte-

Seabury, 2010). Mammen and colleagues (1997) found that women with anger attacks and concurrent depressive symptoms during the perinatal period were less likely to adhere to prescribed psychiatric treatment. Anger has also been found to mediate the effects of depression on parent-to-child aggression (Mammen, Pilkonis, & Kolko, 2000). Although not examined in women during the postnatal period specifically, anger associated with depression in the general population has also been linked with self-harm, greater impulsive behavior, and higher suicidality (DiGiuseppe & Tafrate, 2007; Hawkins et al., 2013). Such findings emphasize the importance of studying and assessing maternal anger in the postnatal period.

As indicated earlier, infants' night waking has been associated with women's sleep loss, fatigue, anger about infant sleep, and depression in the postnatal period (Dennis & Ross, 2006; Hall et al., 2017). Women have indicated anger about infant sleep problems (Hall et al., 2015; Parfitt & Ayers, 2012) and it possible that anger about infant sleep may operate in combination with other factors in the postnatal period to contribute to overall feelings of maternal anger. Given the potential negative effects of sleep disturbance for mother and child, it is not well understood how such negative effects may be amplified in circumstances where mothers experience maternal anger. We are also unclear about whether and how mothers' potential anger about infant sleep converges with anger directed at others in maternal relationships. Exploration of these relationships could inform a more complex understanding of maternal anger. Approaches based on an increased understanding of relational and systemic complexity can support more effective identification of postnatal mood disturbances and interventions for families coping with anger, and sleep loss.

Despite the risks and consequences associated with maternal and infant sleep problems translation of research into practice has been slow. Health care providers frequently report

lacking the expertise or confidence to help parents regarding ISP (Boerner, Coulombe, & Corkum, 2015; Honaker & Meltzer, 2016). Moreover, pervasive beliefs that sleep problems in young children resolve with time (i.e., infants ‘grow out of’ their sleep problems) may contribute to maternal sleep problems being unmanaged, with exacerbation of maternal sleep loss, fatigue, anger, and depressive symptoms. It is also possible that the presence of ISP may contribute to lack of attention to maternal mental health problems because health care providers assume that ISP is the priority issue or problem.

Attention to maternal-child health is a cornerstone of public health and imperative for the wellbeing of society (Morris et al., 2017). The experience of maternal sleep disturbance and mental health problems create a perfect storm of circumstances that are distressing and debilitating for women and families. Understanding levels of maternal anger, depression and sleep problems and the relationships between those variables is important in order to better tailor treatment for postnatal mood disturbances. Previous studies have demonstrated that maternal sleep loss and anger can cause stress and impair parent functioning, parent-child attachment and interaction, and partner relationships (Bhati & Richards, 2015; Meijer & van den Wittenboer, 2007; Teti & Crosby, 2012; Wells et al., 1999). Children’s physical, cognitive, and psychosocial health outcomes are not only significantly negatively influenced by their own fragmented sleep and short sleep duration but also by their parents’ mental health and functioning (Field, 2017). The study aims I propose emphasize the importance of assessing anger when working with families who report disturbed sleep in order to intervene to improve maternal mental health.

1.7 Research Problem and Purpose

As evident in the literature, the effects of PND have been studied in great depth but the links between maternal sleep, and maternal anger have received less attention (O’Hara &

McCabe, 2013); anger and maternal cognitions about sleep have been even more neglected. As such, relationships between maternal anger, maternal and infant sleep disturbances, maternal cognitions about sleep, and depressive symptoms require further study.

To my knowledge, no study has examined the nature of the relationships between mothers' anger, cognitions about infant sleep, social support, state anger, depressive symptoms, and maternal-infant sleep quality. It is unclear if and how maternal anger as a mood disturbance is related to infant sleep. Understanding of the factors that contribute to the experience of maternal anger after childbirth is lacking. Although some work has been done on the reasons for maternal anger and maternal experiences and expression of anger in PND, these factors have not been explicitly framed in the context of maternal-infant sleep experiences. Thus, I determined that further study in this area was important.

1.8 Aims

There were two overarching aims for this doctoral dissertation. First, I aimed to examine the relationships between maternal and infant sleep quality, and maternal fatigue, cognitions about infant sleep, social support, depressive symptoms, anger, and demographic characteristics during the second half of the first postnatal year. The second half of the postnatal year is significant because that is the point when some parents report ISP that they view as failing to follow developmentally normal sleep patterns, i.e. 'sleeping through the night'. At approximately five to six months of age infants start to consolidate and lengthen their nighttime sleep duration (Henderson, France, & Blampied, 2011; Mindell et al., 2016; Sadeh et al., 2010). Second, I aimed to qualitatively explore maternal perceptions and experiences of anger in the postnatal period to develop an understanding of how mothers experience and manage postnatal anger.

1.8.1 Research Aims and Questions

Aim 1: What are the relationships between anger, maternal-infant sleep characteristics, and depressive symptoms for women in the first postnatal year?

1. What are the proportion of mothers reporting:
 - a) High levels of anger on the State Anger Scale (SAS)
 - b) Depressive symptoms above cut-off scores on Edinburgh Postnatal Depression Screen (EPDS)
 - c) Both high levels of anger and significant depressive symptoms
2. What are the relationships between anger, infant sleep quality, maternal sleep quality, cognitions about infant sleep, demographic characteristics, fatigue, social support, and depressive symptoms?
 - a) Examine the correlations between a) anger scores, b) demographic characteristics such as age, parity, gender of infant, socioeconomic status, adequacy of income, marital status, and immigration status, c) maternal-reported infant sleep quality, d) maternal self-reported sleep quality, e) level of fatigue, f) maternal cognitions about infant sleep, g) social support, and h) depressive symptoms.
 - b) Examine the contributions of a) depressive symptoms, b) maternal-reported infant sleep quality, c) maternal self-reported sleep quality, d) level of fatigue, e) maternal cognitions about infant sleep, f) demographic variables, and g) social support to levels of maternal anger.

Aim 2: What are women's perceptions and experiences of anger in the postnatal period?

1. Explain how women develop, experience, and manage anger after childbirth.

1.9 Chapter Summary

In this chapter, maternal PMDs were introduced and maternal anger spotlighted as a neglected PMD. An exploratory examination of the relationships between maternal-infant sleep problems and poor maternal mental health was advanced and key research questions guiding this dissertation study presented.

Chapter 2: Literature Review

This chapter introduces the theoretical framework of relational autonomy that informed this dissertation. The chapter is underpinned by relational autonomy, provides support from the literature for the study variables of interest, and presents evidence from the empirical literature about the relationships between maternal anger, depressive symptoms, and ISP in relation to maternal sleep, cognitions, and social support.

2.1 Relational Autonomy as a Theoretical Framework

Motherhood is a time when women's autonomy is often redefined. Constraints to personal autonomy can arise from providing infant and childcare, undertaking household maintenance, and meeting the demands of looking after the family. Such activities can impede time to meet personal needs, ability to pursue personal goals, and even happiness and well-being. Autonomy has been conceptualized as an individual's ability to make deliberate and informed decisions (Kukla, 2005). Autonomy has been the subject of discourse amongst philosophers and governments because it has been valued philosophically, historically, and politically (Veltman & Piper, 2014). It is also a fundamental pillar of modern bioethics; according to ethical theory, autonomy is a necessary condition for living well (Atkins, 2006; Baylis, Kenny, & Sherwin, 2008; Mill, 1909; Veltman & Piper, 2014). In what follows, I will briefly depict a popular interpretation of autonomy, explain why this conception is problematic, and then introduce relational autonomy as an alternative way of conceptualizing autonomy that can broaden our theoretical lens. I will discuss the fit of relational autonomy with my proposed line of research and explain how relational autonomy informs my research.

2.1.1 Influences on the Modern Ideas of Autonomy

Philosophers such as John Stuart Mill, John Rawls, and Emmanuel Kant have heavily influenced modern conceptualizations of autonomy (Atkins, 2006; Jennings, 2016; Sherwin, 1992). In 1859, Mill argued that all rational adult human beings should have the freedom to determine their life choices and pursuits and to enact these insofar as they do not interfere with another person's autonomy and liberty (Mill, 1909). Respect for personal autonomy is a fundamentally normative principle, which has been enshrined in a number of legal and political systems in the Western world; personal autonomy is privileged in the Canadian Charter of Rights and Freedoms (Bryden, Davis, & Russell, 1994) and the Constitution of the United States (Attanasio, 2018). Dove and colleagues (2017) indicate that current notions of autonomy assume that people are independent, self-interested, and rational decision-makers who will make beneficial decisions for themselves. This conventional individualistic perspective about how autonomy operates has also been entrenched in the tenets of modern-day health care and its enactment of ethical practice (Baylis, Kenny, & Sherwin, 2008). The high value placed upon autonomy is illustrated by the intention of representatives of social institutions to preserve the rights of the individual⁴ (Sherwin & Stockdale, 2017).

2.1.2 Focusing on Relational Autonomy over Individualistic Autonomy

Although there is wide agreement about the rights of the individual being protected, there can be some significant drawbacks to the singular perspective of individualistic autonomy. This

⁴ One such example is the informed consent process. Dove et al., (2017) quotes an American judge, Benjamin Cardozo, who asserted: "Every human being of adult years and sound mind has a right to determine what shall be done with his body; and a surgeon who performs an operation without his patient's consent, commits an assault" (p.10-11). [clear]

perspective fails to attend to the context in which the individual is situated. Context can be described as the people, relationships, social structures (e.g., policies, environment, and institutions), culture, and the operational power dynamics between these entities (Rodney, Burgess, Pauly, & Phillips, 2013). For instance, we may think that a pregnant woman has the autonomy and even moral responsibility to obtain antenatal care, yet there may be relationships, situations, and sociopolitical institutions that hinder a woman's ability to obtain adequate antenatal care. Such hindrances may include an abusive partner, language barriers, substance use, the fear of health care providers' condemnation, family-related barriers (e.g., chronic illness, death in the family), or even lack of supportive relationships that encourage the mother to seek antenatal care (Goering, 2017). There may also be systemic barriers, which can include individual and family poverty and inadequate health insurance coverage, such as can be experienced in the United States (Gadson, Akpovi, & Mehta, 2017). In other words, it is not possible to have a comprehensive understanding of any individual's behavior without attending to their relational and socio-political context. There are harms arising from fully claiming individual autonomy without attention to important contextual and relational influences.

Sherwin (1998) has suggested that a focus on the individual encourages patients to see their own health issues as solely belonging to them, which can increase individuals' feelings of vulnerability and dependence on health care providers to 'fix' them. Perhaps even more detrimental is how a health problem can be medicalized and construed as an individual problem without attending to causes of the problem and other factors at play, such as lack of trauma-informed and culturally safe care (Sperlich, Seng, Li, Taylor, & Bradbury-Jones, 2017).

From a biomedical perspective, PMD is often viewed and treated as individual pathology related to biological alterations or deficiencies, hence treatment is focused solely on the

individual (e.g., Schiller, Meltzer-Brody, & Rubinow, 2014). Yet, we know that there can be other relevant psychosocial factors that contribute to maternal development of anger and other PMD, such as isolation, stress, and lack of support, which are inadequately considered when adopting a biomedical and individualistic perspective of PMD (Graham, Lobel, & DeLuca, 2002; O'Hara & McCabe, 2013; Yim et al., 2014). Overall, the individualistic approach to maternal autonomy does not address influential external factors (Bergum, 1989; Boyd, 2010; Goering, 2017).

I argue that relational autonomy offers a beneficial vantage point from which to examine the lives of new mothers in context as they contend with the multiple changes and stressors associated with caring for a young infant. Rather than conventional approaches to autonomy, which are individualistic in nature, relational autonomy views autonomy as multidimensional. People are social beings who develop the capacity and competency for autonomy through social interaction with others; values that are adopted by individuals are influenced by cultural practices, sociopolitical context, and available resources (Friedman, 2000; Mackenzie, 2014; Sherwin, 1998; 2017).

2.1.3 The Social Nature of Relational Autonomy

A key component of relational autonomy is social relations; Dove et al. (2017) have asserted that it is the quality and nature of social relationships that activate the potential for an individual to flourish. Moreover, individuals do not make decisions purely based on the benefit to them but also consider the interests of persons close to the individual who will experience the effects of his or her actions (Goering, 2017). For example, a mother who is making a decision about returning to work or staying at home will likely consider how the decision would affect her family as well as herself. Bioethicist Jennings (2016) declared that a relational turn in how we

view autonomy “moves away from individuality, but not from the value of individuality” (p.11), while legal-ethical theorist Nedelsky (2011) clarified that a relational approach to autonomy is an account of what makes individuality possible. Thus, in this proposal, when I use the term autonomy, I consider both personal and relational autonomy.

Mackenzie (2014) proposed that there are three premises to a relational conception of autonomy. First, an adequate conception of autonomy would acknowledge human vulnerability and dependency rather than conceiving of persons as entirely rational, self-sufficient, and independent agents. Second, relational autonomy perceives persons and their identities to be embedded in and inextricable from a complex intersection of history, culture, and social rules. For example, we often think of exercising personal agency as exercising autonomy. Relational autonomy theorist Sherwin (1998) gave the example of choosing to undergo cosmetic surgery in order to conform to societal beauty ideals. Although this may suggest that the individual has autonomous choice in this decision, it is actually agency rather than autonomy being exercised. Sherwin (1998) proposed that having a broader definition of autonomy would allow us to differentiate authentically autonomous behavior from smaller acts of personal agency and that this broader conception of autonomy would attend to structural conditions, such as the media and sociopolitical environments, which shape an individual’s choices.

Finally, Mackenzie (2014), in agreement with other relational theorists such as Meyers (2000), Friedman (2000), and Sherwin (1998), posited the third premise of a relational conception of autonomy, which positions it as a means to challenge social conditions that restrict individuals’ abilities to exercise self-determination. Using a relational lens does not restrict considerations of autonomy to the level of the individual, given that contextual factors are examined and considered. This is especially important when examining maternal autonomy

because exercising autonomy is not only related to self-governance and personal agency but also strongly related to the relational and structural supports (or lack of) for mothers. A relational theory of autonomy offers an organizing framework for examining causes and experiences of distress (in particular, anger) that some mothers face after childbirth, and offers possible individual, family, community, and policy-level solutions to mitigate distress.

Becoming a parent is a transformative experience in that the nature of an individual's identity and autonomy changes (Goering, 2017; Bergum 1989; 1997). In becoming a mother, Goering (2017) described a necessary expansion of the notion of autonomy as including the intertwining of needs and desires of dependents with parents' needs and desires thereby increasing the complexity of autonomy.⁵ The parent-child entwining of autonomy serves as a good case example of how socially intertwined people are – they are neither entirely self-ruling nor are they entirely governed by others (Goering, 2017).

2.1.4 Relational Autonomy in the Context of Parenthood

Bergum (1989, 1997) asserted that mothering and parenting are shared undertakings between parents and other caring adults, in addition to necessary supportive environs. Supportive environs and structures may include available, affordable childcare, flexible work hours, a living wage, parental leave, breastfeeding friendly spaces, and places for parents with young children to gather. Goering (2017) posited that recognizing and enhancing relationships, social structures, and norms is necessary to help mothers avoid the notion of motherhood requiring complete self-sacrifice of a woman's interests and identity. A relational understanding of autonomy

⁵ Nedelsky (1999) described this process as 'absorption' rather than as self-sacrifice in terms of constraints to autonomy.

underscores input and support from others as necessary conditions to facilitate individuals' capacity to make autonomous decisions. Goering warns that, by the same token, a person also risks being trapped by others' problematic or outdated expectations. This is especially relevant when we think about the way that mainstream culture has assigned the lion's share of responsibility for the wellbeing of children to women. However, the expectation that individual women should meet all of their children's needs is unrealistic (Goering, 2017).

Goering (2017) has suggested that the mothering can and should be shared with others, such as partners, relatives, and support people, and stated that "nesting our children in a wider set of loving relationships provides support for both mother and child" (p. 10). Goering's arguments are bolstered by empirical evidence - maternal perceptions of isolation and loneliness have been linked with anger and PMD, which speaks to the importance of social support (Beck, 2002; De Choudhury, Counts, Horvitz, & Hoff, 2014; Horowitz, Chang, Das, & Hayes, 2001; Rodrigues, Patel, Jaswal, & de Souza, 2003). Hahn-Holbrook and Haselton (2014) theorized that PMD is a disease of modern civilization in part because parents no longer live amongst kin-groups and multi-generational families that can provide immediate practical support for mothers. The lack of immediate practical support from kin and social isolation speaks to the importance of social relations to help parents with redefining autonomy and maintaining it with an infant in the equation.

2.1.5 Using Relational Autonomy as an Analytic Lens

I use relational autonomy as the over-arching theoretical lens that sensitizes me to interpersonal and contextual factors. A relational autonomy lens situates persons as social, political, and economic beings. Relational autonomy also calls for the examination of structural forces that influence autonomy. Relational autonomy theory fits well with this dissertation for a

variety of reasons. First and foremost, the birth of an infant is a fundamentally relational event in that a mother and child are situated amongst relationships with family members and in social, community, and healthcare contexts. Women's accounts of anger involve issues related to autonomy because mothers have identified losses to personal freedom and space, time for self-care and sleep, and career pursuits as contributing to their distress (Beck, 2002; Klein, Hyde, Essex, & Clark, 1998; Tronick, Beeghly, Wells, Hobfoll, & Lavin, 1999). Becoming a mother involves learning to jointly manage personal needs with an infant's needs, a process that can be made easier with relational support and reciprocity from others (Bergum, 1997; Goering, 2017).

An analytic lens of relational autonomy offers an organizing framework to help support mothers and their children to flourish (Dove et al., 2017). It may be that anger is an affective response to mothers feeling overwhelmed and unable to jointly meet their own and their children's needs. Relational autonomy assumes that an individual's ability to have and to exercise autonomy is supported by others and institutions within a social and systemic context; in other words, relational and structural supports are antecedents of autonomy (Hirani & Olson, 2016; Mackenzie & Stoljar, 2000).

Relational autonomy also offers an alternative way of conceptualizing maternal anger; relational autonomy theory suggests that social relationships have the potential to help mothers adapt to the new norm of balancing and integrating their interests with those of their infants (Goering, 2017). Partners', families', and friends' provision of support (e.g., in the form of infant care, help with household tasks, food and basic needs) can directly decrease the demands of the infant on a mother as well as helping mothers and infants thrive by allowing mothers the time to engage in sleep, self-care, and the space to develop the parenting competencies required to cope with the demands of parenting. The small body of evidence that is available on postpartum anger

indicates that a lack of social support has been associated with anger (Kathree, Selohilwe, Bhana, & Peterson; 2014; Klein, Hyde, Essex, & Clark, 1998; Wells, Hobfoll, & Lavin, 1999).

Moreover, relational autonomy theory is suitable to examine maternal anger in the postnatal period because of its compatibility with and integration of the feminist concept of intersectional identities. Meyers (2000) argued that regardless of social position, “[an] intersectional identity serves as a platform for autonomy” (p.159). Meyers explained that requisite to relational autonomy is an understanding of the effects and implications of gender, race, sexual orientation, and class on developing and attaining autonomy (Meyers, 2000). Moreover, the use of intersectionality as a lens in relational autonomy allows for the recognition that people may simultaneously occupy dominant and subordinate social groups (for example, a woman of high socio-economic status in a patriarchal non-secular state); under those conditions their identities are fused with both the axes of advantage and disadvantage. This perspective would help to explain why women from all socioeconomic classes and cultures can be vulnerable to distress in the postnatal period. Autonomy has been proposed to be integral to wellbeing (Ryan & Deci, 2000; Mill, 1909; Wichmann, 2011); it may be that constrained relational autonomy puts women at risk for postnatal distress in the form of anger. In the next section, I discuss maternal affective distress responses and highlight instances where autonomy-related issues contribute to distress.

2.2 Co-Existence of Anger and Postnatal Depressive Symptoms

Although PND and subclinical depression have commonly been conceptualized by clinicians and researchers as exclusively entailing DSM-5 symptoms of depression (e.g., sadness, anhedonia, and feeling guilty or worthless), a body of literature points to the co-existence of anger and depressive symptoms in mothers (see Ou & Hall, 2018). In that literature, anger that

accompanies PND emerges under different labels, such as “ill-temper” (Williamson, O’Hara, Stuart, Hart, & Watson, 2015) and “frustration” (Highet, Stevenson, Purtell, & Coe, 2014); the labels attest to the presence of anger and depressive symptoms for some mothers.⁶ In a study of perinatal dysphoria, Affonso et al. (1992) found that anger was the most intense and frequent symptom experienced by mothers during pregnancy and in postnatal weeks 2 and 14. Some mothers have also reported experiencing acute rage as a new and distressing aspect of their depression symptoms (Beck, 2002; Chan, Williamson, & McCutcheon, 2009). To our knowledge, the study of postpartum anger has been limited to the confines of concurrent depression symptoms, and this highlights the necessity for further focus on anger as a mood disturbance.

Anger has been implicated in exacerbating maternal mood disturbance because it can produce other strong and negative emotions such as disappointment, shame, and guilt (Beck, 2002; Horowitz, Chang, Das, & Hayes, 2001; Quelopana, 2012). Goering (2009) argued, in the absence of social support from others in the postnatal period, shame and guilt can contribute to eroding parents’ self-trust. A positive correlation between the severity of depressive symptoms and level of anger has been demonstrated (Phillips, 2013; Vliegen & Luyten, 2008; Tronick, Beeghly, Weinberg, & Olson, 1997). Moreover, mothers with PND who have high levels of anger are also more likely to report chronic depression (Kettunen, Koistinen, & Hintikka, 2014; Vliegen et al., 2013; Seimyr, Welles-Nyström, & Nissen, 2013). While we have estimates for the prevalence of PND, the proportion of mothers who experience anger symptoms, or both anger

⁶ Rosenblum, Mazet, & Benony (1997) proposed that there are two major types of PND – “dull and slow”, and “stressed and irritable”.

and depression symptoms, has not been described. It remains unclear if it is the presence of anger that worsens the symptoms of PND, or if the severity of PND predisposes some women to higher levels of anger. However, there are two recurrent themes around anger and depression: powerlessness and having broken expectations (Ou & Hall, 2018).

2.2.1 Powerlessness is Associated with Anger and PND

Although there is a lack of certainty about whether anger or depression occurs first, feeling powerless appears to be associated with concurrent anger and depression. Some reasons why depressed women have reported feeling powerless and angry include: economic hardship and poverty (Kathree, Selohilwe, & Bhana, 2014; York, Volpicelli, Brooten, Charche, & Speicher, 1992); partner conflict and abuse (Kathree et al., 2014; Quelopana, 2012); and feeling trapped by circumstances (Chan et al., 2009; Parfitt & Ayers, 2012). From a relational perspective, poverty limits a person's ability to fully exercise personal and relational autonomy, for example, an individual may experience challenges providing for individual and family needs and having access to opportunities such as higher education and better job prospects, which in turn would benefit the family. Women especially report feeling powerless, angry, and depressed when faced with physical, sexual, or psychological violence in relationships (Kathree, Selohilwe, Bhana, & Petersen, 2014; Quelopana, 2012). A past and current history of relationship violence has been linked with loneliness and perceived lack of relationship reciprocity (Kruse et al., 2014). In such situations, women have their relational autonomy constrained because they may fear the consequences of leaving their partners, including further threats of violence or loss of financial support for themselves and for their children. For women who suffered relationship violence, unintended pregnancies further contributed to their distress (Kathree et al., 2014; Quelopana, 2012). It may be that anger is a defensive reaction to women's sense of

powerlessness and lack of agency. Regardless of the source of anger, experiencing and expressing anger has been correlated with PND symptoms (Bruno et al., 2017; Vliegen & Luyten, 2008).

2.2.2 Mismatch between Reality and Expectations Predicts Anger and Depression

A frequent theme in the literature is the discordance between the realities of motherhood and women's expectations of motherhood; this is particularly the case for first-time mothers (Horowitz et al., 2001), although multiparous mothers are not exempt (Highet et al., 2014). Women express personally constructed beliefs and expectations about motherhood that are largely positive. In combination with ingrained and socially constructed views about women's transition to motherhood as instinctual and easy, women's expectations may contribute to disappointment and frustration when facing the challenges associated with parenting young infants. For example, women in a phenomenological study indicated that having more realistic expectations about motherhood might have prevented the shocking mismatch between reality and their expectations, as well as their resultant distress and anger (Lauer-Williams, 2002).

As indicated by relational autonomy theory, socio-cultural structures and norms influence the expected behaviors of individuals. Childbearing and childrearing are roles that women are socialized to enact; some women may not fully realize the challenges of redefining their autonomy to jointly attend to the needs of their infants as well as themselves in the context of their families and social networks. Maternal anger may play an important role in regaining a measure of autonomy; Meyers (2005) has argued that affective distress serves as a call to re-

examine an individual's autonomy, which can be understood as having personal and relational facets.⁷

Motherhood, especially new motherhood, demands a high degree of relational and formal supports in the postnatal period to promote maternal wellbeing (Yim et al., 2015). Women have reported needing practical, emotional, peer, and informational support in the postnatal period (Logsdon, Usui, Birkimer, & McBride, 1996). Unmet needs for expected support have been associated with anger and depressive symptoms (Ou & Hall, 2018). Many women with PND have described how they did not receive as much support from others (e.g., partners, family members, friends, and health care providers) as they had anticipated (Beck, 2002; Chan et al., 2009; Graham et al., 2002; Kathree et al., 2014; Olshansky & Sereika, 2005; Parfitt & Ayers, 2014). Specifically, a predictor of concurrent anger and depression for mothers has been a lack of practical and emotional support from partners and close family members (Olshansky & Sereika, 2005; Parfitt & Ayers, 2012; Rodrigues et al., 2003) but anger has not been studied outside of the context of depression. Mothers reporting depression have also identified anger towards health care providers for not recognizing their distress and intervening to reduce it (Beck, 2002; Lauer-Williams, 2001; Parfitt & Ayers, 2012).

Other disrupted expectations associated with anger and depression are unanticipated losses associated with motherhood. Women have reported loss of sleep time, former body image, freedom, autonomy, perceptions of ability, personal space, time for self, and intimacy (Beck,

⁷ Meyers (2005) argued that the relational self is invested in and enriched by others, such as family and friends; yet, these ties have the potential to threaten personal autonomy when responding to others' needs and fulfilling responsibilities become consuming and restricts meeting personal needs and goals.

2002; Lauer-Williams, 2001; Tronick et al., 1997; Wells et al., 1999). Those losses speak to the need for having a holistic view of autonomy that considers both personal and relational facets of autonomy (Meyers, 2005). Balancing career with newly assumed maternal identity has also produced a sense of loss and conflict (Horowitz et al., 2001; Hyde, Klein, Essex, & Clark, 1995; Wells et al., 1999). Lacking the unencumbered ability to engage in self-care can result in unmet needs, paving the way for distress. A relational autonomy stance emphasizes the importance of a mother's socio-political context, including her network to assist with childcare, so that she is able to attend to her own needs such as getting enough sleep, exercise, and the freedom for some personal pursuits.

2.2.3 Targets of Mothers' Anger in the Context of Depression

Maternal anger in the postnatal period has been examined only in studies about maternal depression. The expression of mothers' anger in the context of depression has manifested inwardly and/or outwardly. A major target for this anger has been the mother herself (Beck, 2002; Horowitz, 2001; Kathree et al., 2014; Rodrigues et al., 2003; Olshansky & Sereika, 2005), suggesting inward anger expression. Because some women have blamed themselves for their situation they directed anger at themselves (Kathree et al., 2014; Kruger, van Straaten, Taylor, Lourens, & Dukas, 2014). Vliegen and Luyten (2008) found that the personality trait of dependency (characterized by a need to be taken care by loved ones of and fear of abandonment) significantly predicted higher levels of anger turned inwards.

Maternal anger in the context of depression has been just as likely, or more likely, to be directed at others. Studies have demonstrated that partners were the foremost target for maternal anger, particularly when mothers did not receive the emotional and practical support they expected partners to provide (Beck, 2002; Chan et al., 2008; Kathree et al., 2014; Shapiro &

Gottman, 2005). Empirical findings indicate that women in intimate relationships are more likely to channel and display their anger to their partners compared with other individuals around them (Jack, 2001; Tavris, 1989). Notably, inequity in the division of childcare and household responsibilities with partners has been associated with anger and depression for women (Ross & van Willigen, 1996). Mothers have also reported anger towards their partners because those partners lacked understanding and empathy about their distress (Chan et al., 2008; Highet et al., 2014), lacked effort/initiative to help them through their depression (Beck, 2002), and neglected to support them in the face of criticism from in-laws and family members (Chan et al., 2008; Horowitz et al., 2001).

Emotion theorists have proposed that anger is a reaction to a violation of autonomy because anger is associated with behaviors aimed at removing obstacles and asserting control (Fischer & Roseman, 2007; DiGuiseppe & Tafrate, 2007). Relational theorist Friedman (1986) has argued that affective responses, such as anger and distress, provide indicators of constrained autonomy. If we accept that affective distress (e.g., frustration) is a part of recognizing that a person's autonomy has been restricted, as theorist Friedman has suggested, then it may be that women show their distress in the form of anger to the people whom they think should and could help to alleviate both personal and relational constraints on their autonomy.

Anger expressed towards children is an event that is most often alarming to women and others because of children's vulnerability and relative powerlessness. Maternal expression of anger towards children can often be the by-product of anger about their circumstances. Maternal anger may be aroused by elements other than children (e.g., a partner) but taken out on children (see for example, Chan et al., 2009; Rodrigues et al., 2003). In other words, children may be on the receiving end of maternal expression of anger even when they are not the source of anger. In

the few studies examining expression of anger, mothers with a depressed mood have indicated that they have expressed their anger verbally and physically to infants and older children (Kathree et al., 2014; Kruger et al., 2014; Rodrigues et al., 2003; Chan et al., 2009). Some mothers reported having to create barriers to prevent them from hurting their children (Beck, 1996). Efforts to protect infants from maternal anger have been linked with women engaging in self-harm rather than taking their anger out on an infant (Wood et al., 1997). For some women, the desire to hurt their infants made them realize that they needed professional help (Kantrowitz-Gordon, 2013). It is unclear why in similar circumstances some women experience anger and some do not. The empirical literature does not examine how women manage their anger in the postnatal period.

2.2.4 Characterizing the Relationship between Anger and Depression

There have been a number of theories about the relationship between anger and depression. Freud proposed that depression is anger turned inward.⁸ However, researchers have abandoned this idea because it has been demonstrated that depressed individuals also express anger and hostility outwards (Goldman & Haaga, 1995; Luutonen, 2017; Painuly, Sharan, & Matoo, 2007). Providing support for the idea that anger and depression are separate constructs, Bowlby (1961) viewed anger as secondary to depression, with anger serving as a means to counter depression. Beck (1967; 1976 in DiGiuseppe & Tafrate, 2007) postulated that anger results from blaming others while depression results from self-blame. Beck also suggested that anger and depression occur in a serial manner (e.g., as alternating mood states) rather than

⁸ This idea is still pervasive today. For example, Blum (2007) theorized that a hallmark of PND is suppressed maternal anger about her unmet needs and subsequent feelings of guilt.

contemporaneously. Relational autonomy theorists acknowledge that there are affective responses to oppression and constrained relational autonomy such as self-judgment in the form of guilt and shame (Friedman, 1986; Goering 2017) but do not specifically theorize the relationship between anger and depression.

Fava, Anderson, and Rosenbaum (1990) conceptualized the presence of anger attacks. Fava and Rosenbaum (1999) later indicated that those attacks affected approximately one third of individuals with Major Depressive Disorder (MDD). Anger attacks are characterized by autonomic arousal that produces an outburst of uncontrollable anger that is inappropriate or excessive given the nature of the trigger and can occur in the context of other psychopathology such as panic disorder, bipolar disorder, generalized anxiety, PTSD, and major depression (Painuly, Grover, Gupta, & Matoo, 2011). Mammen and colleagues (1999) also found anger attacks to be a relevant construct for women with mental health problems such as depression and panic disorder in the perinatal period. The fact that uncontrollable anger is a relevant mood disturbance identified in a proportion of individuals across mental health problems suggests that anger is a distinct construct rather than a symptom of depression (DiGuiseppe & Tafrate, 2007). Nonetheless, antidepressant pharmacological therapy (e.g., fluoxetine) has been effective in reducing levels of anger and hostility in individuals with depression and other mental health problems such as anxiety (Farabaugh et al., 2010; Fava et al., 1996). Investigating anger can assist in illuminating how anger arises and is managed in the postnatal period.

In the light of current theoretical discourse and empirical evidence, it would be difficult and counterproductive to refute a relationship between the constructs of anger and depression. Moreover, evidence indicates that co-morbid anger and depression decrease quality of life; Painuly and colleagues (2007, 2011) found that depressed and angry individuals had

significantly more negative interpersonal encounters and lower quality of life compared to those who were depressed but not angry, and compared to controls. Cassiello-Robbins and Barlow (2016) conjectured that a depressed person's outward anger expression may contribute to strained interpersonal relationships, thereby decreasing their relational support. Loss of support from others, in turn, may worsen depression and anger in a self-perpetuating negative loop, which may disrupt the relationships in women's lives and their respective commitments to personal and others' wellbeing. Loss of support from others is an indicator of constrained relational autonomy (Goering, 2017), which impedes an individual's ability to thrive (Dove et al., 2017). Notwithstanding important relationships between anger and depression it is necessary to also study maternal anger in the postnatal period in its own right.

In relation to quality of life in the postnatal period, Parfitt and Ayers (2012) found that new parents who reported higher levels of parental anger were more likely to also report disappointment and guilt and agree that their experience of parenting was worse than expected. Moreover, anger has been found to worsen the severity of PND (Tronick et al., 1997; Vliegen et al., 2013) and to potentially increase the duration and recurrence of PND (Affonso et al., 1992; Kettunen, Koistinen, & Hintikka, 2014; Phillips, 2013; Vliegen & Luyten, 2008; Vliegen et al., 2013). A number of papers that have examined PND and maternal anger have alluded to infant sleep problems (ISP) as one of the contributing factors that plays a role in mothers' anger (Parfitt & Ayers, 2012, 2014; Phillips, 2013; Wells, Hobfoll, & Lavin, 1999). Sleep represents a basic need and there are consequences for individuals with chronic inadequate sleep (Grandner, 2017). Thus, as discussed in Chapter 1, it is necessary to examine maternal sleep quality in the context of maternal anger.

It is unclear why some women experience acute anger during depression and why some do not, despite experiencing similar conditions, such as feeling powerless and having their expectations violated (Beck, 2002; Chan, Williamson, & McCutcheon, 2009; Ou & Hall, 2018). The majority of the small body of current literature about PND and maternal anger is situated in the early postnatal period. Less is known about the nature of and relationships between maternal anger and depression beyond the first six months. Strong evidence suggests that PND can surface beyond the first six postnatal weeks. In a large retrospective study of 3325 cases of PND requiring hospital visits, 13% of major depression emerged beyond four months after delivery (Franca & McManus, 2018). One possible reason is that the lack of infant sleep consolidation past the normal developmental period of irregular sleep patterns during early infancy, with accompanying prolonged poor maternal sleep quality, is associated with the development of mood disturbances.

2.3 The Linkages between Infant Sleep, Maternal Sleep, and Maternal Mental Health

This section will delineate the empirical relationships between maternal-infant sleep and maternal mental health problems.

2.3.1 Sleep

Human studies show that adequate sleep is vital to the wellbeing of all family members (Bathory & Tomopoulos, 2017). Sleep is complex and multifaceted; at the biological level, the neurophysiology of sleep involves the components of sleep regulation through the circadian system and sleep-wake homeostasis, which are regulated by means of hormones (e.g., melatonin), environmental cues (e.g., daylight), and ultradian rhythms (Bathory & Tomopoulos, 2017). Ultradian rhythms are the sleep state cycles that are characterized by a complete cycle of non-rapid eye movement (NREM) sleep and rapid-eye movement (REM) sleep and the

transitions between them (Silber, Krahn, & Morgenthaler, 2010). NREM sleep has three stages, which involve falling asleep (Stage 1), initiating true sleep (Stage 2), and deep sleep (Stage 3 where one is least likely to awaken to external stimulus) (Silber et al., 2010). NREM sleep is thought to be restorative and restful (Bathory & Tomopolous, 2017). Meanwhile, REM sleep is theorized to play a crucial role in the consolidation and integration of memories (Siegel, 2001). REM sleep is characterized by eye movement bursts, increased brain metabolic rate, dampening of peripheral muscle tone, and decrease in body temperature (Bathory & Tomopoulos, 2017).

Sleep stages occur sequentially and deep sleep precedes REM sleep; it takes an estimated 90 to 110 minutes for all four stages to occur for adults, after each cycle there are brief periods of waking (Silber et al., 2010). In a typical night of sleep, an adult has 4-6 full cycles of NREM/REM sleep (Silber et al., 2010). Sleep is a non-negotiable requisite for optimal functioning; even short-term loss of adequate sleep duration can result in reduced capacity for cognitive functioning and ability to self-regulate emotions (Anderson & Platten, 2011; Lim & Dinges, 2000; Reddy, Palmer, Jackson, Farris & Alfano, 2017).

The birth of an infant frequently initiates the advent of prolonged maternal sleep disturbance, starting from the point of labor and delivery (Stremmler, Sharkey, & Wolfson, 2016). During the first few months of life, irregular infant sleep patterns contribute to maternal sleep disruption (Henderson, France, Owens, & Blampied, 2010; Sadeh et al., 2010). Even as infants' sleep begins to consolidate after four to five months of age (Henderson et al., 2010), challenges with infant acquisition of the ability to self-regulate sleep can prolong maternal sleep disturbance. In the next section, I describe the characteristics of infant sleep in the first year and the variations in the development of infant sleep consolidation that interact with maternal sleep. I then discuss maternal sleep disturbance and its associations with mental health symptoms.

2.3.2 Infant Sleep

Infant sleep has many levels of complexity because it is affected by rapid developmental changes (Henderson, France, & Blampied, 2011). Newborn and young infants spend 16 to 18 hours sleeping (Anders, 1994; Galland, Taylor, Elder, & Herbison, 2012), and sleep is primarily interrupted by the need for nourishment every one to three hours around the twenty-four hour clock (Ball, 2003; Quillin & Glenn, 2004). As the infant grows and matures over the first few months of life, the ability to absorb calories increases while caloric need and the rate of growth decreases; thus, there are notable differences in sleep between early and later infancy such that the number of nighttime feeds decreases and the length of continuous sleep increases (Bathory & Tomopolous, 2017).

Around 6 months of age, the number of hours an infant sleeps per 24 hours decreases to 14-15 hours, with the majority of sleep occurring at nighttime and with the daytime hours being punctuated with 2-3 naps (Anders, 1994). A complete infant sleep cycle is shorter than those of an adult sleep cycle, lasting between 45-60 minutes and gradually increasing to adult length in later childhood (Anders, 1994; Bathory & Tomopolous, 2017). Because of the shorter period of their full ultradian cycle, infants have more periods of physiological waking between cycles. There is arousal between sleep cycles; however, many infants will return to sleep by themselves while other infants will signal their parents by crying or making sounds (Anders, Halpern, & Hua, 1992).

Over the course of normal development, the ability to consolidate sleep occurs. In a comprehensive review, Henderson and colleagues (2011) identified that the average longest sustained sleep period (LSP) (defined as continuous sleep that is terminated by a transition to

wakefulness) was 3.5 hours ($SD = 1.21$) at 1 month of age, increasing to 5.8 hours ($SD = 2.25$) at 6 months of age.

By 6 months of age infants acquire a relatively stable sleep-wake system as described previously; a major developmental task at this stage includes establishing a sustained period of uninterrupted sleep throughout the night with minimal parental intervention (Anders, Halpern, & Hua, 1992; Sadeh et al., 2010). Importantly, Henderson and colleagues (2011) distinguish between longest sleep period (LSP) and longest self-regulated sleep period (LSRP). The longest self-regulated sleep period requires an infant to independently reinitiate sleep after physiological wakes between sleep cycles during night time through self-soothing. In contrast to the values provided for LSP, LSRP has been reported as an average of 6.98 hours ($SD = 1.96$) at one month of age, and 9.7 hours ($SD = 1.98$) for a 6-month-old infant (Henderson et al., 2011). However, the length of LSRP varies a lot within groups of similarly aged infants. In a large longitudinal study of over 1200 infants, Weinraub and colleagues (2012) found that up to 34% of the infants at six months of age could be described as “transitional sleepers”, meaning that they had 7 nights of parent-reported night-wakes when compared with “sleepers” who had 1 night of parent-reported night-waking during a 1-week period. The variability in infants’ sleep partially accounts for ISP, as well as parents’ perceptions of what constitutes ISP.

2.3.3 Infant Sleep Problems

Parents enter the early stages of parenting with a diverse range of perceptions and expectations about infant sleep (Sadeh, Flint-Ofir, Tirosh, & Tikotzky, 2007). Common expressions such as “sleeping like a baby” likely contribute to soon-to-be parents’ internalizing cultural beliefs about infant sleep. Parents are frequently concerned about their infants’ sleep, including the length of time to fall asleep (also known as sleep latency), the extent of measures

required by parents to help children fall asleep (e.g., breastfeeding to sleep, bed-sharing), and, finally, levels of parental involvement to assist infants to reinitiate sleep (Henderson et al., 2011; Sadeh, 2004). An ostensible milestone for parents is the infant's development of the ability to sleep through the night, but parents are often unclear as to when this is developmentally possible. Henderson and colleagues (2010) found that by around 5 months of age, half of typically developing infants were able to match the criterion of sleeping through the night as uninterrupted sleep between 2200 hours and 0600 hours. However, this suggests that a large proportion of infants, while physiologically capable of sleeping through the night, are still in the process of acquiring the ability to self-soothe back to sleep between sleep cycles, contributing to what is perceived by some parents as ISP.

2.3.3.1. Classifying infant sleep problems. The American Academy of Sleep Medicine (2005) (AASM) broadly classifies ISP as behavioral insomnia of childhood (BIC) using the revised International Classification of Sleep Disorders (ICSD-II). Accordingly, there are three categories of BIC, which include sleep onset association type, limit-setting type, and a combined type. Sleep associations are requisite actions, behaviors, or objects that help the child to fall asleep which, when absent, contribute to children's difficulties falling asleep and returning to sleep after physiological waking (Meltzer, 2010). 'Positive' or sleep-promoting associations (e.g., thumb sucking, having a familiar blanket, or a dark room) are those that are easily maintained without parental assistance at bedtime and throughout the night during physiological wakes; 'negative' associations require a high degree of parental involvement (e.g., rocking, feeding, or touch) to assist infants to return to sleep (Anders, 1994; Meltzer, 2010). Negative associations are problematic because, when children wake in the middle of night, they cannot

recreate the conditions that they need to sleep, leading to parent signaling usually via crying or vocalizing (Meltzer, 2010).

The limit setting type of BIC involves a lack of parental consistency with enacting and maintaining a consistent and appropriate bedtime routine (Meltzer, 2010). Immediate parental responses to infant signaling such as crying, or even to non-distressed vocalizations such as cooing or babbling, can reinforce the need for high parental involvement to help the baby initiate sleep and return to sleep (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). Not only does the need for parental intervention to help an infant return to sleep interrupt the parents' sleep, it can also contribute to infants' fragmented sleep, with longer night wakes, and shorter sleep duration (Sadeh et al., 2010).

Many instances of ISP reported by parents include problems with limit setting and sleep onset associations, moving into the third type of BIC, which is a combination of these conditions. Mindell and colleagues (2006) have noted that the ICSD-II definitions are rarely used in research, if at all, to operationalize criteria for sleep problems in infants and young children. The AASM (2005) proposed that a moderate behavioral sleep problem for children could be defined as waking two or more times per night, or more than 15 minutes per night for at least 5 nights per week for 3 or more months, and/or taking more than 20 minutes to settle to sleep.

2.3.3.2. Infant self-soothing at nighttime. Sleep resistance and difficulties with sleep maintenance are recurrent topics in ISP. The inability to self-soothe or self-regulate when falling asleep or back to sleep has been regarded as the major component of ISP (Anders, 1994; Sadeh, 2010; Weinraub et al., 2012). Self-soothing has been described as an infant's ability to regulate arousal states, such as calming from crying to settling into a quiet wake state without parental intervention (Burnham, Goodlin-Jones, Gaylor, & Anders, 2002). Self-soothing back to sleep

differentiates infants who are perceived as sleeping or not ‘sleeping through the night’ (Anders, 1994; Tikotzky & Sadeh, 2009). Infant signaling to parents for help to return to sleep often creates a negative feedback cycle because parental responses interfere with infants developing the ability to self-soothe, and reinforce infants’ behavior patterns of alerting their parents to their wakes (Goodlin-Jones, Burnham, Gaylor & Anders, 2001; Karraker, 2008).

Although parental emotional availability is a crucial part of attachment and facilitating infant sleep (Teti, Kim, Mayer, & Counterline, 2010) parents who respond immediately to infants’ signaling, whether distressed or not, unintentionally lengthen infants’ nocturnal wakes and prevent children from learning/practicing self-soothing, with resulting fragmentation of their sleep (Goodlin-Jones et al., 2001; Teti & Crosby, 2012) and the sleep of their nighttime caregiving parent (Meltzer & Montgomery-Downs, 2011). This speaks to the need for mothers/parents to set loving limits as a form of relational support for infants so that they have the space to learn how to self-soothe to sleep.

Sullivan and Niker (2018) use ‘maternalism’ as a figure of speech to describe relational autonomy where a person (e.g., a parent or mother) acts for the benefit of another (e.g., an infant) in a way that takes into account his or her (the infant’s) autonomous agency.⁹ Autonomous agency, according to Sullivan and Niker (2018) refers to an individual’s capacities and competencies. In *maternalism*, justified interventions such as controlled comforting or breaking negative sleep associations, benefit both the infant and the relationship between parent and child by the way of supporting autonomy competencies (i.e., allowing the infant the space to learn how

⁹ This is parallel to a body of work by Zeegers, Colonnese, Stams, & Meins (2017) relating to parental *mentalization* and sensitivity, which is the parental ability to take appropriately into account an infant’s mental states when interacting with the infant.

to self-soothe and self-initiate sleep) (Sullivan & Niker, 2018). Dove and colleagues (2017) have asserted that supportive environs and relationships allow individuals to develop the capacity for self-regulation and identity formation.

The ability to fall asleep independently and self-soothe back to sleep between sleep cycles is a major developmental task of early childhood (Bathory & Tomopolous, 2017; Burnham, Goodlin-Jones, Gaylor, & Anders, 2002), and the rate at which this occurs differs between infants. There are also changes over time in infants. Weinraub et al. (2012) used growth mixture modeling to identify changes such that, by 18 months, many of the ‘transitional sleepers’ (those who signaled during nocturnal wakes) joined the ‘sleepers’ group by decreasing from signaling every night to signaling one night a week. Normal developmental events may interfere with attaining the ability to self-soothe, such as the eruption of teeth or the development of separation anxiety (Bathory & Tomopoulos, 2017).

2.3.3.3. Maternal cognitions about infant sleep. Cognitions involve the role of parental expectations, beliefs, and interpretations about infant sleep in the context of cultural norms and values (Jenni & O’Connor, 2005; Sadeh et al., 2010; Sadeh, Mindell, & Rivera, 2011). Cognitions are described as beliefs, expectations, attributions, interpretations, and cognitive appraisals of situations a person encounters (Sadeh, Flint-Ofir, Tirosh, and Tikotzsky, 2007; Seimer, 2005). According to cognitive theories of emotion, cognitions can prime emotion and vice-versa; thus cognitions are inseparable from mood disorders such as anger disorders (Owen, 2011; Power & Dalgleish, 2008; Storbeck & Clore, 2007). Goldberg and colleagues (2013) characterized the relationship between maternal mental health and infant sleep quality as being in the “eye of the beholder” because maternal perceptions matter.

Parental cognitions have been identified as playing an important role in ISP by cueing maternal behavior at bedtime and during night-wakes; cognitions act as a filter for how parents understand, interpret, and act on infant sleep activity such as night-wakes (Sadeh, et al., 2007). Based on the underlying assumption that parental cognitive factors play an important role in the development of ISP, Morrell (1999) developed the Maternal Cognitions about Infant Sleep Questionnaire (MCISQ), which includes five categories of problematic or distress-causing thoughts about infant sleep in regards to limit-setting, anger, doubt, feeding, and safety.

In a factor analysis, questions on the MCISQ related to limit-setting cognitions were clustered as the largest factor (accounted for 24.5% of the variance), which suggests that some parents experience problems with resisting infant demands for attention at nighttime and have a low threshold for infant signaling and responding to the infant. High-loading questions in this limit-setting category included “I should respond straightaway when my child wakes at night”, and “If I try to resist my child’s demands at night, then he/she will get even more upset”. The second largest factor on the MCISQ was about anger (accounted for 12.8% of the variance) and contained questions like “when my child cries at night, I think I might lose control and harm him/her”. The category of cognitions around doubt about parenting competence because of infant sleep represented the third factor (accounted for 9.4% of the variance), and high loading questions included, “I should be getting up during the night to check that my child is still all right”, and “when my child wakes at night, I think I might not have given him/her enough attention during the day”. From a relational autonomy standpoint, Goering (2009) proposed that self-trust is a necessary component of autonomy competency (the capacity for autonomous decision-making), and that for new parents this is gradually acquired, depending on skills that are developed over time and the availability of supportive community programs like home visits by

public health nurses or postpartum groups. Likewise, acquiring the ability to competently set limits as parents, allows for infants to learn to self-initiate sleep and for parents to care for themselves so that they can optimally parent and nurture their relationships with their child and family (Dove et al., 2017; Sullivan & Niker, 2018). Thus maternal cognitions about infant sleep are critical to explore in understanding the relationships between maternal mood disturbances and sleep.

The categories of cognitions from the MCISQ have been relevant in predicting ISP in subsequent research. Morrell and Steele (2003) identified that maternal distress cognitions around infant sleep explained 36% of the variance in a logistic regression model of factors associated with infant sleep problems. Hall and colleagues (2015) in an RCT of a behavioral sleep intervention for ISP found cognitions around doubts about managing infant sleep, anger, limit setting, and feeding to be salient factors for families experiencing ISP. In a secondary analysis of that data, Hall and colleagues (2017) found that maternal depression was associated with parental sleep quality, fatigue, and problematic cognitions about infant sleep, especially with regards to doubts about managing infant sleep and anger about infant sleep. To date, I have been unable to locate any examinations of relationships between maternal anger about infant sleep, or doubt about parenting competence related to infant sleep and maternal state anger. Because ISP can affect a significant proportion of infants and ISP have been associated with maternal depression, recruiting mothers of infants with and without ISP provides an opportunity to study anger and depression in the presence and absence of ISP.

2.4 Links between Maternal Mental Health, Maternal Sleep, Social Support, and ISP

There is a well-supported association between ISP and poor maternal mental health, which has commonly been identified as symptoms of depression or anxiety (Goldberg et al.,

2013; Hall et al., 2017; Posmontier, 2008; Sadeh et al., 2010). This association has even led some researchers to question whether depressed childbearing women are ‘sleepy’ or ‘weepy’ (Lee, Zaffke, & McEnany, 2000); however, there is support for fatigue and depression as distinct, albeit related, constructs (Giallo, Gartland, Woolhouse, & Brown, 2016; Giallo, Wade, Cooklin, & Rose, 2011). Giallo et al., 2011 also linked fatigue to parenting hostility and lack of parenting warmth. Some authors have theorized that sleep is a vital resource for subjective wellbeing by acting as a stress management mechanism; thus, when sleep quality and duration are compromised, the ability to manage stress is impaired, affecting subjective wellbeing (Weinberg, Noble, & Hammond, 2016).

Autonomy theorists have professed that autonomy is an important element of wellbeing (Baylis, Kenny, & Sherwin, 2008; Dove et al., 2017; Mill, 1909; Ryan & Deci, 2000); it could be argued that collective sleep is a necessary condition for relational autonomy, which encompasses the wellbeing of all, including child, parent(s), and family within their socio-political contexts. The transition and adjustment to parenthood is regarded as a life stressor and more so when the ability to sleep for adequate and uninterrupted lengths of time is compromised because of persisting infant sleep problems (Eckerberg, 2004). Some mothers of infants with ISP have experienced significantly greater parenting distress and overload than mothers of infants who did not have ISP (Meltzer & Mindell, 2007).

Infant sleep problems have been linked to increased maternal levels of stress (Kennedy, Gardiner, Gay, & Lee, 2007; Sharkey, Iko, Machan, Thompson-Westra, & Pearlstein, 2016). Stress has been implicated as a risk factor for the development of anger (Diong et al., 2005; Martin & Dahlen, 2005), which helps to explain, in part, why ISP have been associated with worse maternal mental health. However, stress about ISP is not the only factor that contributes to

poor maternal mental health. The relationship between maternal mental health and ISP is also influenced by maternal sleep quality (Bayer, Hiscock, Hampton, & Wake, 2007; Lawson, Murphy, Sloan, Uleryk, & Dalfen, 2015). Hisler & Krizan (2017) found that anger tendencies (e.g., trait anger, anger control) explained 2% and 5% of the variance in objective and subjective sleep quality respectively for 436 adults between 25-76 years of age, demonstrating a link between sleep and anger. While there is evidence supporting a relationship between poor maternal sleep quality, ISP, and depressive symptoms, I have been unable to find any empirical studies about the associations between maternal sleep quality, ISP, and anger as a mood disturbance in the postnatal period.

2.4.1 Characteristics of Maternal Sleep and Sleep Disturbance

2.4.1.1. Physiological changes. There are physiological changes to maternal sleep after childbirth. Specifically, changes to melatonin levels and to the circadian rhythm have been identified in the postnatal period; Thomas and Burr (2006) found that women between 4 and 10 weeks after childbirth had higher levels of daytime melatonin secretion and altered circadian rhythm amplitude when compared with nulliparous control women, resulting in increased daytime sleepiness. The authors theorized that this occurred because mothers were spending more time exposed to light at night as a result of waking for infant care.

In relation to sleep architecture, studies have identified that mothers have shorter stage 1 (time falling asleep) and 2 sleep (phase of initiating true sleep), and significantly longer stage 3 (deep sleep) in the first postpartum month (Coble et al., 1994; Driver & Shapiro, 1992; Lee, Zaffke, & McEnany, 2000). It has been speculated that, to compensate for early postpartum sleep loss related to infant care, mothers are more readily able to enter Stage 3 sleep (NREM stage of restorative sleep) (Lee et al., 2000). However, studies have also found that mothers have reduced

REM sleep time (Coble et al., 1994; Lee et al., 2000). The effects are of reduced REM sleep for mothers are unclear (Lee et al., 2000). It is easy to see why the ability to enter deep sleep more quickly would be helpful given that nighttime infant waking can frequently disrupt maternal sleep. Nevertheless, it is not always the case that mothers are able to make up for their sleep losses (Nishihara & Horiuchi, 1998). Furthermore, it is not known if this ability to enter slow-wave sleep quickly is sustained into the latter half of the postpartum year.

2.4.1.2. Sleep disruption. Although hormonal and physiological changes starting in early pregnancy herald less total sleep time and more night awakenings (Coble et al., 1994; Lee et al., 2000), the most dramatic disruption to maternal sleep is in the postpartum period. To illustrate the postpartum shifts in sleep, a longitudinal study using actigraphy (which provides data on sleep-wake patterns using measurements of movement on a wristwatch-like device) found that mothers lost an average of 73.5 minutes of nocturnal sleep between the late third trimester and the first postpartum week (Matsumoto, Shinkoda, Kang & Seo, 2003). In another study that also used actigraphy, Gay, Lee, and Lee (2004) found that mothers lost an average of 41.2 minutes of nocturnal sleep per night in the first postpartum month relative to the duration of nocturnal sleep during the late third trimester of pregnancy. Although the general consensus in the literature is that mothers generally have less nocturnal sleep in the postnatal period compared with pregnancy, loss of nocturnal sleep time is only one aspect of poor sleep quality. Other aspects of sleep quality include wakes after sleep onset (WASO) and the resultant decreased sleep efficiency.

There are a number of studies that have demonstrated the multitude of objective changes to maternal sleep after childbirth, especially in relation to WASO, sleep efficiency, and total sleep time. WASO impacts sleep efficiency; sleep efficiency is the percentage of time spent

asleep compared with period of time devoted to sleep (Insana & Montgomery-Downs, 2013) and has been considered an important indicator of sleep quality (Sadeh, 2015). A National Sleep Foundation indicated that sleep efficiency of 85% or greater is indicative of good sleep quality (Ohanyon et al., 2017). A home-based polysomnography study of ten Japanese mothers who room-shared with their infants found that mothers on average had significantly decreased sleep efficiency in the first (75%), third (77%), and sixth (78%) postpartum week compared to third trimester pregnancy levels (88%) (Nishara & Horiuchi, 1998). In the same study, women's mean number of minutes awake at night was also significantly increased from 22 minutes in the third trimester to 102.7, 76.5, and 71.5 minutes during the first, third, and sixth week postpartum. The most striking value from the study was that mothers' average sleep time at night ranged from 5.2 to 5.7 hours across the 4 time periods, which contrasts with the higher averages found by western researchers using a sleep diary method. Quillin (1997) found that mothers in one sample had 6.15 hours total nighttime sleep time at 4 weeks postpartum, falling short of the recommended 7 hours, while Thomas and Foreman (2005) reported that their sample of mothers slept an average of 7.18 hours per night at 4-10 weeks postpartum.

Using actigraphy to measure maternal sleep demonstrated that mothers had an average of 6.4 hours of sleep duration at night in the first postpartum month (Gay, Lee, Lee, 2004). In a normative longitudinal study, also using actigraphy, Montgomery-Downs and colleagues (2010) found a maternal average of 7.2 hours of nocturnal sleep duration across postpartum weeks two to 16, with no significant changes across the weeks. Based on the same data they found maternal sleep to be quite fragmented, as demonstrated by low sleep efficiency at week 2 ($M = 79.7\%$ $SD = 5.5$); however, this markedly improved by week 16 ($M = 90.2\%$ $SD = 3.5$). In a subsequent study, Insana and Montgomery-Downs (2013) recruited primiparous mothers and their partners

(n=21 couples) between postpartum weeks three to eight. In this study, mothers had longer WASO (M = 88.3 minutes) than fathers (M = 55.6 minutes), with mothers' sleep efficiency averaging 78% and nocturnal sleep duration averaging 6.88 hours (SD = 0.66).¹⁰

The AASM's (2015) consensus statement by Watson and colleagues recommended a minimum of seven hours of sleep per night for adults; the difference between empirical findings about maternal sleep in the postnatal period and recommended duration of sleep demonstrates that some mothers are falling short of the recommended nighttime sleep duration. The studies reviewed also provide evidence that not only are some mothers just meeting or not meeting sleep duration requirements, but also that mothers have highly fragmented sleep as indicated by the number of times they are awakened at night. Some mothers try to make up for lost nighttime sleep by taking daytime naps but sleep fragmentation (rather than sleep loss) has been implicated as the major problem in postnatal sleep disturbance (Montgomery-Downs, Insana, Clegg-Kraynok, & Mancini, 2010; Rychnovsky & Hunter, 2009).

Sleep fragmentation interrupts normal sleep architecture while seemingly preserving total sleep time (Insana & Montgomery, 2013). Fragmentation causes poor sleep quality, as forced awakenings can lead to an accumulation of stage 1 sleep (the stage of falling sleep) and decreases in the amount of restorative sleep (Levine, Roehrs, Stepanski, Zorick, & Roth, 1987; Wesenten, Balkin, & Belenky, 1999). It has been hypothesized that a minimum duration of uninterrupted sleep is necessary to maximize sleep's neurocognitive benefit (Bonnet, 1986;

¹⁰ It is worthwhile to note that paternal sleep has less attention than maternal sleep and is often studied in comparison to maternal sleep (e.g., Gay, Lee, & Lee, 2004; Insana & Montgomery-Downs, 2013) or as a moderating factor for maternal sleep (Tikotzky et al., 2015). There have been recent calls for more attention to the examination of paternal sleep when examining infant/child, and family sleep (Bernier, Tetreault, Belanger, & Carrier, 2017; Tikotzky, 2017).

Stepanski, 2002), and it is thought that stage 1 sleep does not achieve the recuperative benefits of the later stages of sleep (e.g., NREM and REM) (Wesenten et al., 1999). Moreover, sleep fragmentation has the same deleterious effects on cognitive function as sleep deprivation, including impaired vigilance, short-term memory, and reaction time (Ko, Fang, Tsai, & Hsieh, 2015; Reynolds & Banks, 2010). The literature also indicates that sleep fragmentation affects mood negatively, with subjects reporting feeling more fatigued, sleepy, depressed, tense, irritable, and anhedonic; these effects differ from sleep deprivation in degree rather than in their dimensions (Bonnet & Arand, 2003; Stepanski, 2002). Insana and Montgomery-Downs (2013) found that postnatal fragmented sleep had an effect on maternal cognitive performance where mothers had more objectively fragmented nighttime sleep than fathers. During a series of daily psychomotor vigilance tests (PVT) mothers performed significantly worse than fathers ($d = 0.70$, $p = 0.03$) (Insana & Montgomery-Downs, 2013).

Although there is evidence that maternal sleep continues to be disturbed after children have grown beyond infancy (Meltzer & Mindell, 2007; Sivertsen, Hysing, Dorheim, Eberhard-Gran, 2015; Weinraub et al., 2012), there is a paucity of studies about the characteristics of maternal and infant sleep beyond 6 postnatal months, with two exceptions. Thomas and Spieker (2016) collected cross-sectional self-report data on sleep-wake disturbance and fatigue at 8 postnatal months and found a modest correlation between maternal sleep disturbance and infant sleep; however, contrary to the authors' hypothesis, infant sleep disturbance did not correlate with maternal fatigue or depression. Although the authors implicated the presence of a chaotic household environment and lack of routine (as measured by Chaos, Hubbub, and Organization Scale) as the major drivers of maternal fatigue, sleep disturbance, and depression, it is also plausible that maternal fatigue and depression both contributed to a chaotic household. Coble and

colleagues (1994) collected sleep EEG data throughout pregnancy and 1 and 8 months after childbirth from mothers with an affective disorder (anxiety or depression) and mothers without an affective disorder. They found that mothers with an affective disorder continued to be more likely to have markers of poor sleep (e.g., reduced REM sleep latency¹¹) at 8 months after childbirth. There is a gap in our understanding of the maternal sleep characteristics and their contributions to maternal anger in the latter part of the postnatal year as PMD can continue to occur past the first year after childbirth (Franca & McManus, 2018). Studies are required to elucidate relationships between postnatal anger and sleep past the initial months after birth.

From a maternal perspective, sleep is a major concern in the postnatal period and a recurrent theme in the experience of PND (Beck, 2002; Parfitt & Ayers, 2012; Ugarriza, 2002). Fragmented sleep is a feature of postnatal maternal sleep that is almost universally associated with the subjective feeling of fatigue (Giallo, Rose, Cooklin & McCormack, 2013; Hunter, Rychnovsky, & Yount, 2009; Lee & Zaffke, 1999; Montgomery-Downs, Stremler, & Insana, 2013). Fatigue can be described as a self-recognized state where a person experiences an “overwhelming, sustained sense of exhaustion, and decreased capacity for physical and mental work that is not alleviated by rest” (Loutzenhiser, McAuslan, & Sharpe [2015] citing Hossain, Reinish, Kayumov, & Bhuiya, 2003, p. 224). Maternal perceptions of maternal-infant sleep quality are important factors in predicting mood disturbances (Coo, Milgrom, Kuppens, Cox, & Trinder, 2014; Saxbe et al., 2016). Subjective perceptions of poor sleep quality are associated with fatigue (Insana, Stacom, & Montgomery-Downs, 2011; Loutzenhiser et al., 2015), and

¹¹ Reduced REM latency has been used as a biological marker for sleep disorders (Shrivastava, Jung, Saadat, Sirohi, & Crewson, 2014)

fatigue has been linked to greater parenting hostility and lower parenting warmth (Chau & Giallo, 2014; Giallo et al., 2011). These relationships emphasize the importance of measuring sleep quality and levels of fatigue and examining their relationships when investigating postnatal anger.

2.4.2 Links between Maternal Sleep Characteristics and Mental Health

There is a lack of empirical data about the links between sleep characteristics and maternal anger; however, an area of research that has received a lot of attention is the relationship between maternal sleep and PND. There is abundant evidence of bi-directional links between sleep disturbances and mental health problems such as depression and anxiety across the life span (see systematic review by Alvaro, Roberts, & Harris, 2013). Baglioni and colleagues (2011), in a meta-analysis of longitudinal studies about sleep and depression, concluded that people who are not depressed but have insomnia have a two-fold risk of developing depression. Insomnia and fatigue are listed as two symptoms of a major depressive episode in the DSM-5 (2013). It is, therefore, unsurprising that the link between sleep disturbance and poorer mental health also occurs in the postnatal period.

Dennis and Ross (2006) clarified the nature of maternal insomnia; they reported that women who indicated that their infants' sleep patterns did not allow them to get enough sleep, slept less than 6 hours in a 24 hour period, or were woken up 3 or more times between 10 pm and 6 am, were more likely to have EPDS scores that reflected probable clinical depression. Williamson and colleagues (2015) investigated whether somatic symptoms such as insomnia and fatigue were valid indicators of depression in the postnatal period for women. Using a confirmatory factor analysis of the Inventory of Depression and Anxiety Symptoms (IDAS) scale, they compared the findings of 271 women post birth and 820 women who had not given

birth. They found that insomnia and fatigue were significantly associated with depressed mood amongst women during the postnatal period and were as strongly related to depression amongst women post birth as they were amongst women who had not given birth.

The literature about ISP and their effects on the family confirms the links between maternal depression and sleep disturbance made by depression researchers. In an influential cross-sectional study of 738 mothers, Hiscock and Wake (2001) reported that mothers who perceived their infants' sleep as problematic had higher odds of having depressive symptoms (OR = 2.88, 95% CI [1.93, 4.31]), even after controlling for previous history of depression. However, the risk of depressive symptoms was mitigated if mothers reported good sleep quality for themselves. Bayer and colleagues (2007) found significant correlations between maternal mental health and ISP ($r = 0.32, p < 0.001$) and between ISP and poor maternal sleep quality ($r = 0.55, p < 0.001$). Similar to Hiscock and Wake's (2001) study, Bayer and colleagues also found that good maternal sleep quality attenuated the link between ISP and poor maternal mental health. A recent systematic review of sleep and postnatal mental disorders supported the association between poor maternal self-reported sleep quality and postnatal depression (Lawson, Murphy, Sloan, Uleryk, & Dalfen, 2015).

Adding further support for the link between maternal depression and sleep, the literature suggests that when infant sleep problems are managed maternal mental health improves. In a systematic review and meta-analysis of 9 randomized controlled trials (RCTs) of behavioral interventions for managing ISP, Kempler, Sharpe, Miller, and Barlett (2015) found that the primary outcomes included significantly improved infant sleep duration at night (based on 8 studies) and no changes in number of night wakes (based on 7 studies), and the secondary outcomes included small but significant improvement to maternal scores on the EPDS (based on

6 studies). However, the authors warned that the results of infant behavioral sleep interventions on maternal mood need to be viewed cautiously, based on the high potential for publication bias.¹² A recent RCT supports the findings of Kempler's meta-analysis and provides additional evidence that infant behavioral sleep interventions can improve maternal mental health. Hall and colleagues (2015) found that for 117 intervention families with infants with moderate behavioral sleep problems (parents with a past or current history of depression were excluded at intake), a comprehensive education program delivered by nurses to parents, followed by two weeks of telephone support, led to significant reductions in parents' perceptions of the severity of their infants' sleep problems and in baseline adjusted parental fatigue and depression relative to controls. Current studies leave unanswered how interventions for infants' sleep improve maternal mental health. It is probable that improvements in maternal symptoms of depression are mediated by improvements to maternal sleep patterns and fatigue after the amelioration of ISP (Mindell, Kuhn, Lewin, Meltzer, & Sadeh, 2006). Hence it is critical to examine the characteristics of maternal sleep and sleep disruption in the postnatal period and to specifically study maternal anger.

2.4.3 Maternal Subjective Perceptions

Strong links between adult insomnia and depression have been found in the general literature (Baglioni et al., 2011; Buysse, Angst, Gamma, Ajdacic, Eich, 2008), and a recent systematic review supports the relationship between depression and poor sleep in the postnatal

¹² In comparison to the fail-safe N of 65 calculated for the positive effect of behavioral sleep intervention on infant sleep duration, Kempler et al. (2015) calculated a fail-safe N of 4, which can be interpreted as only requiring 4 studies (presumably unpublished) to have negative findings to negate the overall benefit of infant behavioral sleep interventions on maternal mood.

period (Lawson, Murphy, Sloan, Ulyrek, & Dalfen, 2015). However, not all sleep-deprived parents develop symptoms of depression. A body of evidence suggests that perceptions of sleep quality mediate the relationship between actual sleep quality and depressive symptoms (Bei, Coo, & Trinder, 2015; Dorheim, Bondevik, Eberhard-Gran, & Bjorvatn, 2009a; Park, Meltzer, Brody, & Stickgold, 2013). Maternal subjective perceptions about their sleep, in tandem with their cognitions about infant sleep, also contribute to postnatal mood disturbances (Teti & Crosby, 2012).

Maternal interpretations of sleep are important for determining the risk of depression. Using the Pittsburgh Sleep Quality Index (PSQI), Dorheim and colleagues' (2009a) cross-sectional population-based study demonstrated that, although close to 60% of mothers had poor global sleep quality at 2 months after childbirth (considered a score > 5 out of a maximum of 21), only 16.5% had depressive symptoms (constituting a score of ≥ 10 on the EPDS out of a maximum of 30). PSQI items that significantly predicted depressed scores on the EPDS included subjective sleep quality (Adj. OR 1.6, 95% CI [1.3-2.0]), sleep disturbances (Adj. OR 2.3, CI [1.8-3.1]), and daytime function (Adj. OR 3.1, CI [2.5-3.8]), even after controlling for other risk factors for PND, such as previous history of depression and partner relationship satisfaction.

In a second and related study, Dorheim and colleagues (2009b) recruited a sub-sample of women ($n=21$) from the previous population study who had EPDS scores ≥ 10 and matched them with women ($n=21$) who had EPDS ≤ 7 with similar characteristics in relation to maternal age, infant age, parity, and postnatal week. They collected actigraphic and sleep diary data for two consecutive weeks. The sleep diary included subjective sleep information, such as daytime function (rated on a scale of 1 to 5), number and duration of WASO, total sleep time, and overall rating of the previous night's sleep (rated on a scale of 1 to 5). Women in the depressed and not-

depressed groups experienced similar amounts of WASO (57 minutes and 56 minutes respectively) and levels of sleep efficiency (86.3% and 86.6% respectively) based on objective actigraphic data; however, the women reported significant differences in their perceptions about daytime function. Depressed women had more self-rated daytime dysfunction than non-depressed women. The authors found that there was no association between depressive symptoms and sleep disturbances *unless* study participants perceived that their daytime function was impaired because of their sleep.

Similarly, and in a more rigorous manner, Park, Meltzer-Brody, and Stickgold (2013) identified subjective appraisal of sleep quality as an accurate predictor of postnatal depression symptoms. They followed 25 women in a longitudinal repeated measures design at 5-time points, starting from the third trimester to the 14th postpartum week and collected self-reported mood and sleep data, and actigraphic data. They compared maternal subjective reports of sleep (sleep diary and General Sleep Disturbances Scale [GSDS]) to objective actigraphic measurements for congruence and the respective correlations with depression scores based on the EPDS. Unlike Dorheim et al. (2009b), who did not find a relationship between poor objective sleep and depressed mood, Park and colleagues found significant correlations between depression scores and objective sleep. However, they concluded, based on their regression analysis, that subjective sleep ratings were superior to actigraphic indicators (e.g., sleep efficiency, fragmentation) in predicting EPDS scores because the actigraphic variables were no longer significant after the entry of subjective sleep. Sample size was a limitation to the studies conducted by Dorheim et al, (2009b) and Park et al., (2013). Stremmler, McMurray, and Brennenstuhl (2019) were able to replicate these findings a larger study of 217 women and found that maternal subjective reports (using the General Sleep Disturbance Scale and a single item on perception of maternal sleep

problems) were significantly predictive of maternal depressive symptoms at 6 and 12 months after childbirth when compared with non-significant actigraphic sleep measures. These study findings suggest that maternal perceptions about sleep are important variables in the understanding of depression symptoms but shed no light on effects of maternal perceptions about sleep on maternal anger.

Corroborating the role of maternal perceptions of sleep in depression, Coe, Milgrom, Kuppens, Cox, and Trinder (2014) found that self-reports of poor sleep quality were associated with lower perceived ability to cope with the demands of motherhood, as well as with higher scores on a negative future outlook scale. It appears crucial to examine the perceptions that mothers have about their sleep and function when investigating maternal sleep and mental health. It is probable that mothers are distressed when they do not feel that they can meet their own needs (e.g., sleep) while meeting their infants' needs; prolonged and unmitigated distress likely leads to poor maternal mental health.

2.4.4 The Role of Relational Support in Maternal Mental Health

Support is an important variable to examine when considering postnatal wellbeing and adjustment for mothers during the transition to parenthood (Reid & Taylor, 2015). From a theoretical standpoint, Goering (2009) described the autonomy-limiting aspects of new parenthood as an intersection of stressful circumstances (involving poor sleep, fatigue, inexperience, bodily changes, and having to meet the constant demands of another), mixed with ingrained stereotypes about what an ideal parent is like from the perspective of social circumstances (e.g., societal views and norms). Parents can lose their sense of self-trust, a necessary component of personal and relational autonomy, when they struggle with sleep and daily functioning (Goering, 2009; McLeod & Sherwin, 2000). The process of regaining this self-

trust is in large part rooted in relationality through establishing solidarity with others, such as by interacting with other parents and recognizing shared challenges or getting advice and encouragement from formal supports such as health care providers (Sherwin, 2008; Goering, 2009). These theoretical ideas are supported by the empirical literature.

There is a robust body of research literature that points to lack of support as a risk factor for mood disturbances, most commonly depression (Ehsan & Da Silva, 2015; Wang, Mann, Lloyd-Evans, Ma, & Johnson, 2018) and anger in the context of posttraumatic stress disorder (Wilks, Khalifian, Glynn, & Morland, 2020). This is also the case in the postnatal time frame. In a large sample of 4150 American families, Reid and Taylor (2015) identified that perceived support from partners and family and friends offered significant protection against PND, after taking into account life stressors such as neighborhood safety, moving, miscarriages, and relationship strain. A recent longitudinal cohort study of 1043 Canadian couples also identified that low levels of social support were predictors of maternal and paternal PND (Leung, Letourneau, Giesbrecht, Ntanda, & Hart, 2017).

The common adage “it takes a village to raise a child” illustrates the particular salience of social support for parents and families. Logsdon and colleagues (1996) proposed that there are four types of support that women require during the postnatal period, including emotional, material, comparison, and informational support. Emotional support involves the conferring of love, concern, and encouragement, while material support speaks to the provision of money, food, and labor, such as running errands and doing chores. Informational support acts as a channel for problem solving, while comparison support is help or solidarity given by someone in a similar situation. Sources for these types of support can include partners, family members (maternal parents or in-laws), friends, other peers (e.g., parents from prenatal or postpartum

groups), health care providers, and professionals who work with families. These four categories of support were independently identified in a conceptual analysis of social support by Langford and colleagues (1997). They added that a social network and social embeddedness were antecedents of social support and that positive outcomes of social support included healthy coping abilities, personal competence, and psychological wellbeing, their perspective resonates with relational autonomy which predicates that autonomy is possible with relational and systemic supports. In sum, social connections are a critical component of the childbearing and childrearing experience but are rarely examined in terms of effects on maternal anger.

Kruse, Williams, and Seng (2014) asserted that there is often less emphasis on the negative (the ‘dark side’¹³) aspects of support from others in terms of conflict, possible support costs, and issues of reciprocity. This is concordant with maternal recollections of their PND experiences. For example, maternal accounts indicate that in-laws have actually added to women’s distress because of their failure to see women’s needs and/or because of clashes about infant care (Chan et al., 2009; Rodrigues et al., 2003).

Tilden and Gaylen (1987) posited that social support sometimes comes with cost – the expectation of reciprocity. They suggested that when a person perceives that they have received more than their fair share of benefits, they may feel guilty, while a person who feels inadequately benefited may feel angry and distressed. Studies indicate that women prefer to draw the majority of instrumental and emotional support from their romantic partners (Jack, 2001; Pilkington, Milne, Cairns, Lewis, & Whelan, 2015); however, partners do not always meet expectations for

¹³ Tilden and Gaylen (1987) conceptualized the ‘dark side’ of social support, proposing that there is a positive bias regarding social support irrespective of actual benefits conferred.

support, which can serve as a source of conflict contributing to anger (Fiering, Markus, & Simon, 2020; Nisenbaum & Lopez, 2015). Women have also expressed resentment about having to ask partners for help when they felt it was obvious what needed to be done to support them (Negron et al., 2013). Dennis, Brown, and Brennenstuhl (2017), in developing an instrument to measure postpartum partner support, included the dimension of negative support (criticism from partner and partner being disagreeable), which reduced the support score. They found that lower levels of partner support were associated with higher EPDS and State Trait Anxiety Inventory scores, but they did not examine maternal anger.

What the previous research cited indicates is that the mere presence of family or friends may not translate into the provision of adequate support – for example, extended family members may be causes of tension or may not offer help. Hence, rather than just the existence of a social network, the quality and accessibility of support matters, and these characteristics of support should be examined in the context of PMDs. Although a relational view of autonomy acknowledges relationships and social context as integral parts of facilitating autonomy, existing social norms and the nature of particular relationships may be autonomy-limiting for some mothers. For example, some male partners may assume that the bulk of childcare and household management responsibilities should be shouldered by women, especially if women are not working. In summary, it is important to examine maternal perceptions of social and structural support as it may be a variable that alters the relationship between maternal sleep and anger.

2.4.5 Characterizing the Process of Maternal Postnatal Anger

PND has been described by mothers as making them feel “numb”, “mechanical”, and “feeling really bad about feeling low,” which speaks to the anhedonic and melancholic symptoms of major depression (Beck, 1996; Mauthner, 1999). In qualitative accounts of PND,

women have also recounted feeling uncharacteristic anger and rage (Beck, 2005). However, some qualitative studies of PND may have inadvertently downplayed anger by labeling anger as ‘irrational irritability’ and ‘frustration’ (for example, Beck, 2005; Born & Steiner, 1999; Highet et al., 2015). Beck (1996) provided one of the first accounts of postnatal anger concurrent with depressive symptoms by identifying the theme of mothers’ uncontrollable anger towards their children, using a phenomenological study of 12 mothers. Wood, Thomas, Droppelman, and Meighan (1997), also using a phenomenological approach, interviewed 11 mothers and identified that anger (described as ‘fierce’) was not only directed towards children but also towards partners, women themselves, family members, as well as health care providers, and could last for months. Moreover, women’s anger occurred alongside disturbing impulses of self-injury and harming the infant (Wood et al., 1997). Anger was also a theme in Beck’s (2002) meta-synthesis of the qualitative literature about PND. Anger recurs as subthemes in qualitative accounts of PND (Kantrowitz-Gordon, 2013; Highet et al., 2015; Kathree et al., 2013), but all of these sources provide scant exploration of maternal characterization of anger, development and expression of anger, and outcomes of anger. Characterizing anger as a symptom of PND (e.g., Beck, 2002; Highet et al., 2015) has likely contributed to its lack of investigation as a construct in its own right during the postnatal period.

In a recent meta-ethnographic synthesis of PND in women migrating from low-income to higher income countries, anger was represented in one of four main themes¹⁴ (illustrated as “I am worried, alone, and angry – this is not me”); thus it was featured more prominently as a mood

¹⁴ Other themes in Schmied et al. (2017) included “making sense of my feelings”, “dealing with my feelings”, and “what I need to change the way I feel” (p.2)

disturbance (Schmied, Black, Nadoo, Dahlen, Liamputtong, 2017). Anger was also reported by refugee women on the Thai-Myanmar border to be a salient feature of their perinatal depression experience, which occurred in reaction to the numerous difficulties in their lives, such as worrying about food security, alcohol-drinking behaviors of husbands, and children's wellbeing (Fellmeth et al., 2018).

Depressed mothers in the Wood et al. (1997) and Fellmeth et al. studies (2018) commented that their expression of anger brought emotional relief and was empowering. Specifically, one mother felt she was able to channel her anger effectively to help gain the support she needed from her partner.¹⁵ In this instance, the relational nature of this interaction speaks to making an individual's needs explicitly known. Although we have some idea about what angers women (e.g., inadequate partner support, infant sleep problems, feeling trapped), the lack of attention to maternal anger in isolation from depression contributes to the lack of clarity about processes that lead some women to feel and express, or suppress anger.

2.5 Summary of Gaps in the Literature

The period after childbirth represents a time of increased vulnerability to mood disturbances for women (O'Hara & McCabe, 2013; Beck, 2002). This window of vulnerability to poor mental health continues through the latter half of the first postnatal year (Franca & McManus, 2018). Some evidence suggests that anger and depression can be comorbidities for

¹⁵ The participant in Wood et al. (1997) stated, "I'm not trying to do everything, carry everything, be responsible for everything. The rage empowered me. Maybe it was the first time in my life that I allowed myself [to feel] it. I had never felt so strong and so firm and so assertive in my life as that moment. It was as though [I had] nothing to lose, absolutely nothing to lose. I've visited the depths, I've been there...I don't have to worry about going to hell because I've been there" (p. 5).

mothers in the postnatal period (Ou & Hall, 2018). Any relationships between anger and depression have not been specifically examined in the context of the presence or absence of maternal and infant sleep problems, which have consistently been associated with maternal depression (Alvaro et al., 2013; Lawson et al., 2015). When infants are six months of age and older, behavioral infant sleep problems can be identified when parents observe that their infant is not yet ‘sleeping through the night’ in spite of the expected developmental maturation of sleep patterns (Henderson et al., 2010; Sadeh et al., 2010). In the context of relational autonomy theory, anger may be understood as an affective response to the constraints on personal and relational autonomy arising from the demands of managing infant care without adequate supports. At present, I have been unable to identify a study that has used either objective or self-report sleep measures to concurrently examine the relationships between anger, depression, and sleep quality. Despite ISP emerging as a problem during the second half of the postnatal year, I have identified only two studies (Coble et al., 1994; Thomas & Spieker, 2016) that have examined maternal sleep characteristics after six months of age in relation to mothers’ perceptions about infant sleep problems.

Empirical work has not examined effects of maternal perceptions about maternal-infant sleep on maternal state anger. Although studies have demonstrated the presence of maternal cognitions of anger about infants’ sleep (e.g., Morrell, 1999; Hall et al., 2015), we do not know whether these cognitions are associated with postnatal state anger and depressed mood or both. I have not been able to identify any investigation of maternal experiences of anger in the context of the presence or absence of perceived infant sleep problems. Furthermore, I have been unable to locate any examination of social supports in connection with maternal anger expression and levels of anger. Thus, in this dissertation study I seek to explore of the missing links between

maternal anger, maternal-infant sleep quality, fatigue, social support, depression, and demographic characteristics through a mixed methods approach. The qualitative component of this mixed methods study is intended to shed light on maternal anger development and management in the postnatal period by elucidating women's perceptions of and reflections on anger, causes of anger, and efforts to manage their anger.

In this chapter, I introduced the theoretical framework of relational autonomy informing this dissertation. Relational autonomy provides an analytic lens for empirical and theoretical literature articulating the variables of interest for this study. Further, in situating the empirical foci for my study, I have presented evidence from empirical literature about the relationships between maternal, anger, depressive symptoms, and ISP in relation to maternal sleep, cognitions, and social support.

Chapter 3: Methodology and Methods

As described in the first chapter, the purpose of this study was to 1) examine relationships between anger, maternal and infant sleep quality, fatigue, social support, demographic variables, depression symptoms, and maternal cognitions about infant sleep; and 2) to explain maternal development and management of anger in the postnatal period. To achieve these aims, the following research questions were investigated using a cross-sectional survey and in-depth interviews with a subgroup of survey participants:

Aim 1: What are the relationships between anger, maternal-infant sleep characteristics, and depressive symptoms for women in the first postnatal year?

Question 1: What are the relationships between anger and depression symptoms for women in the latter half of the first postpartum year?

1. What are the proportion of mothers reporting:
 - a) High levels of anger on the State Anger Scale (SAS)
 - b) Depressive symptoms using cut-off scores on the Edinburgh Postnatal Depression Scale (EPDS)
 - c) Both significant levels of anger and depressive symptoms?
2. What are the relationships between anger, infant sleep quality, maternal sleep quality, cognitions about infant sleep, demographic characteristics, fatigue, social support, and depressive symptoms?
 - a) Examine the correlations between a) anger scores, b) demographic characteristics such as age, parity, gender of infant, socioeconomic status, adequacy of income, marital status, and immigration status, c) maternal-reported infant sleep quality, d)

maternal self-reported sleep quality, e) level of fatigue, f) maternal cognitions about infant sleep, g) social support, and h) depressive symptoms.

- b) Examine the contributions of a) depressive symptoms, b) maternal-reported infant sleep quality, c) maternal self-reported sleep quality, d) level of fatigue, e) maternal cognitions about infant sleep, f) demographic variables, and g) social support to levels of maternal anger.

Question 2: What are women's perceptions and experiences of anger in the postpartum?

1. Explain how women develop, experience, and manage anger after childbirth.

3.1 Research Design Overview

I employed a mixed methods design to investigate the research aims and answer the proposed research questions. As described in Chapter 1, the aim of this study was to examine the relationships between anger, maternal and infant sleep quality, fatigue, depressive symptoms, and maternal perceptions of sleep and social support, and demographic characteristics. This was carried out using a cross-sectional online survey. The second aim was to investigate maternal experiences with the development and management of anger, which was carried out by recruiting a subset of women from the survey study for a grounded theory study.

3.1.1 Mixed Methods Design Rationale

At a basic level, mixed methods design can be defined as research that includes both qualitative and quantitative methodology and methods. Mixed methods research, also referred to as integrated-, and multimethod-research, has been described as a means for “multiple ways of seeing and hearing” (Greene, 2007, p.20). Tashakkori and Creswell (2007), two mixed methodologists, defined mixed methods research as collecting and analyzing data, integrating the findings, and drawing inferences by using both qualitative and quantitative approaches/methods

in a single study or program of inquiry. Mixed methods research evolved because of an increasing demand for triangulating research evidence in the health and social sciences (Denzin, 2010; Greene, Caracelli, & Graham, 1989; Johnson, Onwuegbuzie, & Turner, 2007; Morse, 1991).

Mixed methodology has been characterized as an alternative or third paradigm to the traditional quantitative and qualitative paradigms (Creswell & Plano-Clark, 2011; Johnson et al., 2007). In brief, quantitative research stems from a positivist paradigm that has been praised by realists for its objectivity while being criticized for its reductionism by others (Garrett, 2013; Nairn, 2014). Qualitative research stems from an interpretivist or constructionist paradigm and has been affirmed by humanists for offering rich subjective knowledge and greater depth of understanding of phenomena but has been criticized by others for lacking in generalizability (Garrett, 2013; Johnson & Onwuegbuzie, 2004). Rather than taking a singular stance, the proponents of mixed methodology pragmatically reject this dualism in the favor of paradigmatic pluralism and methodological variety, which entails using the research question to determine appropriate method(s) or combination of methods (Bryman, 2006; Johnson & Onwuegbuzie, 2004; Tashakkori & Teddlie, 2010).

The epistemologic and methodologic pluralism underpinning this alternate paradigm offers a rich way to investigate women's anger and associated variables. Mixed methodology as a research paradigm was well suited for the study of anger because it offered multiple analytical pathways for elucidating the relationships between maternal-infant sleep, maternal anger, and other variables, such as depression.

Choosing to use a mixed-method research design served several purposes for this study. First and foremost, my research questions necessitated the use of mixed methods because my

first question was to assess the strength of the relationships between variables related to sleep, fatigue, anger, support, and depression, suggesting a quantitative approach. The second question was to explain the process of how maternal anger develops and is managed, which suggested a qualitative approach. Further, drawing on two different paradigmatic methods to examine the same phenomena offered complementarity in terms of data and evidence. *Complementarity* has been described as the attempt to elaborate upon, enhance, and clarify findings from one method with the findings from another method (Greene, Caracelli, & Graham, 1989). Creswell and Plano-Clark (2011) argued that mixed methods research is useful when one data source is insufficient to provide a detailed understanding of the problem at hand, with each data source having its own limitations. In this case, through using a cross-sectional survey I gained an understanding of the quantifiable associations between sleep quality, fatigue, cognitions, anger, support, and depression; however, to obtain maternal perceptions and experiences of developing and managing anger after childbirth I required a qualitative approach.

Thirdly, complementarity assumes the ability to triangulate data when using a mixed-methods design. *Triangulation* is described as seeking convergence, corroboration, and divergence of findings using different methods, which can increase the external validity of data (Greene et al., 1989; Turner, Cardinal, & Burton, 2016). Li, Marquart, and Zercher (2000) have argued that triangulation in mixed-methods research can also involve comparing multiple data types in addition to the use of multiple methods. My overall purpose behind adopting a mixed methods design was to determine factors beyond those hypothesized (e.g., maternal-infant sleep) that contribute to maternal development of anger and the management of maternal anger by using a qualitative approach to complement the quantitative data. I recruited women with high levels of anger and varying levels of depressive symptoms for in-depth interviews about

postnatal anger (as described in Chapter 5). Turner et al. (2016) have explained that such triangulation of data offers heterogeneity and breadth of understanding in data analysis.

Finally, proponents of mixed methods research assert that, beyond triangulation, it is also possible to make meta-inferences¹⁶ based on a more complete understanding of phenomena achieved through the collection of qualitative and quantitative data (Teddle & Tashakkori, 2008; Venkatesh, Brown, & Bala, 2013). Meta-inferences represent the integration of findings from the qualitative and quantitative strands of mixed methods research (Flick, 2017; Onwuegbuzie, Slate, Leech, and Collins, 2009; Teddle & Tashakkori, 2008); they offer a more holistic perspective on the phenomena under examination. In this study, the quantitative survey and qualitative interviews were necessary to answer different research questions (e.g., what are relationships between variables and what is maternal development of anger). Using a mixed-methods design allowed me to look at other factors that contributed to maternal anger in addition to from those that were hypothesized in this study.

3.1.2 Mixed-Methods Procedural Overview

I addressed the first research aim by using a quantitative approach. Participants were recruited online using social media and were asked to complete an online screening survey which led to the full survey if the participant met the inclusion criteria described in Section 3.2. In order to address the second research aim, I recruited 20 women from the pool of survey participants who had agreed to be contacted for a phone interview about mood after childbirth to participate in in-depth interviews using a grounded theory approach. Because both qualitative and quantitative study contained potential psychological risk to participants, an indepth description of

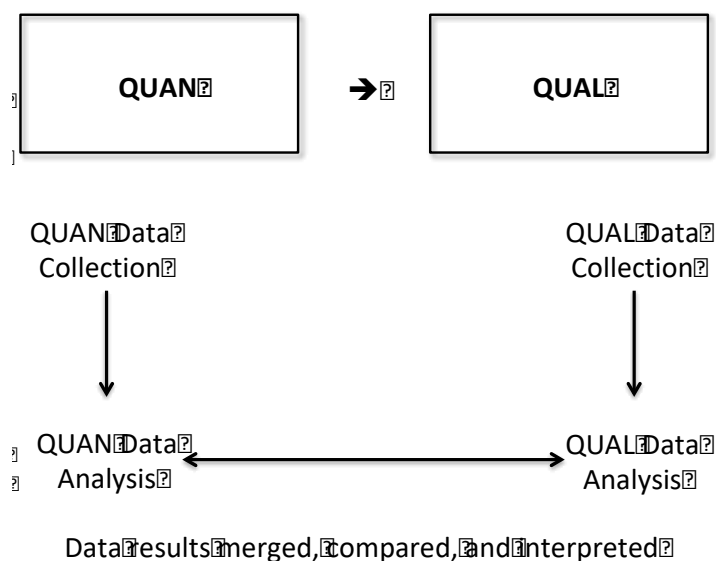
¹⁶ Turner, Cardinal, & Burton (2017) term this as ‘holistic triangulation’.

ethical actions taken to protect participant privacy, confidentiality, voluntariness, and psychological well-being is undertaken in Section 3.7.

There are many typologies of mixed-methods design (e.g., Morse & Niehaus, 2009; Leech & Onwuegbuzie, 2009) and for consistency I adopted the typologies of mixed-methods design used by Fetters, Curry, and Creswell (2013) to describe my study, which is a convergent connecting design. In a convergent design, qualitative and quantitative data are equally weighted, with analysis of each segment performed separately before later being integrated.¹⁷ Connecting signifies the use of a single sampling frame for both qualitative and quantitative data sets. I analyzed the quantitative and qualitative data separately before I made comparisons between the two data sets to create a synthesis of the findings.

Figure 3.1 Diagram of Convergent Triangulation Designs and Procedures.

Adapted from Creswell, Plano Clark, Gutman & Hanson (2003)



¹⁷ Also known as QUAN + QUAL (Leech & Onwuegbuzie, 2009)

3.2 Sample

In this section, I describe the sampling frame for this mixed methods study. This mixed-methods study was explained to participants as a study about mothers and infants, and their sleep.

3.2.1 Inclusion and Exclusion Criteria

Biological mothers of singleton infants with no identified severe health conditions (e.g., premature birth, developmental disability, chronic neurological or respiratory condition, or identified sleep problem with an organic cause) were eligible to be recruited. Women had to be at least 18 years of age at the time of the survey and have an infant between 6 and 12 months of age. Women also had to be residing in Canada and fluent in English. Women who had a past history of depression, a pre-existing sleep disorder (such as sleep apnea or narcolepsy), required prescription medication for sleep, or worked night shifts were excluded using a set of pre-survey screening questions (Appendix A).

3.2.2 Sample Size Estimation

An adequate sample size is needed to achieve sufficient power in order to minimize the chances of making type II errors, which occur when the sample size is not large enough to detect a difference when one exists (Polit & Beck, 2008). GPower version 3.1 was used to calculate the required sample size via an a priori power analysis. GPower is a power analysis program commonly used in behavioral, social, and biomedical research which was created by Faul, Erdfelder, Buchner, and Lang (2009). It can be used to estimate sample size for a variety of statistical tests including multiple regression.¹⁸

¹⁸ GPower was downloaded from: <http://www.gpower.hhu.de/>

As the proportion of postnatal anger is unknown, using Cohen's (1992) criteria I estimated an effect size of $f^2 = 0.15$ in the power analysis, which is considered to be a small to moderate effect size. My calculation was set to achieve statistical power = 0.8 in a two-sided test with type 1 error rate of 0.05 including the use of up to 10 predictor variables¹⁹ and resulted in a projected sample size of $n=118$. I aimed to recruit a minimum of 150 participants in order to account for possible attrition during the survey process.

3.2.3 Quota Sampling

The sample was recruited using quota sampling, a type of nonprobability sampling. The purpose of quota sampling is to ensure diverse segments of a particular population characteristic are represented in the sample (Polit & Beck, 2008). The stratification approach was intended to assist in sampling mothers who were more likely to have higher levels of anger because infant sleep problems have been associated with detriments to maternal mental health (Meltzer & Mindell, 2007; Sadeh, Tikotzky, & Scher, 2010; Teti & Crosby, 2012) and maternal anger about infant sleep (Hall et al., 2015). I attempted to stratify my recruitment using a revised question from Sadeh's (2004) Brief Infant Sleep Questionnaire (BISQ): parental perception of ISP of his/her infant as: 1) not a problem at all; 2) a small to moderate problem; or 3) a very serious problem. I stratified the sample into 3 categories and tried to recruit a minimum of 50 women into each of these categories. Although I recruited more than 50 mothers in each category of no reported infant sleep problems and moderate infant sleep problems, I was unable to recruit 50

¹⁹ Variables are specified in detail in **Section 3.3.2**: Predictor variables include: 1) maternal sleep quality, 2) state anger scale composite score, 3) maternal depressive symptoms, 4) fatigue, 5) maternal anger about infant sleep, 6) infant age, 7) immigration status, 8) income adequacy, 9) level of education, and 10) social support.

mothers who reported serious infant sleep problems. Sadeh, Mindell, Luedtke and Wiegand (2009), in a large-scale internet survey study of parents across Canada and the United States, reported that only 2% of $n = 5006$ parents identified a serious infant sleep problem. The results of Sadeh and colleague's (2009) study suggested that a relatively small percentage of parents perceive a serious sleep problem, which was helpful for clarifying why it was difficult to recruit 50 women who perceived their infant as having a serious sleep problem.

3.2.4 Recruitment and Setting

Following research ethics approval of procedures and materials from UBC Behavioral Research Ethics Board (Ethics ID #H18-03761), Canadian women were recruited online through social media and internet community boards, and by using hard copy flyers posted in community centers in a few Canadian cities. The majority of the participants found the survey through Facebook. I was able to connect with some larger organizations such as midwifery associations and prenatal class education agencies to share the study information on their Facebook pages, which generated numerous clicks on the screening questions survey. Eligible participants who met the inclusion criteria were sent a link to complete the online survey. Participants were also asked to indicate any interest in participating in telephone interviews about mood after childbirth at the end of the survey.

3.2.4.2. Online recruitment. The Canadian General Social Survey (Statistics Canada, 2019) identified that nearly 91% of Canadians between 15 to 45 years of age used the internet daily. The use of social media to recruit participants for health research has had demonstrated viability (Lafferty & Manca, 2015; Topolovec-Vranic & Natarajan, 2016). Based on a census-balanced online survey of 1,500 Canadian adults in 2017, 84% of Canadians reported having a Facebook account, with 79% of people reporting daily use, especially favoring women of

childbearing age between 18 and 44 years (Gruzd et al., 2018). Thus, the internet was a good way to access a diverse sample of English-speaking mothers in Canada for online study recruitment, which contributed to the external validity of this study.

I employed a few strategies for recruiting online. I created a Facebook page for the study with the page populated by study information (e.g., purpose, eligibility criteria, benefits and risks) and a link to the survey. This was shared with Canadian mothers on different Facebook groups where I have membership. On the study posters and in the consent information page, I asked participants to refer friends and acquaintances (See Appendix A). I also approached a number of Canadian parent bloggers and social media influencers to ask them to share the study Facebook page on their online feeds. I engaged in online recruitment through the use of Twitter. The use of Facebook and Twitter enhanced my ability to adapt traditional snowball sampling methods using online social networking (O'Connor, Jackson, Goldsmith, & Skirton, 2013). The snowball sampling strategy is the use of individual participants who fit the desired eligibility criteria to recruit other similar participants, and in turn new participants help to spread the message about the study to others in a multistage process (Sadler, Lee, Lim, & Fullerton, 2010). Finally, I made use of online classified advertisement boards, specifically Craigslist and Kijiji to recruit participants.

3.2.4.3. Conventional recruitment. Using a more conventional approach to recruitment, I posted flyers at community centers and places parents with young children are known to gather (e.g., public libraries, coffee shops). By engaging network contacts in Edmonton, Calgary, Toronto, and St. John, I sent flyers to colleagues to post in community centers and libraries on community notice boards. On the study flyers, I also asked participants to refer other eligible mothers who may have been interested in participating in the study.

Recruiting participants from across Canada using both online and offline methods may have improved the representativeness of the sample. In the online survey, I tracked the method by which participants came to the survey (e.g., through Facebook, Twitter, Craigslist, or through reading a flyer/advertisement). Online recruitment was efficient and effective in that I could personally appeal to large groups of individuals on social media using my Facebook and Twitter profile to share the study information with women who had infants. I could also track the number of shares of the study post. With conventional recruitment, I could not directly track who had seen my study flyer posted on bulletin boards in community centers, grocery stores, and libraries as they were not always in plain sight of persons going to those places.

3.2.5 Use of Online Surveys and Online Survey Suitability

Web-based survey research has been rapidly growing in popularity because of the potential for accessing a wide range and number of participants, lower costs associated with a lack of necessity to print and mail surveys, and streamlined data management for researchers (Hardre, Crowson, & Xie, 2012). These benefits confer cost advantages and can contribute to promoting the internal validity of a study. Through the use of Qualtrics, an online survey platform, I was able to export survey results directly into an Excel spreadsheet, which decreased the chance for error from manual entry of data and thereby increased internal data validity. There have been growing concerns about data quality and veracity from online surveys because of fraudulent and careless responders as well as online bots that may complete a survey (Buchanan & Scofield, 2018). Strategies for ensuring data quality included extensive data screening; those procedures are detailed in Section 4.1.1.

3.3 Operationalizing Study Variables

The following section details the operationalization of study variables. The variables were used in a multiple regression to determine the contributions of maternal and infant sleep quality, maternal fatigue, depressive symptoms, cognitions about infant sleep, perceptions of social support, and demographic variables such as maternal-infant age and household income adequacy to levels of anger.

3.3.1 Outcome Variable – Level of Anger

The study outcome variable was maternal level of anger, which was operationalized using the State Anger Scale from the State-Trait Anger-Expression Inventory.

3.3.1.1. State Anger Scale.

The State Anger Scale (SAS) from the State Trait Anger Expression Inventory was developed to assess the experience and expression of anger (Spielberger & Reheiser, 2010). Each item in the SAS is rated on a four-point Likert-like scale. The SAS distinguishes between feeling angry and feeling like acting out anger (e.g., verbally or physically). Raw scores from the scales are transformed into normed percentiles, with scores between the 25th to 75th percentiles being considered average (Spielberger, 1999). I used the 90th percentile²⁰ as a cutoff indicating higher than normative levels of anger for the SAS (inclusive of 3 subscales, including Feeling Angry, Feel Like Expressing Anger Verbally, and Feel Like Expressing Anger Physically) to calculate the proportion of women with high levels of anger. For assessing correlations between the

²⁰ The STAXI-2 manual (Spielberger, 1999) has established percentile norms for psychiatric and non-psychiatric males and females in different age categories. I used the 90th percentile norms for non-psychiatric females aged ≥ 30 .

variables being examined in this study and for undertaking the multiple regression analysis, I used the raw State Anger Scale scores as a continuous variable.

The State Anger Scale has been used extensively by clinicians and researchers for clinical and non-clinical samples and has demonstrated strong psychometric properties (Eckhardt, Norlander, Deffenbacher, 2004; Fernandez, Day, & Boyle, 2014; Schamborg et al., 2016). It has been validated and compared with other anger measures such as the Multidimensional Anger Inventory (Maxwell, Sukhodolsky, & Sit, 2009), the Novaco Anger Scale (Cornell, Peterson, & Richards, 1999) and the Hostility subscale of the Symptom Checklist-90 (Lievaart, Franken, & Hoevens, 2016). For women experiencing postpartum depression, the SAS was used by Vliegen et al. (2013) and Vliegen and Luyten (2008). In the previous studies, adequate internal consistency was demonstrated for the SAS (Cronbach's $\alpha = 0.92$ for depressed sample, and 0.91 for non-depressed sample) (Vliegen et al., 2013; Vliegen & Luyten, 2008). In short, the SAS has support as a valid and reliable scale for use in the postnatal time frame. For this study, the Cronbach's alpha for the SAS was 0.92, indicating very good internal consistency.

Despite the State Anger Scale being a theoretically based instrument²¹ that provides adequate precision in measuring anger, it has been criticized for its lack of attention to the interpersonal or psychosocial context (Forgays et al., 1998; Jack, 2001). For example, Jack (2001) explained that women may choose to suppress rather than express anger because of safety concerns or fear of jeopardizing relationships. Because the SAS measures anger without context, it does not indicate which situations or persons contribute to or cause participants' anger, or

²¹ The AHA Syndrome is Spielberger's theoretical framework, which proposes that the concepts of anger, hostility, and aggression are different but have overlap (Spielberger & Reheiser, 2010).

decision-making around anger expression. Forgas et al. (1998) acknowledged that the SAS may miss the gender nuances associated with anger expression because it was created as a unisex measure. They argue that focus may have contributed to minimizing the presence of gender differences in anger responses and suggested that more research is needed to examine the extent to which gender differences in anger expression are dependent on context

3.3.2 Predictor Variables

Hypothesized predictor variables for anger included: maternal depressive symptoms; maternal perceptions of personal and infant sleep quality, fatigue, cognitions about infant sleep, and family social support; and demographic variables.

Demographic variables (Appendix B) were chosen based on an analysis of the literature to identify factors that influence maternal mental health. I had planned for the multiple regression analysis to include demographic variables comprising education, income adequacy, immigration status, education, and relationship status to predict maternal level of anger. Women's level of education influences household income, making it an important variable to examine (Luo, Wilkins, & Kramer, 2006). Ethnicity was presented as a number of ethnic and cultural identities including Aboriginal, African, Arab (see Appendix C) along with Canadian and American nationality as choices. Participants were encouraged to select all that applied or to self-describe in the open text box. Financial strain and poverty has been associated with anger and worse mental health (Lanes et al., 2011; Thomas & Gonzalez-Prendes, 2009); however, income is a variable that is answered inconsistently by respondents because they may not want to disclose income information (Kim, Egerter, Cubbin, Takahashi, & Braveman, 2007). I intended to use perceptions of income adequacy as an alternative predictor to income but this was not necessary because all but one participant answered the question about income. Immigration

status has also been identified as a predictor of PMD because migrant women can lack social support and/or have increased stress related to acculturation with more recently migrated (e.g., <5 years) women having increased risk (Dennis et al., 2018; Dennis, Merry & Gagnon, 2017; Fung & Dennis, 2010; Lanes et al., 2011). Infant age is another demographic variable I hypothesized as a predictor of maternal anger because older infants may be more likely to be labelled as having poor sleep quality and to have influenced maternal sleep quality over a longer time frame (Henderson, France, & Blampied, 2011; Sadeh et al., 2010).

Non-demographic predictor variables were operationalized using the Edinburgh Postnatal Depression Scale, Brief Infant Sleep Questionnaire, Pittsburgh Sleep Quality Index, Multidimensional Assessment of Fatigue, Maternal Cognitions about Infant Sleep, and Family Support Scale respectively.

3.3.2.1. Edinburgh Postnatal Depression Scale

Cox, Holden, and Sagovsky (1987) developed the EPDS for the purpose of screening women for possible postpartum depression rather than as a diagnostic instrument. The EPDS, a 10 question self-report measure that captures the presence of depressive symptoms in the previous 7 days, is amongst the most established and frequently used measures for detecting elevated symptoms of depression (Coates, Ayers, & de Visser, 2017; Matthey & Agostini, 2017; Milgrom & Gemmill, 2014).

The EPDS items were derived from a combination of questions selected from the Hospital and Anxiety Depression Scale (HADS), the Irritability, Anxiety and Depression Scale (IDA), and items of the authors' own construction (Cox et al., 1987). Of note, the two items relating to irritability from the IDA irritability subscale that were originally retained were discarded in order to increase the specificity of the scale (Cox et al., 1987). Women who have

completed the EPDS have described it as understandable, acceptable, and straightforward (Cox & Holden, 2003; Godderis, Adair, & Brager, 2009). The EPDS has been used in both clinical and community samples (Smith, Gopalan, Glance, & Azzam, 2016).

One strength, or criticism of the scale depending on the perspective taken, is the multidimensional nature of the EPDS – it is not a ‘pure’ measure of depression, as repeated factor structure testing has revealed the three major factors of depression, anxiety, and anhedonia (Martin & Redshaw, 2018). I argue that this feature makes the EPDS stronger because it captures the complexity and heterogeneity of symptoms in PND. Depression and anxiety symptoms have been frequently found to be comorbid in the postpartum time frame (Dennis et al., 2018; O’Hara et al., 2012). Thus, it could be viewed as defensible to include the items pertaining to anxiety (e.g., Question 4 “I have been worried or anxious for no good reason”) on the EPDS. Some authors have argued that the EPDS is useful as a preliminary screen of anxiety; it could be used to differentiate between anxiety and depression in the postnatal time frame (Matthey, Fisher, & Rowe, 2013) and that not looking at the anxiety subscale score could lead to women who have anxiety symptoms but low depressive symptoms to being missed for further assessment (Lautarescu et al., 2020).

The EPDS has been validated against the clinical interviews, such as the Research Diagnostic Criteria (RDC) and Structured Clinical Interview for DSM (SCID,) and has been found to be as good as or better than other tools used for screening for PND, such as the Beck Depression Inventory (BDI), Hamilton Depression Rating Scale (HDRS), Patient Health Questionnaire-9 (PHQ-9), and the Postpartum Depression Screening Scale (PDSS) (Flynn, Sexton, Ratliff, Porter, & Zivin, 2011; Ji et al., 2011). Using the recommended cut-off of 12/13 for probable depression (Cox et al., 1987), a systematic review found that the instrument’s

sensitivity ranged from 34% to 100% and specificity ranged from 49% to 100%, with positive predictive values of 30% to 100% and negative predictive values of 84% to 100% for combined major and minor depression across 37 studies (Gibson, McKenzie-McHarg, Shakespeare, Price, & Gray, 2009). According to a recent psychometric evaluation by Coates et al. (2017), internal reliability of all subscales was adequate with Cronbach's α ranging from .73 to .78. For this study, the Cronbach's alpha for the total EPDS scale was .84, indicating good internal consistency. When broken down into the depressive symptom subscale (7-item) and anxiety subscale (3-item), Cronbach's was .80 and .75 respectively, also indicating acceptable internal consistency.

One issue that frequently surfaces with the use of the EPDS is the determination of cut-off scores. Cox et al. (1987) recommended using a cut-off score of 12/13 (out of a possible 30) as indicating probable major depression, which can be confusing to interpret. Matthey, Henshaw, Elliot, and Barnett (2006) endorsed the recommendation of a score of greater than 12 and argued that many researchers and clinicians have incorrectly used cut-off scores, such as 10, which have not been adequately validated. They suggested that some individuals (e.g. researchers) have tried to increase the number of probable depression cases by using a lower cut-off score while other groups (e.g., healthcare agencies) have used a higher cut-off score when clinical resources were limited. I employed a cutoff score of 13 or greater for indicating probable depression. This is in line with the criteria used for the Maternity Experiences Survey, a Canadian population-based study of PND by Lane et al. (2011) and a longitudinal study of PND by Dennis et al. (2018). I used the EPDS cut-off scores for calculating proportions of women with probable depression. Otherwise, I used the EPDS as a continuous variable for examining correlations and undertaking the regression analysis.

3.3.2.2. Brief Infant Sleep Questionnaire

The BISQ was created as a screening tool for infant sleep problems (Sadeh, 2004). In addition to the collection of demographic and environmental variables (e.g., age of infant, sex, and sleeping arrangements), the BISQ is a 10-item questionnaire about infant and toddler (5 months to 29 months of age) sleep patterns. It determines a child's sleep onset time and latency (time to fall asleep), length of nocturnal sleep, number of night wakes, and daytime sleep duration as well as, importantly, the parent's perception of whether or not their child's sleep is problematic, in varying degrees from not being a problem to being a small or serious problem.

BISQ items include questions such as: "how much time does your child spend in sleep during the night/day" and "how much time during the night does your child spend in wakefulness"?²² Sadeh (2004) reported that the test re-test reliability ranged from $r = .82$ to $.95$ on the measure items. Relating to construct validity, the BISQ correlates favorably with sleep diaries (r ranging from $.27$ to $.83$), and, to a lesser degree, with actigraphy (r ranging from $.23$ to $.54$) in terms of measuring sleep onset time, nocturnal sleep latency, nocturnal sleep duration, and number of night-wakes (Sadeh, 2004). In terms of discriminative validity, the BISQ items relating to night wakes and nocturnal sleep duration correctly differentiated children with clinical levels of sleep problems as determined by clinicians at a children's sleep laboratory from those without sleep problems 85% of the time.

Sadeh (2004) also suggested cutoff criteria to define children who are poor sleepers for the BISQ. They include night wakes of >3 times per night, nocturnal wakefulness of >1 hour per night, or <9 hours total sleep time. Those criteria correctly differentiated between children with

²² These questions make it possible to calculate an estimate of infant nighttime sleep efficiency.

and without sleep problems 80% of the time. The BISQ has been validated for internet on-line surveys and has been used in numerous cultural contexts (e.g., see Mindell, Sadeh, Kohyama, and How [2010] for a cultural comparison of infant sleep).

For this study, a BISQ item was used to stratify recruitment in terms of finding women with differing levels of perceived infant sleep problems as well as to describe infant sleep characteristics.

3.3.2.3. Pittsburgh Sleep Quality Index

The PSQI was created as a generic and standardized measure of sleep quality that could discriminate between ‘good’ and ‘poor’ adult sleepers (Buysse, Reynolds, Monk, Berman & Kupfer, 1989). It is a 19-item measure, which is divided into seven component scores that yield a total score (PSQI global score) that ranges between 0 (best sleep) to 21 (worst sleep). A score of greater than 5 indicates poor sleep quality (Buysse et al., 1989). It contains questions regarding sleep patterns, habits, and problems in the past month and allows for the calculation of average nighttime sleep, wakes after sleep onset, sleep latency (time to fall asleep), and approximate sleep efficiency. The PSQI examines factors that contribute to difficulty with sleep such as having bad dreams, pain, or having to wake up to go to the bathroom. Moreover, it contains questions about daytime function and tiredness related to sleep as well as ascertaining a subjective rating of overall sleep quality although some may regard daytime function and tiredness as distinct concepts from maternal sleep quality. The measure was originally tested and validated using healthy subjects as ‘good sleepers’, and depressed and sleep-disordered patients as ‘poor sleepers’. Using a cut-off score of 5, the PSQI correctly identified 88.5% of patients with a sleep problem and was found to have a sensitivity of 89.6% and specificity of 86.5%

(Buysse et al., 1989). The PSQI is one of the most commonly used measures of sleep quality in both research and practice settings (Mollayeva et al., 2016).

In a systematic review and meta-analysis of studies that examined the psychometric properties of the PSQI, Mollayeva et al. (2016) synthesized 37 psychometric studies using the Consensus-Based Standards for the Selection of Health Measurement Instruments checklist (COSMIN). They concluded that the PSQI has demonstrated strong reliability and validity and moderate structural validity in both clinical and non-clinical samples. The authors suggested that inconsistent factor structure across studies was to be expected, given the heterogeneity of samples (e.g., healthy adults and hospitalized patients) between studies. The PSQI has been validated against DSM criteria and the International classification of sleep disorders (Mollayeva et al., 2016).

A number of studies have used the PSQI to examine the sleep quality of mothers and fathers in the postpartum period (e.g., Hall et al., 2015; Insana & Montgomery-Downs, 2012) and depressed and non-depressed women during the postpartum (e.g., Coe, Milgrom, Cuppens, Cox, & Trinder, 2014; Dorheim, Bondevik, Eberhard-Gran, & Bjorvatn, 2009a, 2009b). Amongst the studies set in the perinatal period, internal consistency of the PSQI has been fair to good, with Cronbach's α ranging from 0.64 (Hall et al., 2015) to 0.76 (Coe et al., 2014). Dorheim et al. (2009a, 2009b) found that higher PSQI scores were significantly associated with depression symptoms on the EPDS and that there were no significant differences between PSQI scores and subscale scores between primiparous and multiparous women. Outside of the realm of the perinatal time frame, sleep quality (PSQI item on sleep quality) has been linked with anger suppression (Caska et al., 2009). I have not been able to identify any studies that examined maternal anger in the context of postnatal sleep. For this quantitative dissertation study, the

Cronbach's alpha was .63, indicating poor internal reliability. Okun et al. (2011) collected PSQI scores eight times in their longitudinal study of women who were depressed in the prenatal period and after they delivered, and found that PSQI scores were highly reliable, with little variance although kappa coefficients were not reported. I employed the PSQI total score as a continuous variable for the regression analysis of maternal anger.

3.3.2.4. Multidimensional Assessment of Fatigue

Belza (1994) described fatigue as an enduring and subjective perception of tiredness that varies in intensity, duration, and impact. The MAF is a self-administered survey with 16 items measuring four dimensions of fatigue, including severity, distress, interference with activities of daily living, and timing (Belza Henke, Yelin, Epstein, & Gilliss, 1993). Fatigue over the past week is measured with items 1 to 14, which are numerically rated between a scale of 1 to 10. Items 15 and 16 are multiple choice. A global fatigue index (GFI) is calculated from items 1 to 15 and can range from 1 (no fatigue) to 50 (severe fatigue).

According to a recent systematic review of the MAF that also used the COSMIN to review its psychometric properties, 37 studies reported Cronbach's alpha ranging from 0.81 to 0.96 ($M = 0.93$, $SD = 0.02$). Convergent validity with other measures of fatigue such as the Profile of Mood States (POMS) fatigue subscale ($r = 0.78$, $p < 0.001$) (Belza et al., 1993) and Fatigue Severity Scale ($r = 0.74$, $p < 0.01$) (Fairbrother, Stoll, Hutton, Hall, & Kukla, 2008) has been demonstrated. Divergent validity with the POMS vigor subscale ($r = -.60$, $p < 0.01$) has also been determined (Belza et al., 1993). Particular strengths of the MAF include its ease of use for respondents and professionals and its brevity and adaptability for multiple settings and situations as a generic measure of fatigue (Belza et al., 2018). More importantly, MAF has been validated for use for perinatal populations (Belza et al., 2018; Fairbrother et al., 2008), and has been noted

to be a measure that is sensitive to change (Fairbrother et al., 2008). When used in samples during pregnancy and the postpartum period (including fathers) Cronbach's alpha has ranged from 0.91 to 0.95 (Fairbrother et al., 2008; Hall et al., 2015; Hall et al., 2017). Fairbrother et al. (2008) noted that the word 'multidimensional' in MAF is misleading, as factor structure testing in their perinatal sample showed a single factor solution. However, the authors still strongly supported the use of MAF in the perinatal time frame. The Cronbach's alpha for the MAF for this study was .93, suggesting excellent internal consistency. The fatigue total score was as a continuous predictor variable of maternal anger in regression model building.

3.3.2.5. Maternal Cognitions about Infant Sleep Questionnaire.

Re-capping the discussion of the MCISQ from Chapter 2, the MCISQ is a 20-item survey that assesses parental thoughts about managing infant sleep. The MCISQ is composed of 5 subscales, including limit setting around sleep, anger about sleep, doubts about managing sleep, nighttime feeding necessity, and infant safety during sleep with higher scores indicating a higher degree of difficulty with managing sleep (Morrell, 1999). Items are scored on a 6-point Likert scale ranging from 5 (strongly agree) to 0 (strongly disagree). Scores on items that comprise each subscale can be summed to produce a total scale score; however, it is more useful to look at them separately because they provide information about the specific aspects of infant sleep parents finds most distressing (e.g., Hall et al., 2015; Morrell & Steele, 2003; Sadeh, Flint-Ofir, Tirosh, & Tikotzky, 2007). In this study, the anger about infant subscale served as a proxy measure for the presence of infant sleep problems considered distressing for mothers.

Psychometrically, Morrell (1999) found that MCISQ had an overall calculated Cronbach's alpha of 0.82 with high test-retest reliability (Pearson correlation coefficient of .81 [$p < 0.001$]) obtained 4 weeks apart. The five-factor structure supports the MCISQ having five

subscales (Morrell, 1999). For this study, the Cronbach's alpha for the whole MCISQ was .82, indicating good internal consistency, while the Cronbach's alpha for the 5-item anger subscale was .59, indicating poor internal consistency; however it is important to note that reliability estimates are often lower for scales with fewer items (Furr, 2018). Convergent validity has been supported with significantly positively correlated composite scores with sleep diaries focused on children's sleep and completed by parents (Morrell, 1999). I used the subscale of anger about infant sleep as a continuous variable in the correlations and regression analyses. This subscale was essential for identifying women who found infant sleep problems the most aversive in the proposed study.

3.3.2.6. Family Support Scale

The FSS is an 18-item scale that examines the availability and quality of support from kin, partner, informal supports (e.g., friends, neighbors, peers), and formal supports (e.g., health care providers and community agencies) for parents of young children (Dunst, Jenkins, & Trivette, 1984). Each item is rated on a Likert scale ranging from 1 (not at all helpful) to 5 (extremely helpful) if the support source is available (otherwise reflected as "not available") (Dunst, Trivette, & Jenkins, 2007).

Although this scale was originally developed for parents of young children with developmental disabilities, such as autism and cerebral palsy, it has also been used beyond the context of parenting special needs children. For example, Sexton et al. (2012) used the FSS as a predictor variable for recovery from antenatal depression in the postpartum time frame while Seah and Morawska (2016) included the FSS as a predictor of parental stress in the first six months after childbirth.

The FSS has support for its reliability and validity. In a validation study with a sample of 244 parents with children with disabilities or at risk for poor developmental outcomes, Dunst and Trivette (1988) performed a factor analysis which revealed 5 factors (kinship, partner support, social organizations, informal support, and professional services) that accounted for 55% of the variance of social support, and concluded that FSS adequately measured different sources of social support. Hanley, Tasse, Aman, and Pace (1998) similarly obtained a 5-factor solution for the FSS with a sample of 244 low-income families. Concurrent predictive validity was also supported using the Questionnaire on Resources and Stress scale with higher levels of support associated with lower levels of personal and family problems²³ (Dunst & Trivette, 1988). Internal consistency has been reported at .79 (coefficient α) for the whole scale (Dunst & Trivette, 1988). Test-retest reliability one month apart was $r = .91$ for the whole scale (Dunst, Trivette, & Deal, 1994), while test-retest reliability one to two years apart for parent program participants was found to be $r = .50$ and $r = .42$ respectively (Dunst, Trivette, & Jodry, 1997). Those results suggest measure stability and sensitivity to change over time. In studies where the target population was parents in the postpartum period, Cronbach's α were adequate at .70 (Seah & Morawska, 2016) and .72 (Sexton et al., 2012). For this study, the Cronbach's alpha for the FSS was .69, indicating poor to fair internal consistency.

There are several ways of scoring the measure as outlined by its creators, with the predominant approach generating a total score, which can range from 0 to 90 with a higher score indicating higher levels of support. It is also possible to calculate averages for the subscales to

²³ The total FSS support scores were significantly related to the *Questionnaire on Resources and Stress* (Holroyd, 1974) including Poor Health/ Mood ($r = -.25, p < .025$), Excessive Time Demands ($r = .22, p < .025$), and Family Integrity ($r = -.17, p < .025$) subscales.

compare the quality of each type of supports or to compare the utility of informal versus formal supports (Dunst et al., 2007). For the purposes of this study, I calculated the total score and used it as a continuous predictor variable for maternal anger.

3.4 Quantitative Data Analysis

This section describes how the data were screened, cleaned, and analyzed.

3.4.1 Data Screening and Preparation

Data from this study were extracted from the online Qualtrics platform into a CSV file. There are growing concerns about the integrity of data from online surveys related to false data generated by online bots and dishonest responders motivated by incentives (Buchanan & Scofield, 2018). In this study, there were several deterrents to bots and participants who may have provided false information in hopes of financial gain. The screening questions survey acted as the first line of deterrence to potentially dishonest responders. Screening questions for this survey involved a series of twelve yes/no questions (see Appendix A) as part of the criteria for inclusion in a non-systematic pattern of yes and no by the potential participant. Only if the participants answered the questions in the correct combination of yes and no (e.g., yes to baby born full term, no to questions about depression before or during pregnancy), would this trigger an email with the link to the full survey. This would have acted as a safeguard for preventing some bots and potentially disingenuous responders from taking the full survey.

Despite these measures, there still existed potential for disingenuous participants to have read the eligibility criteria from the consent and study information and have deduced the correct responses for the screening questions. This risk was at least partially attenuated by the lack of direct compensation for completing this survey; respondents were informed that they would be entered into a draw for a prize, which may have helped to deter disingenuous respondents who

were incentivized by the promise of an honorarium. Screening survey data were inspected for duplicate emails that indicated that a respondent had gone in more than once to try to get the survey link. Names and emails were inspected for similarity and duplication in the survey data. Survey completion time and response consistency within each response set were also examined. Fast survey completion times can be indicative of low data quality from careless responding, i.e., faster than a rate of one second per question item (Wood, Harms, Lowman, DeSimone, 2017). Time stamps and duration of survey completion were inspected for unusually fast completion times.

Tabachnick and Fidell (2013) and Field, Miles, and Field (2012) recommend an initial exploration of the data using univariate descriptive statistics to understand how the data in each variable looks in terms of frequencies and central tendency statistics (mean, median, mode), and spread in terms of range, standard deviation, and outliers. The raw data were screened for missing and invalid responses and data entry errors. I evaluated the amount and distribution of missing data by assessing the patterns of missing data (missing at random or missing not at random). Variables were checked for correctly coded values, and formulas for the calculated variables (e.g., total State Anger Score) were also inspected. I assessed the presence of outliers using Cook's distance test to assess the degree of extreme values because outliers can unduly affect the precision of estimation of regression weights (Tabachnick & Fidell, 2013). Exploratory data analysis was performed on R using the Summarytools package, version 0.9.6.

3.4.2 Producing Correlation Matrices

To examine relationships between the variables, I examined the correlations between the predictor variables and maternal anger and their significance in a series of correlation matrices. The assumptions for the use of Pearson's correlation coefficients (i.e., normality, linearity, and

homogeneity of variances) were examined during the data screening and preparation process outlined previously.

3.4.3 Multiple Regression Analysis

I explain the sequential ordinary least squares I performed and the process of examining the regression residuals to determine if they met the assumptions for multiple regression (i.e., linearity, normality, homoscedasticity, and independence of data). I then explain the use of robust techniques to make corrections for the heteroscedasticity in the model.

3.4.3.1. Ordinary least squares regression assumptions

In order to draw population-based conclusions from a sample-based regression analysis, there are a number of assumptions that need to be met, which include: 1) the normality of data and residuals (error), 2) the linearity of relationship between the dependent variable(s) with each of the independent variables, 3) homogeneity of residuals between variables, 4) independence of error terms (no correlation between the residuals of any two observations), and 5) absence of multicollinearity (highly correlated independent variables) (Cohen, Cohen, West, & Aiken, 2003; Field et al., 2012; Tabachnick & Fidell, 2013).

Normality of the data from each variable was assessed using histograms, quantile-quantile (QQ) plots, measures of skewness and kurtosis, and the significance of Shapiro-Wilk test (Field et al., 2012). Pairwise plots (e.g., scatterplots) were used to test for linearity of relationships while scatterplots of residuals were used to assess for homoscedasticity (Field, 2012). Independence of error terms was tested using the Durbin-Watson measure of autocorrelation of errors over cases (Cohen et al., 2003; Tabachnick & Fidell, 2013). Finally, the presence of multicollinearity was assessed by examining the correlation matrices for correlations above .80 between independent variables (see Section 3.4.2).

3.4.3.2. Sequential ordinary least squares regression

In order to take a stepped approach to increasing the explanatory power of the regression model, a hierarchical/sequential approach was taken. In sequential ordinary least squares (OLS) regression, blocks of variables are entered at different times. Tabachnick and Fidell (2013) explained that in sequential regression, the order of entry of variables follows a logical or theoretical order, e.g., demographic variables may be entered first to control for demographic characteristics, then the variables which are presumed to be theoretically important are entered next to see overall change in variance explained. Maternal state anger was the dependent variable for the sequential OLS regression. I examined the unstandardized coefficient weights, their standard errors and confidence intervals, the R^2 (the relative measure of fit) and adjusted R^2 values, and the significance of regression coefficients, and squared semi-partial correlations. Issues related to goodness of fit were addressed through the checking of assumptions (linearity, normality, homogeneity of variances, and independence of errors), dealing with outliers, and examining standard errors to see how accurately the model predicted dependent variable responses (Field et al., 2012). Finally, I compared the relative importance of each independent variable toward maternal anger.

3.4.4 Corrections for Heteroscedasticity using Robust Techniques

Heteroscedasticity is a common occurrence in behavioral and social sciences data (Rosopa, Schaffer, & Schroeder, 2013), which can cause inaccurate significance values for predictors in regression modelling (Cohen, Cohen, West, & Aiken, 2003). Methods to address heteroscedasticity include transformations of the response variable, using weighted least squares regression, robust regression method (Allison, 1999), and the use of robust standard errors to mitigate the problem of larger uncertainty around standard errors related to heteroscedasticity

(Astivia & Zumbo, 2019). Variable transformations reduce power, make the interpretation of results difficult, and may still fail to restore normality and heteroscedasticity (Erceg-Hurn & Miroseovich, 2008). Weighted least squares regression requires further complexity of analysis and additional assumptions to be met. Allison (1999) recommended a strategy of robust linear regression in managing heteroscedasticity. Robust regression comes from a family of robust techniques that use alternatives to ordinary least squares (OLS) methods to estimate regression coefficients, which are especially useful when outliers, non-normality, or heteroscedasticity are present (Cohen, 2003; Wilcox & Keselman, 2004). I used robust techniques with trimmed means (i.e., Winsorizing technique) to mitigate the effects of heteroscedasticity and non-normality (Erceg-Hurn & Miroseovich, 2008). I performed robust regression using the robustbase package (version .93-6) in R.

3.5 Qualitative Design: Grounded Theory

While the quantitative study was designed to capture the proportion of women experiencing anger and levels of anger and to examine associations between anger and sleep characteristics, the cross-sectional design could not explain women's experience with the process of developing maternal anger. Qualitative research is an interactive, inductive and subjective research paradigm that is used to describe human experiences and provide meaning about the experiences to learn about social reality; it provides access to perceptions about life events (Denzin & Lincoln, 2017). To achieve my second aim of exploring women's development and management of anger after childbirth, I used a grounded theory (GT) approach to conduct semi-structured interviews with a subset of women who participated in the online survey.

GT is a qualitative methodological tradition founded by sociologists Glaser and Strauss (1967). GT aims to develop explanatory theories about basic social processes in addition to

offering descriptions and/or interpretations of human experiences (Charmaz, 2006). GT has been associated with symbolic interactionism (SI). SI assumes that people construct themselves, society, and reality through interaction with others and that meaning is negotiated through social processes, which influence people's subsequent actions and behaviors (Charmaz, 2006; Jeon, 2004; Tan & Hall, 2007).

It is important to elaborate on the end goal of GT. Glaser intended GT to identify a core category or categories that explain participants' actions and behaviors around the central problem under study; in other words, answering what accounts for most of the variation in processing the problem of interest (Glaser, 1992). Unique to the method initially was constant comparative analysis, which involved using participants' words and meanings to build codes that are repetitiously compared to each other to develop more abstract codes and categories that explain participants' behavior (Glaser, 1978). The result can be a functional theory that explains a basic social process through examining interrelated categories of how participants manage a central phenomenon (Glaser, 2004). Features associated with GT include constant comparative analysis, a stepped coding process, theoretical sampling, and memo-writing; grounded theorists have emphasized flexibility in using these strategies (Charmaz, 2006, 2017; Glaser & Strauss, 1967). For this study, I adopted Charmaz's style of constructionist GT. I explain the underpinnings of Charmaz's approach after providing an overview of the development of GT.

Glaser and Strauss aimed to legitimize qualitative research and challenge assumptions that qualitative research could not generate theory; they did so by producing a systematic method of data analysis. Glaser and Strauss later diverged in their conceptualizations and views about GT method resulting in different schools of GT (Charmaz, 2006; Glaser, 1992). The traditional GT approach (i.e., Glaser & Strauss, 1967, Glaser, 1992) is known for its positivistic

assumptions in which theory emerges from data independent of the researcher; in other words, the theory is grounded and exists in the data (Bryant, 2002; Charmaz, 2006). In contrast, Charmaz's (2006) approach is based on the assumption that theory is grounded in a researcher's constructions, whereby the researcher constructs theory using a social constructionist lens. Social constructionism departs from positivist science by acknowledging that there are a multiplicity of experiences, perspectives, and realities that contextualize our understanding of the world, rather than accepting a singular universal reality (Garrett, 2013). In the qualitative segment of the study, I constructed a grounded theory of how women develop and manage anger after childbirth.

3.6 Qualitative Data Collection

This section details how participants were recruited for the qualitative study and how data was collected, transcribed, and analyzed using grounded theory methods.

3.6.2 Recruitment

Potential study participants were provided with information about the optional interview portion of the study when they visited the Facebook study page, Craigslist/Kijiji page, or read the study flyer. All women were asked about their interest in participating in a telephone interview portion of this study during the online survey. They indicated their interest by providing an email address and phone number. From this pool of interested participants, I purposively sampled each woman, using high levels of anger as my sampling criterion. I had aimed to interview 20-25 women to achieve a sample size recommended by Creswell (2007) for a grounded theory.

3.6.3 Data Management and Analysis

This section describes the process of developing a grounded theory through interviewing, constant comparison, developing theoretical sensitivity, maintaining qualitative rigor, and reaching theoretical sufficiency.

3.6.3.1 Semi-structured Interviews

I conducted telephone interviews that were audio-recorded with participants using a flexible interview guide (Appendix D). Three participants had 2 different interview sessions due to a combination of time constraints and the participant indicating that she had more to share. The interview guide was adapted from Charmaz's (2006) sample grounded theory interview questions. To build rapport at the beginning of the interview, I asked women to tell me their birth stories. I then asked questions that allowed for open exploration of a variety of participants' moods. For example, I asked "I am interested in your moods after childbirth. Can you describe for me a typical day and how you are feeling throughout that day?" I also asked the participant to contrast this with a day that she did not feel like her normal self. If the mother did not describe anger after exploration of her different moods, I would ask, "Some women have voiced feeling angry in the postpartum period sometimes because they felt stressed or frustrated with lack of sleep, or lack of support from partners or family members, or distressed about the losses and changes that come with motherhood and/or a combination of these. Were there any points in time where you might have felt frustrated or even angry?" If the participant could not speak to experiences of anger, I asked her to describe experiences of frustration and why she had felt frustrated at that time. If the participant recounted experiences of anger, I explored what caused their anger, how they characterized their anger, the persons involved, to whom and how they expressed their anger, how they attempted to manage their anger, and the positive and/or

negative effects of their anger. I closed with questions like, “is there anything else you think I should know to understand your experience better?” and “what prompted you to do this interview?”

Telephone interviews also allowed for me to interview participants across Canada. I consistently used telephone interviews, even for women whom I recruited from the greater Vancouver area. Telephone interviews had the benefit of placing fewer burdens on women with young children and/or infants because it allowed for women to be interviewed in the comfort and convenience of their homes, without feeling like they needed to prepare for and attend to a visitor. Research has supported the use of the telephone as an interview method that allows greater flexibility for participants and for participants to more comfortably disclose sensitive information (Drabble et al., 2016; Sturges & Hanrahan, 2004). In order to avoid potential disadvantages to conducting telephone interviews, including the possibility of missing out on participants’ non-verbal cues (which may provide important clues for prompts during the interview), I endeavored to cultivate rapport and connection, communicated regard for each participant and her contribution, and demonstrated responsiveness to disclosure of concerns during each interview as outlined by Drabble et al (2016).

3.6.3.2 Qualitative Data Analysis

Transcription of each audio-recorded interview occurred soon after each interview. I used *Transcript Heroes*, a Canadian-based transcription company, to transcribe 15 interviews and I transcribed five of the interviews myself. By transcribing some of the audio-recorded interviews, I enhanced my immersion in the data. I also double-checked each transcription against the audio recording prior to beginning coding in order to verify the data as well as to gain familiarity with the data.

Data analysis commenced with the first transcript and was guided by Charmaz (2006). For the process of initial coding, I engaged in line-by-line and then incident-to-incident coding for the first ten transcripts before I proceeded to focused coding, where initial codes were organized into concepts as the second layer of coding. Charmaz describes line-by-line coding as the first step in coding where each line of written data is named. Line-by-line coding is useful because it allows the researcher to break up data into component pieces and reduces the likelihood that researchers impose their pre-conceived ideas on the data. In comparison, incident-by-incident coding breaks up the data into larger units that can be compared with similar and dissimilar events (unlike with line-by-line coding which may lack enough detail or context to be compared). Charmaz explains that the logic of initial coding is to uncover topics and perspectives in the data and that initial coding should be descriptive and not abstract.

Focused coding is the second stage of coding wherein codes become increasingly conceptual. Focused codes are derived from significant or frequent earlier initial codes. I compared the initial coding with other initial codes in the same transcript, and with initial coding from previous and successive interview transcripts using constant comparison and elevated recurrent initial codes to focused codes. I approached coding with an action-orientation where possible by the use of gerunds in my coding as recommended by Glaser (1992) and Charmaz. I used relevant incidents and information from each interview to inform my approach to the next interview. When I had accumulated focused codes from ten interview transcripts, I started to develop ideas for theoretical categories by sorting and re-sorting focused codes into groups and thinking about the relationships between the focused codes in each group. It was not until I sorted the focused codes and started to develop categories that I recognized the gaps in the data (e.g., self-anger and how participants dealt with anger toward self).

Theoretical categories are integrative in that they explain how focused codes relate to one another and coalesce as a theory (Charmaz, 2006; Glaser, 1992). For example, the category of *Being on Edge* was developed from a group of initial codes reflecting on women's mood states apart from anger, such as being fatigued, stressed, and anxious. When comparing each anger event to other anger events experienced by the same person and by other participants, I noticed that participants often experienced these particular mood states prior to becoming angry. Thus, I developed these initial codes about varying mood states into focused codes related to distress prior to experiencing anger before finally developing these focused codes into the *Being on Edge* category. This category was helpful for me to understand the emotions that preceded maternal expression of anger.

Dr. Hall read samples of transcripts with initial, focused, and theoretical codes and memos, which served as a documentation trail for explaining my thoughts and rationale around the development of theoretical categories. We discussed these documents at length.

As I developed theoretical categories, I engaged in theoretical sampling. Theoretical sampling is the act of purposeful sampling of already-collected data in GT; it allows for deeper development of the properties of an emerging theory because the researcher seeks out data points or incidents that will help to further define category contrasts, boundaries, and relevance (Charmaz, 2006; Coyne, 1997). For instance, when I was developing the category of "compromised needs", I sampled theoretically by going over each interview for instances of needs that were not met for participants. The process enabled me to define properties of that category through multiple examples in the transcripts in a variety of contexts. Another way I engaged in theoretical sampling was by including new questions in subsequent interviews about the categories that I was developing in order to further delineate the properties of the category, as

suggested by Charmaz (2006). For example, in relation to the category of managing anger, early on in the interviewing process it became apparent that women could be both angry at themselves and at others. When asked, women could often describe how they came down from anger at others (e.g., their partners or children) but seldom talked about how they reduced anger at themselves. Revisiting my data helped me understand that participants did not always articulate how they managed anger directed inwardly. After 13 or 14 interviews and extensive memo writing, I started integrating into the interview guide specific questions about the ways participants managed inwardly directed anger.

3.6.4 Developing Theoretical Sensitivity through Memo Writing

Theoretical sensitivity is a critical component of developing grounded theory. Glaser (1992) describes theoretical sensitivity as the researcher's ability to generate concepts from the data and relate them to each other as hypotheses for theoretical codes to be integrated into a theory. Charmaz (2006) elaborated upon theoretical sensitivity as the ability to ponder, question, and reflect upon the data, and to surmise possibilities and establish connections within the data. I developed theoretical sensitivity by consistent memo writing in the MAXQDA (the qualitative software I used to manage my transcript data and analyze my data). I regularly wrote memos in the MAXQDA logbook after I read and checked each new transcript against the audio recording for transcription accuracy, and to note any first impressions and ideas arising from my reading of the transcript in whole. As I engaged in constant comparison between interview transcripts, I wrote memos to document ideas, thoughts, and reflections. I had three main types of memos, which included methodological, substantive, and reflective memos, and sometimes a combination of these. Methodological memos involved detailing decisions on coding. For example, at first I had a color-coding system for initial codes, with purple assigned to all sleep

related issues. As I added more interview data to be coded, the color-coding system changed. Substantive memos pertained to the development of focused codes, some of which were elevated to theoretical categories. Substantive memos also allowed me to document ideas, questions, and hypotheses that arose from each new interview analysis and comparison with other interview data. My reflective memos created space to document my emotions and thoughts around what the participants shared with me, especially when these were distressing experiences. Appendix E contains an example of a series of substantive memos about developing the category of compromised needs in relation to other categories.

Charmaz (2006) recommends the use of clustering in memo-writing, which is the act of visually organizing codes and categories; for example, by starting with a concept within a circle and drawing spokes around the concept to delineate the properties of the concept, then organizing how that concept may be related to another concept. In this way, it is possible to raise codes to higher-level theoretical categories when relationships between concepts can be described (Charmaz, 2006). I regularly diagrammed the relationships between the categories and revised them as I engaged in more interviews, theoretical sampling, and discussion with Dr. Hall, which helped me to make sense of the data and develop my grounded theory (Appendix E).

Glaser (1992) suggested that a component of theoretical sensitivity is a bracketed consideration of extant theory (e.g., relevant existing theory about the phenomenon) while examining the data. I reflected upon relational autonomy and other theoretical models in the extant literature, such as Maslow's hierarchy of needs, to sensitize me to codes and categories that were present in the data. For example, Maslow's hierarchy outlines that all persons have basic physiological needs (e.g., for sleep and nutrition) and needs for safety (e.g., adequate economic resources), belonging (e.g., love, emotional connection with others), esteem (e.g., a

sense of mastery of parenting and esteem from others), and self-actualization (e.g., autonomy and feeling in control of one's life) (Finkel, Hui, Carswell, & Larson, 2014). Maslow's hierarchy provided a list of concepts to look for in the existing codes I had and helped me to develop the category of compromised needs by defining category properties that made it distinct from being on edge and violated expectations, while acknowledging their close relationships (Appendix E).

3.6.5 Attending to Rigor in Grounded Theory

Charmaz (2006) does not adopt the language of rigor and validity in her writing of *Constructing Grounded Theory*. Charmaz indicated that a grounded theory study could be evaluated by its credibility, originality, resonance and usefulness, which taken together speak to the degree of theoretical sensitivity in a grounded theory. *Credibility* is bolstered by data that is sufficient in quality and quantity to merit the claims made and having strong logical links between the data, arguments made, and analysis. Moreover, Charmaz described that careful line by-line and incident-by-incident coding would facilitate the exposure of implicit processes that compose the grounded theory. *Originality* is attained if new insights into the basic social process being studied are gained and if the work has social and theoretical significance. *Resonance* attends to whether the theory resonates with participants as a useful way to understanding the core category while *Usefulness* speaks to applicability of the theory to real life as well the potential contribution to knowledge and ability to generate further research.

The credibility of this grounded theory study was bolstered by the richness of the interview data. Each interview was almost an hour or more in length, allowing enough time to flesh out the context, process, and effects of participants' anger. Transcribed interviews were also carefully checked against the audio recordings. Adding to credibility were the logical links between the data and analysis, as well as the time given to reflecting on each interview and

listening to the previous audio recording before performing the next interview in order to tailor the questions I wanted to ask the next participant. Resonance was demonstrated when I shared my grounded theory with four participants. They commented on how the theory made sense to them. Even with probing, the participants did not provide critical feedback or alternate perspectives on the theory. The grounded theory is also original because there is, to our knowledge, no current theory on maternal anger in the postpartum period. The participants identified the theory as useful; it spoke to the reality of their lives. This grounded theory offers a proposed pathway of anger and its resolution (or lack thereof) after having an infant.

Hall and Callery (2001) identified a missing component of rigor in grounded theory that is often left unaddressed in the quest for theoretical sensitivity, is the acknowledgement of the social construction of grounded theory. This acknowledgement is achieved by attending to reflexivity and relationality. Reflexivity is the examination of the role of the researcher in affecting the research process, while relationality speaks to issues of power and trust between researcher and participants (Hall & Callery, 2001). Because reflexivity is an important part of qualitative research and grounded theory, I used memo-writing to facilitate reflexivity and to reflect on relationality. Charmaz (2006) defined reflexivity as the researcher's scrutiny of her/his own experiences, decisions, and interpretations, which can influence the interests, positions, and assumptions of the researcher. Hall and Callery (2001) claimed that reflexivity also includes addressing the influence of relationality (i.e., interactions between the researcher and participant).

Because of my prior history with postpartum depression and anger, it was crucial for me to practice reflexivity so that I was aware of any inadvertent superimposition of my own preconceptions about anger and depression after childbirth during the interview process and data

analysis. Throughout the series of twenty interviews, I was keenly aware that I was seeking experiences of anger, which might have led me to probe participants more exhaustively than an interviewer who did not have experiences of postpartum anger. This may have inadvertently put some participants in an uncomfortable position of either feeling like they could not provide what I was looking for, or feeling vulnerable about having to share their experiences because of the stigma attached to anger. However, it was unlikely that my probing forced participants to share experiences they did not want to share because some participants would tell me directly that the experience they had was of a different nature than anger. Alternatively, some participants had so much to relate about postpartum anger and the factors related to their anger that it was not possible to finish in one interview session. Through reflective memos written after interviews or while performing constant comparison using interview data, I was able to identify relevant experiences I had as a mother with postpartum depression and anger to contrast them with what my participants were saying in an attempt to consciously exclude my experiences from the analyses.

3.6.6 Theoretical Sufficiency

Theoretical saturation has been described as the point at which gathering more data does not reveal new properties for existing theoretical constructs or insights for the emerging grounded theory (Charmaz, 2006; Starks & Trinity, 2007). Charmaz advanced Dey's (1999) concept of *theoretical sufficiency*, rather than saturation, for determining sample size, in part, because the conceptualization and attainment of theoretical saturation has been debated and contested in the qualitative research literature (e.g., Saunders et al., 2017; Thorne & Darbyshire, 2005). I determined that there was theoretical sufficiency when I was able to affirm that the data supported analytic categories (namely, violated expectations, compromised needs, being on edge,

support, managing anger, and impacts) and portrayed a range of contexts and variations (e.g., having a variety of different triggers for women's anger, different styles of expressing and managing anger) as per Charmaz's (2006) criteria for theoretical sufficiency. I achieved theoretical sufficiency after interviewing 20 women. Despite a post-hoc decision to exclude two participants' interview data due to their not fully meeting inclusion criteria (the two participants had infants who were born with health issues), the categories developed from the data still held, indicating theoretical sufficiency.

3.7 Ethical Considerations

Ethical approval was obtained from the University of British Columbia Behavioral Research Ethics Board (BREB) prior to conducting this study in February of 2019. A discussion of how I adhered to the protection of the participants during the research process with regards to confidentiality (as outlined by the Tri-Council Policy Statement [TCPS] of Ethical Research Involving Humans [2018]) and the steps I took to minimize the risks for participant safety and well-being during the quantitative study and qualitative study is covered in this section.

3.7.1. Survey Study Recruitment and Consent

The TCPS (2018) explicates that the recruitment and consenting process must protect participants from undue influence (e.g., as potentially may occur with a physician recruiting their client for a clinical trial) and coercion. As such, posting study advertisements (Appendix A) online and in public spaces such as community centers did not present high risk of undue influence or coercion that could be experienced with face-to-face recruitment as the participants could choose to ignore the advertisement, thereby protecting participant voluntariness. The study flyer (Appendix B) was also reviewed and approved by UBC BREB.

Specific to online social media recruitment, there were additional ethical considerations related to confidentiality and potential participant psychological vulnerability. Legal-ethical scholars Gelinas, Peirce, Winkler, Cohen, Lynch, & Bierer (2017) proposed two principles for guiding and evaluating social media recruitment from an ethical standpoint which entails 1) respect for social media users' privacy, 2) investigator transparency. Bhatia-Lin (2019) agreed with Gelina et al.,'s (2017) contention that social media recruitment should be normalized and seen as a parallel to other traditional recruitment strategies (e.g., posters/flyers) while still remaining sensitive to the novel aspects that require caution. For instance, it is possible depending on a social media viewer's privacy settings to view their contact list in order to try to solicit those on the contact list about study participation. I did not do this as this would have violated the potential participants' privacy.

Being a member of a few parent Facebook groups where I shared the study advertisement allowed me to have knowledge of the general composition of the group and some characteristics of group members which would not have been available through conventional recruitment such as posting study flyers in public spaces. This was a factor to consider in protecting participant confidentiality. My knowledge had the potential to affect anonymity because there was the possibility that I could link study data back to specific individuals. I did not solicit persons individually (e.g., by the way of direct messages through Facebook or Twitter) to complete the survey. I also took care not to click on their profiles to look at their networks. In order to be transparent, I informed potential participants that liking, sharing, or following the study page could result in their profiles being publicly linked to the study page depending on their privacy

settings on the Facebook post and study page²⁴. In the consent and study information, I informed participants that any personally identifying information they left on the survey would be separated out for data analysis and only presented in aggregate. After data collection, I took care to remove all identifiers from the dataset downloaded from Qualtrics prior to data cleaning and analysis.

During the consenting process for the quantitative study, potential study participants were made aware of the study purpose, procedures, and potential risks and benefits of participating in the study (Appendix C). Study information was presented at the beginning of the online survey and informed consent was recorded; participants were only allowed to proceed through the survey when they clicked “yes” to the prompt “I have read the information above and I agree to start the survey”. If participants clicked “no”, they were taken out of the survey. Participants had the option of printing the consent information if they wanted a record of the consent form. Participants were advised that: 1) completion of the survey was wholly voluntary; 2) they were not required to answer all of the questions; and 3) they could stop the survey at any time and choose not to complete it without penalty. Finally, participants were informed regarding the protection of their confidentiality for their survey responses.

3.7.1.1 Procedures for protecting participant privacy and confidentiality

TCPS (2018) defines privacy risks in research as relating to the identifiability of participants and the potential harms they may experience from the collection, use, and disclosure of personal data; the TCPS warns that privacy risks can occur at all stages of the research life

²⁴This is outlined by the UBC BREB (2012) Guidelines for Research using Social Networking Sites: https://ethics.research.ubc.ca/sites/ore.ubc.ca/files/documents/social_networking_sites-GN-June_2012.pdf

cycle and that researchers are responsible for the protection of participant privacy as an ethical and legal obligation. As such, researchers must safeguard entrusted information from unauthorized access, disclosure, or loss. In order to uphold privacy and confidentiality, the survey was hosted on Qualtrics, a UBC endorsed survey platform that is secure and compliant with BC Freedom of Information and Protection of Privacy Act (FIPPA) requirements. Because identifying information was collected in the survey (i.e., names and personal emails for those who were interested in participating in the telephone interview and prize draw), I took precautions to protect the datafile when I downloaded the data for analysis. These precautions included saving the datafile to a password protected and secure UBC shared drive that only myself and Dr. Hall have access to. For storing the full dataset that contained names and emails onto the UBC shared drive, I password protected the raw data file, minimizing the risk of unauthorized access to the data. I saved another copy of the dataset stripped of personal identifiers for data analysis, thereby minimizing risk to the participants as they could not be personally linked to the data in the event of data breach or theft of my computer.

3.7.1.2 Survey participant safety and well-being considerations

Participation in the quantitative study posed some risks to the participants because particular survey items could elicit emotional responses, especially questions about anger and depression. For example, some participants answered positively to the last EPDS question, “The

thought of harming myself has occurred to me”.²⁵ Using the Suicide Risk Guidance protocol²⁶ outlined by UBC BREB (2019) to address these risks, the written consent information informed participants that some of the survey questions would be questions about their mental health state. I also informed respondents that as researchers we were not in a position to provide mental health care. I attended to this risk by offering a written list of mental health resources participants could access that could be printed (e.g., the number for Pacific Post Partum Support Society’s telephone support and Canadian crisis phone support numbers). Respondents were also encouraged to talk to trusted friends and family members in the event that they were distressed at the end of the survey and to see their primary care provider for support if they remained distressed. These actions were in concordance with recommendations by researchers who study suicide for non-clinical populations in relation to safety measures for surveys that contain questions about self-harm and/or suicide (Schatten et al., 2020).

All but 2 of the survey participants indicated interest in the draw for ten Amazon electronic gift certificates worth \$50, and the participants who indicated interest were entered in the draw, conforming with UBC BREB requirements. Phone interview participants were given \$25 dollar honorariums in the form of Starbucks or Amazon gift certificates to thank them for their participation. The TCPS (2018) does not recommend or discourage the use of incentives but recommends that where incentives are offered they should not be so large as to have undue

²⁵ Howard and colleagues (2011) found that 9% of 4150 women in the UK endorsed having any thoughts of self-harm on the EPDS, with 4% reporting that the thought of harming themselves had occurred to them sometimes or quite often.

²⁶

<https://ethics.research.ubc.ca/sites/ore.ubc.ca/files/documents/Suicidal%20Risk%20Guidance.Jan-2019.pdf>

influence on voluntariness and promote participants' neglect of study-related risks. In the survey study, the draws for the ten \$50 Amazon gift certificates were carried out using a random number generator to ensure fairness. Selected winners were informed by email and I took care to confirm that each winner received the electronic gift certificates. For the interview study, all but one participant accepted the \$25 gift-certificate honorarium. I confirmed with each participant that they received the electronic gift certificate of their choice (e.g., Amazon or Starbucks) through email.

There has been vibrant scholarly discussion regarding the ethics of providing incentives and honorariums for research participants. Some clinicians have expressed concern that offering honorariums and incentives (such as draws) may be coercive, especially for marginalized and vulnerable populations who may be unduly enticed to accept study risks for financial reasons (e.g., as described in Groth, 2010). There has even been experimental research to examine whether or not larger incentives place undue influence for participants to reveal sensitive information; Singer and Couper (2008) found that larger incentives did not induce participants to take larger risks than the participants would consent to with smaller incentive amounts. In general, ethicists and researchers agree that providing honorariums respects the value of the participants' time and incentives can and should be offered so long as the amounts offered do not impact voluntariness (Grant & Sugarman, 2004; Groth, 2010; Singer & Bossarte, 2006).

3.7.2 Qualitative Study Ethical Considerations

When participants indicated interest in participating in the interview part of the study from the online survey, I contacted eligible participants (high anger scores) by telephone and email to inform them about the study purpose (i.e., to examine the development of maternal mood after childbirth), risks and benefits of participation, phone interview details (i.e., the

interview would take about an hour and would happen over the phone and would be audio-recorded and transcribed). I gave the choice to participants to be mailed a consent form with a paid return envelope or to print, sign, and scan their consent forms. As with the online survey, participants were informed through the consent letter that the interview was voluntary and that their privacy and confidentiality would be protected (steps taken to protect interview participants' privacy and confidentiality are described in Section 3.7.2.1). To attend to participant voluntariness, I reinforced this information over the phone prior to the start of the interview and encouraged participants to identify any concerns and questions they had. Participants were made aware that they were not required to answer any questions that they did not want to answer and that they could stop the interview at any time. There were no participants who opted out of any questions and no participants withdrew their consent for the interview.

Participating in the phone interview posed some risk to the participants in terms of the elicitation of emotional responses to sensitive questions about the development, effects, and consequences of anger after childbirth. Because participants could be at risk for psychological discomfort and distress during the interview due to the nature of the questions, prior to starting participant interviews I received peer- and group-support facilitation training from Pacific Post Partum Support Society (PPPSS), a local non-profit organization that offers peer-support to parents coping with PMDs. I also provided volunteer telephone support for PPPSS prior to commencing qualitative interviews. I benefited from debriefing with PPPSS staff members at the end of each volunteering session. The provision of telephone support to women at PPPSS facilitated my ability to respond to participants' distress in a validating and empathetic manner.

Prior to commencing the ethical application and commencing the interview, I was aware that because I was going to be interviewing mothers with high anger and depression symptoms

about anger and distress, that conversation about thoughts of self-harm and suicide could emerge. I consulted with the suicide-risk protocol outlined by UBC BREB (2019) to minimize risks to participants. As such, I created a list of mental health resources that I gave to each interview participant that could be accessed if participants felt distressed after the interview. I also prepared myself for the possibility of talking with participants with suicidal thoughts by attending BC Crisis Centre's SafeTalk program to learn how to communicate with and assist persons at risk for suicide.

For the three participants who had recounted intrusive thoughts and thoughts about self-harm or suicide, I tried to always respond by validating and empathizing. I would reflect back what they had said to me in order to probe further. After they explained these thoughts of self-harm or suicide, I would ask for more detail around the times they felt like they wanted to hurt themselves and whether it was in the recent past. I asked about their current intent to self-harm and whether they had a plan or means (BC Ministry of Health, 2007; RNAO, 2018). I aimed to convey care in how I talked to the women by reflecting their tone and by being calm and tactful. Although all three moms denied that they had active thoughts of self-harm/suicide and that they were relating past experiences, I encouraged them to seek support from their trusted family members, primary care providers, and PPPSS (as they accept out of city and out of province parents for telephone-based support). I had planned to create a safety plan with participants with actively suicidal thoughts and had planned to reach out for help in the event that they had intention and a plan to self-harm. I did not encounter this situation.

The UBC BREB suicide risk protocol was immensely helpful for preparing me to talk with participants who had suicidal thoughts and providing concrete actions that I could follow in the event that they expressed active intent. It was also very helpful for me to debrief with trusted

others after talking with women who had thoughts about suicide and to read about other qualitative researchers' experiences in talking to participants about suicidality (e.g., Boden et al., 2016). For instance, Boden and colleagues (2016) thoroughly explored emotions and intersubjectivity between the researcher and participant in qualitative suicide research.

3.7.2.1 Procedures for protecting participant privacy and confidentiality

Participant consent forms that were mailed back to me were scanned and stored electronically with the other scanned consent forms to a password protected UBC drive accessible to only Dr. Hall and myself. Participants provided pseudonyms for themselves and their infants and I asked the participants to use the pseudonyms during the interview when referring to their infants to protect their privacy. The pseudonyms for each participant were also recorded on their respective consent forms.

Digitally recorded audio-files and transcriptions of the interviews were uploaded to a password-protected UBC drive accessible to only Dr. Hall and me. No directly identifying information was kept or associated with the audio-files or transcripts. The only method of connecting a participant with a particular interview was through the consent form, which contained the participant's name and pseudonym.

Audio files that were shared with Transcript Heroes for transcription were transmitted using an encrypted Sync link. Sync is a secure Canadian cloud-based storage that conforms to UBC BREB and BC FIPPA requirements. A UBC confidentiality agreement was also signed by Transcript Heroes to maintain the confidentiality of the data and agree to delete the audio file after transcription. Participants were informed that this was the procedure for transcription of the audio-files in the consent information.

3.7 Chapter Summary

In this chapter, the mixed methods research design was delineated. The study design was comprised of a quantitative cross-sectional survey and qualitative phone interviews. Inclusion criteria, the convenience quota sampling frame according to maternal perception of infant sleep problem, and sample size calculation was explicated along with strategies for recruiting participants for the cross-sectional survey. The measures that were used to operationalize the quantitative study were defined and defended and the procedures for data cleaning, descriptive statistics, missing data, and regression analysis were described. The sampling framework for the qualitative study from the quantitative study was explained and the procedure for carrying out phone interviews was explained. Grounded theory methods for data analysis (i.e., line-by-line coding, focused coding, constant comparison, developing theoretical categories through theoretical sampling, and memoing) were delineated. An indepth discussion of the ethics of this mixed-methods study and the actions taken to protect and maintain participant voluntariness, privacy, confidentiality, and psychological well-being in the quantitative and qualitative studies was undertaken.

Chapter 4: Quantitative Findings

The first section of this chapter focuses on the results of screening survey data and delineates demographic characteristics of the study participants. The second section provides the descriptive results that answer questions about the proportion of women experiencing depressive symptoms above cut-off, high levels of anger, and both. The third section provides information about the correlations between anger and the variables of interest. Finally, the last section examines the predictors of maternal anger using regression analysis and evaluates the regression model fit through model's ability to meet the assumptions of linear regression, including residuals.

After four months of implementing online (social media, online classified boards) and conventional (posters and handouts in public places) recruitment strategies, there were a total of 1117 engagements with the online screening survey hosted on Qualtrics. Out of the 1117 individuals who engaged the screening questions, 969 completed the screening questions; of these, 612 women met the study criteria and were eligible to participate. Those who were eligible for the survey were sent the link to the actual survey. Of the 612 women, 331 started the survey. Forty-four responses were incomplete and not retained for analysis because the respondents did not complete the dependent variable of interest (i.e., the state anger scale, which was located toward the end of the online survey). Nine cases were excluded because of participant ineligibility (see Section 4.1.1). The participants who were excluded because of drop-out or because of ineligibility did not differ from participants who were included in relation to maternal age ($t(320) = -.694, p = .488$), infant age ($t(324) = -.316, p = .752$), parity ($t(322) = -.273, p = .785$), education ($t(323) = -1.47, p = .142$), income ($t(323) = -.674, p = .518$), income adequacy ($t(323) = -1.906, p = .057$), immigration status ($\chi^2(1, [N = 326]) = .734, p = .392$), relationship

status ($\chi^2 (1, [N = 326]) = .514, p = .473$), however, excluded respondents tended to be employed, bordering on significance ($\chi^2 (1, [N = 326]) = 3.719, p = .0538$). Data analysis was performed on 278 responses.

4.1 Methods: Data Preparation and Screening

In this section, I describe how I screened and prepared the survey data for analysis.

4.1.1. Results of Checks for Data Integrity

After screening survey data were inspected, it was discovered that nine respondents did not fully meet the inclusion criteria. Seven respondents completed the screening survey more than once (as evidenced by identical IP addresses); in subsequent screening survey completions, these respondents changed their answers to certain questions in order to gain access to the full survey. Of these seven respondents, six respondents changed their responses to the question about having a history of depression from yes to no to be eligible, while one respondent changed her answer to indicate the baby was born full term to be eligible. These response sets were removed from data analysis. Another two cases were excluded (based on exclusion criteria) from the data analysis when it became apparent that their infants were born with congenital anomalies requiring medical management.

No similar or duplicated names and emails were identified. There were a total of 165 survey questions. Median completion time for the survey was 22.6 minutes (1355 seconds), with the minimum being 10.6 minutes (636 seconds) and the maximum being 3.22 days. The Qualtrics survey was set such that participants had 7 days from the start of the survey to complete the survey. Duration in seconds was calculated as the time between the start date and time and end date and time.

There was an instance where two consecutive cases (case 97 and case 98) had identical maternal bedtimes and wake times. These two cases were further examined for duplication; however it was unlikely this was an scenario of fraudulent response because the surveys were completed at overlapping timeframes and there was consistency within each respondent's answers (e.g., they had different sleep durations, efficiency, and ratings of their sleep quality), and each respondent's email contained a distinctive first and last name in the email (as opposed to an email address where it would be difficult to link the email 'handle' to an individual). The adequate to high internal consistency of the MAF ($\alpha = .93$), MCISQ ($\alpha = .82$), EPDS ($\alpha = .84$), and SAS ($\alpha = .92$) are indicative of response consistency amongst the participants, which help to lessen potential concerns regarding random responding, thereby helping to increase confidence in the data quality.

After simple descriptive statistics were calculated for each column variable to locate extreme values, variables with excessively large standard deviations were closely inspected for consistency and potential error. For example, to the BISQ question, "*how long does it take to put your baby to sleep in the evening*", participants had to select number of hours and number of minutes. Two participants selected 5 hours and one participant selected 10 hours, which appeared to be implausible values. Logical checks were performed by examining maternal and infant sleep duration and times to bed at nighttime for those cases. Because the purported infant sleep latency of 5 and 10 hours would be implausible given the other values of time to bed and reported sleep duration, these values were corrected to 5 minutes and 10 minutes respectively. There was also an instance where the respondent had put in infant night wake time to be a total of 12 hours (case 178). However, total infant nighttime sleep duration was 10 hours making the

infant night wake time of 12 hours implausible, so infant night wake time for that respondent was changed to missing.

4.1.1.1. Missing data

After screening for missing responses, the most frequent missing variable response other than those expected to have missing responses (e.g., “how old were you when you moved to Canada” would not be applicable to all respondents) was maternal age ($n = 4$ missing). Other variables of interest (e.g., demographic, sleep, fatigue, mood, and support, fatigue total score, maternal cognitions about infant sleep (MCISQ) total score) had less than 5% missing responses per variable. Some participants did not answer all the questions required to calculate secondary variables e.g., infant 24 hour sleep duration (e.g., nap time information was missing) or scale total scores such as the MAF total fatigue and the MCISQ total score. After no apparent patterns were detected for missing data, other than for a single participant who tended to not answer certain questions (e.g., maternal age, income, and income adequacy), the number of missing responses for variables were minimal (range of 1-6 missing per variable) and were in the acceptable range of <5% of cases (Tabachnick & Fidell, 2007). The frequency of missing responses increased past the survey midpoint, likely indicative of participant fatigue. Measures that had missing responses e.g., the MCISQ anger subscale, were excluded from analyses using pairwise deletion in the correlation analysis and listwise deletion in the regression analysis. Numbers of missing responses are documented in each descriptive table as “Unknown” or “Missing”. Because missing data were minimal, I did not have to use approaches such as multiple imputation to handle missing data (Graham, 2009; Morikawa, Kim, & Kano, 2017; Sterne et al., 2009).

4.2 Descriptive Statistics

This section provides the descriptive statistics from data analysis.

4.2.1 Demographics

The sample ($n = 278$) consisted of women living in provinces in Canada; there were no respondents from the Canadian territories. The majority of the respondents were from BC (52.8%), Ontario (23.7%), and Alberta (16.2%) (Table 1). The rest (6.5%) were from other provinces and two were unknown. Participants' ages ranged between 23 – 44 years ($M = 32.6$, $SD = 3.77$) with the majority aged 30 and above (77.7%). The average infant age was 8.6 months ($SD = 1.9$, range 6-12); and 53.4% were male infants. The majority of respondents were partnered (98%). Just over half of the participants (53.6%) were primiparous. For 33.2% of women, this was their second child, while 13% had 3 or more children. Eighteen percent ($n = 50$) of participants had returned to work at the time of the survey. Of these women, almost half were working full time ($n = 24$). Participants could select all applicable ethno-cultural backgrounds; 85% reported being Canadian-born; 82.3% culturally self-identified as being Canadian, 18.7% European, 3.2% East Asian, 2.8% Indigenous, 2.5% American, 2.9% South Asian, and 2.2% Latin American. Less than 2% each identified as South East Asian, Caribbean, and West Asian.

Participants in this study tended to be highly educated, with $n = 41$ (14.8%) having completed college, $n = 113$ (40.6%) having an undergraduate degree, and $n = 81$ (29.1%) having a postgraduate degree. In terms of income, only $n = 23$ (8.3%) participants reported having annual household incomes of less than \$60,000 per year, while $n = 120$ (43.2%) reported incomes between \$60,000-110,000, and $n = 134$ (48.2%) reported incomes of greater than \$110,000. The majority of participants ($n = 256$ or 92.1%) reported that their income was

“mostly” and “always” adequate to meet their needs and only $n = 21$ (7.6%) reported that their income “never”, “seldomly”, or “sometimes” met their needs.

Respondents reported that they came to the survey predominantly through Facebook (70.8%) and referral from a friend or acquaintance (22%). The remainder (7.2%) learned about the survey through study flyers, Twitter and “other” methods, such as hearing about the study from a community agency.

Table 4.1. Respondent Demographics

Characteristic	Values	Sample Frequency (%)
Location - Province	British Columbia	147 (52.8)
	Ontario	66 (23.7)
	Alberta	45 (16.2)
	Other	18 (6.5)
	Unknown	2 (<1)
Age Range 23 – 44 years ($M = 32.6$, $SD = 3.77$)	20 to 24 years	3 (1.1)
	25 to 29 years	55 (19.8)
	30 to 34 years	134 (48.2)
	35 to 39 years	70 (25.1)
	40 to 44 years	12 (4.3)
	Unknown	4 (1.4)
Infant age Range 6 – 12 months ($M = 8.6$, $SD = 1.9$)	6 months	62 (22.3)
	7 months	35 (12.6)
	8 months	36 (13.0)
	9 months	52 (18.7)
	10 months	37 (13.3)
	11 months	37 (13.3)
	12 months	19 (6.8)
Infant sex	Female	129 (46.6)
	Male	148 (53.4)
	Unknown	1 (<1)
Cohabiting with partner	Yes	275 (98.9)
	No	3 (1.1%)
Parity	Primiparous	149 (53.6)

Characteristic	Values	Sample Frequency (%)
	Multiparous	128 (45.0)
	Unknown	1 (<1)
Employment status	No	228 (82)
	Yes	50 (18)
	• Full-time	• 24 (48)
	• Part-time	• 25 (50)
	• Missing	• 1 (2)
Canadian-born	Yes	237 (85.3)
	No	41 (14.7)
Ethnicity – self-identified^a	Canadian	229
	European	52
	East Asian	9
	Aboriginal	8
	American	7
	South Asian	8
	Latin American	6
	South East Asian	4
	Caribbean	3
	West Asian	1
Level of education	Post-graduate degree	81 (29.1)
	University	113 (40.6)
	University courses	9 (3.3)
	College completed	41 (14.8)
	Some college	21 (7.5)
	High school completed	10 (3.6)
	Some high school (grade 8-11)	3 (1.1)
Combined household income	>\$110K	134 (48.2)
	\$90,000-109,999	60 (21.7)
	\$60,000-89,999	60 (21.7)
	\$30,000-59,999	19 (6.9)
	\$10,000-29,999	4 (1.4)
	Unknown	1 (<1)
Recruitment method	Facebook	196 (70.5)
	Referral from a friend	61 (21.9)
	Poster/Flyer	6 (2.2)
	Email list	3 (1.1)
	Twitter	2 (<1)

Characteristic	Values	Sample Frequency (%)
	Craigslist	1 (<1)
	Other	9 (3.2)
	Unknown	1 (<1)

^a Participants were able select all applicable responses. See Appendix C for response choices.

4.2.2 Outcome Variable: Anger

Maternal level of anger was examined using the State Anger Scale (SAS) from the State Trait Anger Expression Inventory-2 (STAXI-2). The SAS is comprised of three subscales including: “feel angry”, “feel like expressing anger verbally”, and “feel like expressing anger physically”. Each subscale has 5 questions answered on a Likert scale of 4 possible responses with a minimum possible score of 5 and a maximum possible score of 20. When examining the “feeling angry” subscale, maternal mean score was 9.4 ($SD = 3.2$, range 5 – 20). In terms of feeling like expressing anger verbally, the mean score was 9.0 ($SD = 3.8$, range 5 – 20). On the subscale feeling like expressing anger physically, mean score was 5.7 ($SD = 1.4$, range = 5 – 15). To calculate level of anger, scores on the fifteen State Anger Scale (SAS) questions from the 3 subscales were summed; the SAS total score has a minimum possible score of 15 and a maximum possible score of 60. Participants’ level of anger ranged from 15 – 53 ($M = 24$, $SD = 7.6$). Anger was not normally distributed and positively skewed at 1.17 with kurtosis of 1.3.

Table 4.2. Maternal Anger Descriptive Analysis

Variable	Mean (sd), Range	Missing
Feel Angry Subscale	9.4 (3.2) 5-20	0
Feel Like Expressing Verbal Anger Subscale	9.0 (3.8) 5-20	1*
Feel Like Expressing Physical Anger Subscale	5.7 (1.4) 5-15	0
State Anger Scale Total	24 (7.6) 15-53	0
≥ 90th percentile State Anger Scale**	Yes 85 (30.6%) No 193 (69.4%)	0

*One missing at random response from the verbal anger subscale was imputed using the average of the participant's verbal anger responses.

**Using percentile norms from Spielberger, 1999.

4.2.3 Predictor Variables

This section provides the descriptive statistics for each predictor variable.

4.2.3.1. Maternal depressive symptoms

Maternal depressive symptoms were examined using the Edinburgh Postnatal Depression Screen (EPDS) (Table 4.3). The minimum to maximum scores possible for the EPDS are 0 to 30. Mean depression score was 9.3 ($SD = 4.7$, range = 0 – 21). Participant responses to the EPDS question about self-harm (“the thought of harming myself has occurred to me”) were examined. Thoughts of self-harm to any degree were endorsed by $n = 39$ (14%) respondents with 9.3% selecting “hardly ever”, 4% selecting “sometimes”, and 0.7% selecting “yes, quite often”. Because the EPDS has an anxiety subscale, anxiety was also examined. The anxiety subscale is comprised of the following three questions: “I have blamed myself unnecessarily when things

went wrong”, “I have been anxious or worried for no good reason”, and “I have felt scared or panicky for no very good reason”. For the anxiety subscale, the minimum possible score is 0 and the maximum possible score is 9. Using a cut-off of 6 or greater, as suggested by Matthey (2008) as indicative of possible anxiety disorder, $n = 96$ (34.5%) of women had anxiety scores above the cut-off with mean anxiety score being 4.4 ($SD = 2.2$, range = 0 – 9).

Table 4.3. Maternal Depression and Anxiety Exploratory Data Analysis

Variable	Characteristic	Mean (SD), Range or Frequency (%)	Missing
EPDS total score		9.3 (4.7) Range 0-21	0
≥ 13 on EPDS	Yes	73 (26%)	0
	No	205 (74%)	
Self-harm thoughts	Yes	39 (14%)	0
	No	239 (86%)	
Anxiety subscale		4.4 (2.3) Range 0-9	0
Anxiety ≥ 6	Yes	96 (34.5)	0
	No	182 (65.5)	

The first research question sought to determine the proportion of participants who had high levels of anger, depressive symptoms, and both. With regards to anger (question 1b), using the 90th percentile (raw score of 27 and above) on the State Anger Scale, 85 (30.6%) of women reported high levels of anger. With regards to depressive symptoms (question 1a), using the accepted cut-off of greater than or equal to 13 (Cox & Holden, 2003), 73 (26.3%) of women had high levels of depressive symptoms. Finally, with regards to high levels of both anger and depressive symptoms (question 1c), 39 of the 85 (45.9%) of respondents with high levels of

anger also had depressive symptoms above the cut-off score. We hypothesized that women who were angry were more likely to have depressive symptoms and vice-versa. In our sample, women who had depressive symptom scores above the cut-offs were almost 4 times more likely to have high levels of anger as compared to those who were not depressed ($OR = 3.96$, 95% CI [2.25 – 6.98], $p < 0.001$) (Table 4.4). Fifty-four percent of women (46 out of 85) had high levels of anger but did not have depressive symptoms.

Table 4.4. Proportion Table of Anger and Depression

Anger	Depression		Total
	Depressed	Not Depressed	
High Anger	39 (14.0%)	46 (16.5%)	85 (30.6%)
Low Anger	34 (12.2%)	159 (57.2%)	193 (69.4%)
Total	73 (26.3%)	205 (73.7%)	278 (100.0%)

$$X^2 = 22.9 \quad df = 1 \quad p < .001$$

$$O.R. (95\% C.I.) = 3.96 (2.25 - 6.98)$$

4.2.3.2. Maternal sleep

The Pittsburgh Sleep Quality Index (PSQI) was used to examine subjective maternal sleep quality and objective sleep characteristics (Table 4.5). Subjective maternal sleep quality was assessed using the item “During the past month, how would you rate your sleep quality overall.” Over half of the participants (51.8%) reported that their sleep was “fairly bad” (44.2%) or “very bad” (7.5%). Moreover, more than half of participants (53.6%) reported that their daytime motivation was affected by their sleep.

In examining objective sleep characteristics, the median bedtime was at 22:15, with one participant going to sleep as early as 18:00, and one participant going to sleep at 03:00. There were roughly equal numbers of women going to bed at 2100 and 2300 hours (Table 4.5). Mean maternal sleep latency was 20.1 minutes ($SD = 17.7$, range = 1 – 120 minutes) with the median

time being 15 minutes (*IQR* = 10 – 25 minutes). Most frequent wake times were at 0600 and 0700 hours. Participants reported being in bed for a mean of 508.7 minutes (*SD* = 68.2, range = 240 – 840 minutes), but actually sleeping for a mean of 379.7 minutes (*SD* = 61.9, range = 240 – 542 minutes). Mean sleep efficiency was 75.6% (*SD* = 13.2)²⁷. Ten participants (3.5%) answered positively to the question about the use of prescribed or over the counter medication for sleep in the past month.

Maternal PSQI global score was calculated based on the formula provided by (Buysse et al., 1989) with maternal scores ranging from 2 to 18. Lowest and highest possible score on the PSQI is 0 and 21 respectively with a higher score indicating worse sleep problems. Mean maternal PSQI score was 7.1 (*SD* = 2.4), indicating many women experienced problematic sleep using the accepted cut-off of greater than 5 (Sedov, Cameron, Madigan, & Tomfohr-Madsen et al., 2018). There were two respondents with extreme values on bedtime hour, with one participant (case 14) reporting going to bed at 2300 and waking at 03:00 and who rated her sleep as fairly bad had a PSQI total score of 7. The other respondent (case 113) reported going to bed at 03:00 and waking at 11:00; this participant rated her sleep as fairly good with a PSQI total score of 4, possibly indicating an extreme Evening chronotype²⁸.

²⁷ There was 1 respondent with an extreme value of 30.7% on sleep efficiency. Case 145 was a participant who went to bed at 22:30 and awoke at 12:30 noon. She rated her sleep as fairly bad and had a PSQI global score of 11. She reported her infant as having 6 night-wakes per night.

²⁸ Sleep chronotypes relate to circadian biology and expressed as categories of individual preference for the daily timing of activity and sleep (Partonen, 2015). For example, Morning-types (often referred to as “morning larks”) prefer to go to bed early and wake early and appear most productive during the daytime, while Evening-types prefer to go to bed later and wake later and are most productive during the afternoons and evenings. Extreme Evening-types (often referred to as ‘night owls’) refers to individuals who like to go to bed late and wake up even later relative to Evening-types (Partonen, 2015).

Maternal subjective perception of sleep quality (PSQI item) was tested to see if poor ratings of maternal sleep quality predicted anger (Table 4.5). Mothers who perceived their sleep as poor (fairly bad or very bad), were 2.9 times more likely to have high levels of anger compared to mothers who perceived their sleep as good (fairly good or very good) ($OR = 2.88$, 95% $CI [1.68 - 4.96]$, $p < 0.001$).

Table 4.5. Maternal Sleep Exploratory Descriptive Analysis

Variable	Characteristic	Mean (SD) or Frequency (%)	Missing
Sleep quality	Very good	12 (4.3%)	0
	Fairly good	122 (43.9%)	
	Fairly bad	123 (44.2%)	
	Very bad	21 (7.6%)	
Daytime motivation	No problem at all	21 (7.5%)	0
	Slight problem	108 (38.9%)	
	Moderate problem	121 (43.5%)	
	A very big problem	28 (10.1%)	
Bedtime hour	18:00	1 (<1%)	0
	19:00	4 (1.4%)	
	20:00	14 (5%)	
	21:00	56 (20.1%)	
	22:00	131 (47.1%)	
	23:00	60 (21.6%)	
	24:00	9 (3.2%)	
	01:00	2 (<1%)	
	03:00	1 (<1%)	
Wake-time hour	03:00	1 (<1%)	0
	04:00	3 (1.1%)	
	05:00	29 (10.4%)	
	06:00	118 (42.4%)	
	07:00	98 (35.2%)	
	08:00	17 (6.1%)	
	09:00	7 (2.5%)	
	10:00	3 (1.1%)	
	11:00	1 (<1%)	
	12:00	1 (<1%)	

Variable	Characteristic	Mean (SD) or Frequency (%)	Missing
Sleep latency in minutes		19.7 (17.1) Range 1-120	0
Nighttime sleep duration in minutes		380.3 (61.4) Range 240-540	0
Sleep efficiency (percentage)		75.6 (13.2) Range 30.7-100	0
Global PSQI		7.1 (2.4) Range 1-15	0
Global PSQI >5		204 (73%)	0

Table 4.6. Proportion Table of Anger and Maternal Sleep Quality

Sleep Quality	Anger		Total
	High	Low	
Poor	59 (41.0%)	85 (59.0%)	144 (100.0%)
Good	26 (19.4%)	108 (80.6%)	134 (100.0%)
Total	85 (30.6%)	193 (73.7%)	278 (100.0%)

$$X^2 = 14.2135 \quad df = 1 \quad p = .0002$$

$$O.R. (95\% C.I.) = 2.88 (1.68 - 4.96)$$

4.2.3.3. Infant sleep

The Brief Infant Sleep Questionnaire (BISQ) was used to examine the characteristics of infant sleep. In terms of sleep location, 19.4% ($n = 54$) of infants slept in their parent's bed, 13.7% ($n = 38$) slept in a crib in their parent's room, 58.3% ($n = 162$) slept in a crib in a separate room, 2.2% ($n = 6$) slept in a crib in a sibling's room, and 6.5% ($n = 18$) of the women selected "other" (Table 4.6). For the 18 respondents who selected "other", 14 described reactive co-sleeping, with 7 infants starting off in their own crib in parent's bedroom and then ending with sleeping in parental bed, while the other 7 infants started off sleeping in their own crib and room

and would end up in the parental bed the rest of the night. The other 4 responses included variations on co-sleeping, such as the participant co-sleeping in the child's room or living room, apart from the father, or with a crib side car arrangement. Infants were put to bed at nighttime between 1800 and 2400 hours with the median bedtime being 1930 ($IQR = 1900 - 2000$). Mean infant sleep latency was 28.5 minutes ($SD = 22.6$) and ranged from 0 minutes to 120 minutes with 12 participants reporting infant sleep latency of 90 minutes or greater, resulting in a large standard deviation. Median sleep latency was 20 minutes ($IQR = 15 - 30$ minutes).

Infants were reported to sleep at nighttime an average of 610.9 minutes ($SD = 73.3$, range = 240 – 720 minutes). This variable was negatively skewed (skewness = -1.26) with a number of outliers (4 respondents reported their infant sleeping less than 420 minutes at nighttime²⁹; infants who had short sleep durations at night tended to have long daytime nap durations but this was not always the case). Infants had a mean of 2.4 night wakes ($SD = 1.6$, range = 0 – 8) and had wake durations with a mean of 49.2 minutes ($SD = 43.5$, range = 0 – 240 minutes). There were several high values ($n = 35$ infants had night wake times of greater than or equal to 120 minutes). Daytime naps totaled an average of 169 minutes ($SD = 59.1$ minutes, range = 30 – 420 minutes). Daytime sleep and nighttime sleep were added to calculate total 24-hour sleep time. Infants slept

²⁹ Participant #18 reported infant night sleep as being 5 hours and 7 hours (420 minutes) during the day. She reported her sleep quality as very bad, had high fatigue and depressive symptoms scores and anger scores above cut-off. Participant #47 reported that her infant slept 6 hours at night and that the infant had 4-night wakes per night, totaling 120 minutes of wake time. However, the infant was reported to have 7 hours of sleep during the day. She indicated that her infant had a moderate sleep problem. Participant #120 reported that her infant slept 6 hours at night and 3 hours during the day and indicated that the infant had a serious sleep problem. This respondent rated her sleep as fairly bad and had high levels of fatigue. Participant #190 reported that her infant slept 4 hours at night and 2 hours during the day. She reported the infant having 6 night-wakes totaling 4 hours at night and indicated that her infant had a moderate sleep problem.

a mean of 781.6 minutes ($SD = 88.4$, range = 360-1020)³⁰ in 24 hours. Based on Paruthi et al.'s (2016) recommendation for a minimum of 12 hours of sleep (including naps) for infants between 4-12 months of age in 24 hours, 18% ($n = 51$ out of 283) did not meet the minimum requirement. Notably, 2 infants slept more than the 12-16 hours in a 24-hour day, which is beyond what is recommended by AASM (Paruthi et al., 2016). Respondents were asked whether they thought that their infant's sleep was problematic: 29% ($n = 83$) did not report an infant sleep problem, 66.1% ($n = 189$) reported a small to moderate sleep problem, while 4.9% ($n = 14$) reported a serious sleep problem.

Table 4.7. Infant Sleep Variables Exploratory Descriptive Analysis

Variable	Characteristic	Mean (SD) or Frequency (%)	Missing
Infant sleep location	Infant crib in own room	162 (58.3%)	0
	Infant crib parent room	38 (13.7%)	
	Infant crib sibling room	6 (2.1%)	
	Parental bed	54 (19.4%)	
	Other	18 (6.5%)	
Infant bedtime hour	18:00	28 (10.1%)	0
	19:00	152 (54.7%)	
	20:00	66 (23.7%)	
	21:00	21 (7.5%)	
	22:00	8 (2.9%)	
	23:00	2 (<1%)	
	24:00	1 (<1)	

³⁰ Participant #190 was the respondent who reported her infant sleeping 4 hours at night and 2 hours during the day. She reported the infant having 6 night-wakes totaling 4 hours at night and indicated that her infant had a moderate sleep problem. She commented in an open-text section on the PSQI that “my kid won’t sleep”. She had high levels of fatigue and rated her sleep as fairly bad. The respondent took 20.3 minutes to complete the survey, decreasing the likelihood of careless or random responding.

Variable	Characteristic	Mean (SD) or Frequency (%)	Missing
Sleep latency in minutes		28.5 (22.6) 1-120	2
Nighttime sleep duration in minutes		610.9 (73.3) Range 240-720	2
Night-wakes	0	28 (10.1%)	0
	1	57 (20.5%)	
	2	68 (24.5%)	
	3	66 (23.7%)	
	4	33 (11.9%)	
	5	15 (5.4%)	
	6+	11 (4%)	
Night-wakes total time in minutes		49.2 (43.5) Range 0-240	2
Daytime sleep in minutes		169.8 (59.1) Range 30-420	4
Infant 24-hour sleep total (minutes)		781.6 (88.4) Range 360-1020	6
Infant Sleep Problem	Not a problem	84 (30.2%)	0
	Moderate problem	180 (64.8%)	
	Serious problem	14 (5%)	

4.2.3.4. Maternal fatigue

Fatigue was measured using the Multidimensional Assessment of Fatigue (MAF) scale (Table 4.7). There are 4 domains to the MAF, which include degree of fatigue, severity of fatigue, distress from fatigue, and interference with activities of daily living from fatigue. Participants reported a mean of 7.2 ($SD = 2$, range = 2-10) in terms of their degree of fatigue. Mean severity of fatigue was 5.6 ($SD = 2.1$, range = 1 – 10). Mean distress about fatigue was 4.8

($SD = 2.3$, range = 1 – 10). Respondents' mean scores for the domain of degree of interference with activities of daily living (such as doing household chores, visiting and socializing with friends/family, shopping and running errands, and exercise) was 4.9 ($SD = 1.9$, Range = 1 – 9.4). The global fatigue score was calculated by adding the scores of questions 1 to 15 (excluding question 16 about degree of change to fatigue levels during the past week as per the MAF). The majority of respondents reported that they felt fatigued most days (41.7%) or every day (35.2%). In terms of change in their level of fatigue over the past week, 6.1% reported their fatigue had decreased, 41.4% reported fatigue level stayed the same, 43.2% reported that their fatigue went up and down, and 9.3% reported it had increased. The mean total fatigue score was 30.3 ($SD = 8.5$, range = 7.5 – 45.6).

Table 4.8. Maternal Fatigue Exploratory Descriptive Analysis

Variable	Characteristic	Mean (SD), Range or Frequency (%)	Missing
Degree of fatigue		7.2 (2) Range 2-10	2
Fatigue severity		5.6 (2.1) Range 1-9	1
Distress about fatigue		4.8 (2.3) Range 1-10	0
Interference with ADLS		4.9 (1.9) Range 1 – 9.4	0
Fatigue frequency	Hardly any days Occasionally Most, but not all days Everyday	11 (4%) 53 (19.1%) 116 (41.7%) 98 (35.2%)	2
Fatigue change	Decreased	17 (6.1%)	0

Variable	Characteristic	Mean (SD), Range or Frequency (%)	Missing
Degree of fatigue		7.2 (2) Range 2-10	2
	Stayed the same	115 (41.4%)	
	Up and Down	120 (43.2%)	
	Decreased	26 (9.3%)	
Fatigue total score		30.3 (8.5) Range 7.5 – 45.6	3

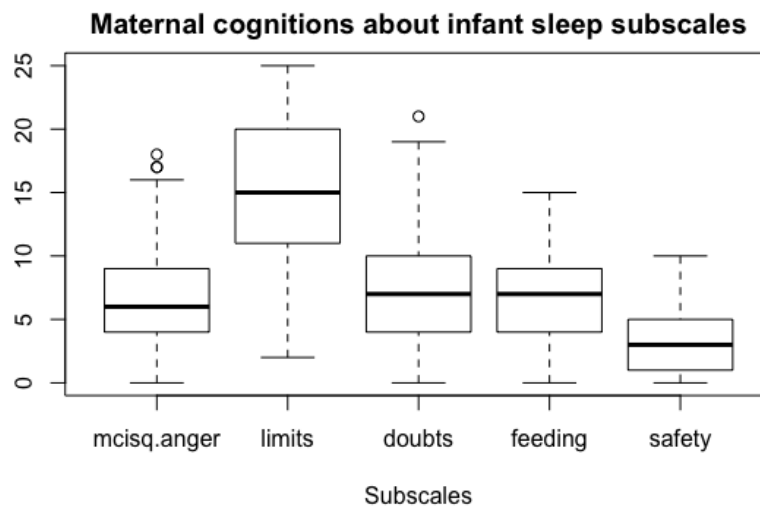
4.2.3.5. Maternal cognitions about infant sleep

The Maternal Cognitions about Infant Sleep Questionnaire (MCISQ) was used to assess maternal thoughts and beliefs about infant sleep (Table 4.8). The MCISQ is broken down into 5 subscales relating to: 1) parental anger about sleep; 2) limit setting around sleep; 3) sleep doubts; 4) infant nighttime safety; and 5) infant nighttime feeding needs. Mean score for maternal sleep anger was 6.4 ($SD = 3.9$, Range = 0 – 18), with the median being 6.0 out of a possible 25 points (Table 4.8). Mean score for limit setting was 14.9 ($SD = 6$, Range 2 – 25) with the median being 15.0 out of a possible 25 points. Mean score for sleep doubts was 7.0 ($SD = 4.5$, Range = 0 – 21), with the median being 6.0 out of a possible 25 points. Mean score for feeding was 6.5 ($SD = 3.7$, Range = 0 – 15), with the median being 7.0 out of a possible 15 points. Mean score for infant nighttime safety was 3.2 ($SD = 2.4$, Range = 0 – 9), with the median being 3.0 out of a possible 10 points. Of the subscale scores, sleep anger and sleep doubt had responses that could be described as outliers, while limit-setting had the most response variability (Figure 4.1).

Table 4.9. Maternal Cognitions Exploratory Descriptive Analysis

Variable	Mean (SD) Range	Missing
Anger subscale	6.4 (3.9) 0-18	2
Limit setting subscale	14.9 (6) 2-25	1
Doubts about competence subscale	7.0 (4.5) 0-21	0
Feeding subscale	6.5 (3.7) 0-15	0
Safety subscale	3.2 (2.4) 0-9	2
MCISQ total	34.9 (12.7) 5-69	5

Figure 4.1 Boxplot of Maternal Cognitions about Infant Sleep Subscales



4.2.3.6. Family support

Social supports available were examined using the Family Support Scale (FSS) (Table 4.9). The FSS lists 19 forms of support (e.g., parents, in-laws, partner, church, social groups

etc.,) and the unadjusted score for each form of support was summed to obtain a total family support scale score. The minimum and maximum scores possible for the FSS are 20 and 114 respectively. The mean total support score was 44.8 ($SD = 9.4$, Range = 22 – 79). From the FSS, partner support was also examined separately with a mean partner support score of 5.0 ($SD = 1.2$, range = 1 – 6); this was negatively skewed with the majority of respondents rating their partners as supportive (skew = -1.22).

Table 4.10. Maternal Perceptions of Family Support Exploratory Descriptive Analysis

Variable	Mean (SD) Range	Missing
Partner support	5 (1.2) Range 1-6	1
Support total	44.8 (9.4) Range 22-79	1

4.3 Relationships among Variables

In order to answer research question 2a about the correlations between a) anger scores, b) demographic characteristics, c) maternal-reported infant sleep quality, d) maternal self-reported sleep quality, e) level of fatigue, f) maternal cognitions about infant sleep, g) social support, and h) depressive symptoms, correlation charts examining relationships between anger and each of the other variables were produced. The magnitude of the relationships amongst variables was examined to help determine which variables were suitable for entry into the regression equation in Section 4.4.2. Specifically, zero order correlations plots between anger and each of the predictors (e.g., maternal sleep and infant sleep characteristics) were plotted using Pearson product-moment correlations (r). Spearman's ranked correlations (r_s) were calculated where

variables were ordinal in nature (e.g., level of education) and in cases where variables had markedly skewed distribution (>1.0) to as non-normal data violates the assumption of the normality assumption for Pearson correlations.

4.3.1. Anger and Demographic Characteristics

Education was negatively correlated with anger ($r_s = -0.20, p < 0.01$) (Table 4.10). Income ($r_s = -0.24, p < 0.01$) and perceptions of income adequacy ($r_s = -0.20, p < 0.01$) were negatively correlated with anger. Income demonstrated a stronger correlation with levels of anger than perceptions of income adequacy. It was hypothesized that immigration status would be associated with higher anger levels, with immigrant women having added life stressors related to acculturation. Contrary to the hypothesis, anger was not correlated with immigration status ($r = -0.068, p = 0.254$). Parity was positively correlated with anger ($r = 0.17, p < 0.01$), with a greater number of children contributing to higher maternal anger. Maternal employment, age, infant sex, and infant age were not significantly correlated with maternal anger (Table 4.11).

Table 4.11. Maternal Demographics and Anger Correlations with Confidence Intervals

Variable	1	2	3	4	5	6	7	8	9
1. anger									
2. education	-.20** [-.31, -.08]								
3. income	-.24** [-.33, -.12]	.28** [.16, .38]							
4. income.adeq ^a	-.20* [-.32, -.08]	.24** [.12, .35]	.49** [.38, .59]						
5. parity	.17** [.05, .28]	-.17** [-.05, -.28]	.03 [-.08, .15]	-.04 [-.17, .07]					
6. age	-.04 [-.15, .08]	.27** [.16, .38]	.21** [.09, .32]	.04 [-.08, .15]	.15* [.03, .26]				
7. immigrant ^b	-.06 [-.17, .06]	.15* [.03, .26]	-.04 [-.16, .07]	-.02 [-.14, .10]	-.13* [-.25, -.02]	.13* [.01, .25]			
8. employment ^c	.08 [-.04, .20]	.04 [-.08, .15]	.02 [-.09, .14]	-.09 [-.21, .02]	.06 [-.06, .18]	.08 [-.04, .20]	.10 [-.02, .21]		
9. infant age	.05 [-.07, .17]	.01 [-.11, .13]	-.02 [-.14, .09]	-.02 [-.14, .10]	-.07 [-.18, .05]	.07 [-.05, .19]	.02 [-.10, .14]	.13* [.01, .24]	
10. infant sex ^d	.04 [-.08, .16]	-.10 [-.22, .01]	-.02 [-.14, .10]	.00 [-.11, .12]	.04 [-.07, .16]	-.05 [-.16, .07]	-.00 [-.12, .12]	.03 [-.09, .15]	-.00 [-.12, .12]

Note. ^aIncome adequacy: 0 = *Inadequate* (Never, Seldomly, Sometimes), 1 = *Adequate* (Mostly, Always). ^bImmigrant: 0 = *No*, 1 =

Yes. ^cEmployment: 0 = *No*, 1 = *Yes*. ^dInfant sex: 0 = *Male*, 1 = *Female*. **Bolded values** are Spearman rank correlation, all other values are Pearson *r*. Values in square brackets indicate the 95% confidence interval for each correlation. * $p < .05$. ** $p < .01$.

4.3.2. Mood Disturbances, Support, and Fatigue

As hypothesized, anger was moderately, positively, and significantly correlated with EPDS (depression) total scores ($r = 0.42, p < 0.001$) (Table 4.12). Anger was also positively and significantly correlated with the EPDS item about self-harm ($r = 0.27, p < 0.001$). When removing the anxiety-related questions from the depression score total, the strength of the correlation between depression and anger increased ($r = 0.47, p < 0.001$). Anxiety had a positive, and significant correlation with anger ($r = 0.24, p < 0.001$). We hypothesized that support would be negatively correlated with anger. The FSS total support score had a negative and nonsignificant correlation with anger ($r = -0.02, p = 0.92$).

Fatigue was hypothesized to be positively correlated with anger. The item about the severity of fatigue on the MAF was positively and significantly correlated with anger ($r = 0.24, p < .001$). The item about distress about fatigue on the MAF was positively and significantly correlated with anger ($r = 0.38, p < .01$). Finally, the total fatigue score on the MAF was positively and significantly correlated with anger ($r = 0.38, p < .01$).

Table 4.12. Maternal Mood, Support, Fatigue Correlations with Confidence Intervals

Variable	1	2	3	4	5	6	7	8	9
1. anger									
2. depression	.42** [.32, .51]								
3. self.harm ^a	.27** [.16, .38]	.41** [.30, .50]							
4. depress.only	.47** [.37, .55]	.92** [.90, .93]	.47** [.37, .55]						
5. anxiety.only	.24** [.13, .35]	.84** [.80, .87]	.22** [.10, .33]	.56** [.47, .64]					
6. support.total	-.02 [-.13, .10]	-.11 [-.23, .01]	-.09 [-.20, .03]	-.12* [-.23, -.00]	-.07 [-.18, .05]				
7. partner.support	.01 [-.11, .15]	.02 [-.09, .14]	-.06 [-.18, .06]	-.03 [-.15, .09]	.09 [-.02, .21]	-.00 [-.12, .12]			
8. severity.fatigue	.24** [.13, .35]	.40** [.29, .49]	.11 [-.01, .22]	.38** [.27, .48]	.31** [.20, .42]	-.05 [-.17, .06]	-.01 [-.12, .11]		
9. fatigue.distress	.38** [.28, .48]	.48** [.38, .57]	.12* [.00, .24]	.47** [.37, .56]	.36** [.26, .46]	.01 [-.11, .13]	.00 [-.12, .12]	.70** [.63, .75]	
10. fatigue.total	.38** [.28, .48]	.50** [.41, .59]	.13* [.02, .25]	.51** [.41, .59]	.37** [.26, .47]	-.10 [-.21, .02]	.00 [-.12, .12]	.87** [.84, .90]	.82** [.78, .86]

Note. ^aSelf harm: 0 = No, 1 = Yes. Values in [] indicate 95% confidence interval for correlation. * $p < .05$ ** $p < .01$

4.3.3. Anger and Maternal Sleep Characteristics

As hypothesized, maternal subjective sleep quality was positively correlated with anger ($r = 0.32, p < 0.01$), worse sleep was correlated with higher anger (Table 4.13). Results of the Spearman correlation also indicated that there was a positive association between anger and poor sleep quality ($r_s = 0.36, p < 0.01$). As expected, maternal total sleep duration ($r = -0.25, p < 0.01$) and sleep efficiency ($r = -0.18, p < 0.01$) were significantly negatively correlated with anger. Maternal anger was also positively and significantly correlated with the PSQI total score ($r = 0.26, p < 0.01$); higher scores (indicating more sleep problems) were correlated with higher anger. Also, as expected, maternal anger was positively and significantly correlated to the PSQI items about daytime dysfunction related to tiredness ($r = 0.18, p < 0.01$) and lack of daytime motivation ($r = 0.36, p < 0.01$). Correlations between anger and other maternal sleep characteristics such as maternal sleep latency and time in bed were not statistically significant. Results of the Spearman correlations also indicated that there was a positive association between anger and daytime dysfunction ($r_s = 0.21, p < 0.01$) and daytime motivation and anger ($r_s = 0.36, p < 0.01$).

Table 4.13. Maternal Sleep and Anger Correlations with Confidence Intervals

	1	2	3	4	5	6	7	8
1. anger								
2. sleep.quality	.36** [.25, .46]							
3. sleep duration	-.25** [-.36, -.14]	-.51** [-.60, -.42]						
4. sleep efficiency	-.18** [-.29, -.06]	-.47** [-.55, -.37]	.70** [.63, .75]					
5. global psqi	.26** [.15, .37]	.66** [.58, .72]	-.54** [-.62, -.45]	-.71** [-.77, -.65]				
6. sleep.latency	.04 [-.08, .16]	.18** [.07, .29]	-.09 [-.21, .03]	-.30** [-.41, -.19]	.53** [.44, .61]			
7. time in bed	-.06 [-.17, .06]	-.02 [-.13, .10]	.20** [.08, .31]	-.37** [-.46, -.26]	.17** [.06, .29]	.23** [.11, .34]		
8. day.dysfunction	.21** [.09, .31]	.25** [.14, .36]	-.25** [-.36, -.14]	-.21** [-.32, -.09]	.22** [.10, .34]	.01 [-.10, .13]	.00 [-.1, .12]	
9. no.motivation	.36** [.25, .46]	.52** [.42, .60]	-.40** [-.50, -.30]	-.34** [-.45, -.24]	.41** [.30, .50]	.10 [-.01, .22]	-.12 [-.11, .11]	.27** [.17, .37]

Note. Values in square brackets indicate the 95% confidence interval for each correlation. **Bolded values** are Spearman rank correlation, all other values are Pearson r . * indicates $p < .05$. ** indicates $p < .01$.

4.3.4. Anger and Infant Sleep Characteristics

Correlations between maternal anger and BISQ infant sleep characteristics were examined (Table 4.14). The presence and severity of infant sleep problems (small-moderate and serious) were positively and significantly correlated with anger ($r_s = .30, p < 0.01$). Number of night wakes ($r = .24, p < 0.01$) was significantly correlated with anger scores. Infant nighttime wake time in minutes was also significantly correlated with anger ($r = .19, p < 0.01$). There was a negative, and significant correlation between anger and infant total sleep time at night ($r = -.13, p < 0.05$). The amount of infant sleep in a 24-hour day was negatively associated with anger ($r = -.19, p < 0.01$). Inadequate infant sleep (minimum of 12 hours in 24-hour day) as a binary variable was positively correlated with maternal anger ($r = .17, p < 0.01$). Infant sleep latency, bedtime hour, and room-sharing were not significantly correlated with maternal anger.

Table 4.14. Infant Sleep and Maternal Anger Correlations with Confidence Intervals

Variable	1	2	3	4	5	6	7	8	9
1. anger									
2. sleep problem^a	.30** [.11, .33]								
3. nightwakes #	.24** [.13, .35]	.49** [.39, .57]							
4. nightwake time	.19** [.08, .30]	.49** [.39, .57]	.48** [.39, .57]						
5. total night sleep	-.15* [-.26, -.02]	-.29** [-.39, -.17]	-.33** [-.45, -.22]	-.45** [-.54, -.35]					
6. 24 hour sleep	-.19** [-.31, -.08]	-.31** [-.42, -.20]	-.33** [-.44, -.22]	-.44** [-.53, -.34]	.75** [.69, .79]				
7. adequate sleep ^b	.17** [.06, .28]	.22** [.10, .33]	.23** [.12, .34]	.35** [.24, .45]	-.54** [-.62, -.45]	-.73** [-.78, -.67]			
8. bedtime hour	.10 [-.01 , .22]	.06 [-.05 , .17]	.12* [.01 , .22]	.06 [-.05 , .17]	-.45** [-.54 , -.36]	-.29** [-.40 , -.18]	.17** [.05 , .28]		
9. sleep latency	.09 [-.10 , .34]	.29** [.18 , .39]	.18** [.05 , .29]	.25** [.15 , .37]	-.29** [-.39 , -.17]	-.21** [-.31 , -.09]	.20** [.08 , .31]	.23** [.12 , .34]	
10. room.share ^c	.09 [-.03, .20]	.12* [.00, .23]	.37** [.27, .47]	.09 [-.03, .21]	-.18** [-.29, -.05]	-.11 [-.23, .01]	.05 [-.07, .17]	.30** [.18, .40]	.11 [.01, .21]

Note. ^aInfant sleep problem: 0 = No problem, 1 = Moderate sleep problem, 3 = Serious sleep problem. ^bAdequate sleep: 0 = Yes, 1 =

No. Room-share: 0 = No, 1 = Yes. **Bolded values** are Spearman rank correlation, all other values are Pearson r . Values in square brackets indicate the 95% confidence interval for each correlation. * indicates $p < .05$. ** indicates $p < .001$

4.3.5. Maternal Anger and Maternal Cognitions about Infant Sleep

Correlations between maternal anger and maternal cognitions about infant sleep were examined (Table 4.15). As hypothesized, maternal anger was significantly correlated with each MCISQ subscale. Maternal anger was positively and significantly correlated with the MCISQ sleep anger subscale ($r = 0.42, p < 0.01$) and the MCISQ sleep limits subscale ($r = 0.13, p < 0.05$). Maternal anger was positively and significantly correlated with the MCISQ sleep doubts subscale ($r = 0.21, p < 0.01$). Maternal anger was not significantly correlated with the MCISQ sleep feeding subscale or the sleep safety subscale. Sleep doubts ($r = .21, p < 0.01$), feeding ($r = .24, p < 0.01$), and safety ($r = .20, p < 0.01$) were all positively and significantly correlated with sleep anger.

Table 4.15. Maternal Cognitions about Infant Sleep and Anger Correlations with Confidence Intervals

Variable	1	2	3	4	5
1. anger					
2. mcisq.anger	.42** [.31, .51]				
3. mcisq.limits	.13* [.02, .25]	.07 [-.05, .18]			
4. mcisq.doubt	.21** [.09, .32]	.35** [.24, .45]	.48** [.38, .56]		
5. mcisq.feed	.10 [-.02, .21]	.24** [.13, .35]	.39** [.29, .49]	.44** [.34, .53]	
6. mcisq.safety	.10 [-.02, .21]	.20** [.08, .31]	.18** [.06, .29]	.46** [.36, .55]	.28** [.16, .38]

Note. Values in square brackets indicate the 95% confidence interval for each correlation.

* indicates $p < .05$. ** indicates $p < .01$.

4.4 Multiple Regression Analysis

Regression model building results will be described in this section.

4.4.1. Model Building Using Sequential Ordinary Least Squares Regression

Research question 2b sought to examine the contributions of demographic variables, depressive symptoms, maternal-reported infant sleep quality, maternal self-reported sleep quality, level of fatigue, maternal cognitions about infant sleep, and social support to levels of maternal anger.

The demographic variables that were hypothesized to contribute to maternal anger in chapter three were income adequacy, education, relationship status, and immigration status. Initially, income adequacy was pre-selected as a predictor variable for anger, as it was anticipated that income was a question that participants would avoid answering. Because there was only one missing response for income and the correlation between anger and income was greater than the correlation between income and perceived income adequacy ($r_s = -.24$ versus $r_s = -.20$, $p < 0.05$), income was chosen as the predictor variable for the regression model. Relationship status (partnered or not) was excluded as a predictor variable because there was a paucity of respondents who did not have a partner at home ($n = 4$). Parity was selected as a demographic predictor for the regression model because there was a moderate and significant relationship between parity and anger ($r_s = 0.25$, $p < 0.01$; see Table 4.10). Immigration was retained as an a-priori predictor variable ($r = -.06$, $p > 0.05$). Education was also retained as a demographic variable ($r_s = -.20$, $p < 0.01$).

Upon examination of the depression-related variables, depression scores were more strongly correlated to anger when questions pertaining to anxiety were removed with $r = 0.47$ versus $r = 0.42$ with anxiety questions included. Psychometric evidence indicates that the EPDS

is not a pure measure of depression as it contains items that assess for the presence of anxiety as well as depression (Matthey & Agostini, 2017; Tuohy & McVey, 2008). Two regression models were tested in combination with demographic variables, infant sleep, mood, support, fatigue, and cognitions about infant sleep. The test model with the depression and anxiety subscale scores entered separately showed that the depression subscale score was a stronger predictor of maternal anger ($b = .99$, $SE = .15$, $p < .01$) than the combined EPDS total score ($b = .47$, $SE = .09$, $p < .01$). The anxiety subscale score was not a significant predictor of maternal anger ($b = -.27$, $SE = .20$, $p = .19$). Thus the anxiety subscale score and depression subscale score of the EPDS were entered separately into the regression model in order to improve model fit. With regards to maternal sleep quality and fatigue, the PSQI global score and the MAF total score were entered into the regression. The Family Support Scale total score was used as the predictor for the support variable.

Finally, maternal anger about infant sleep subscale (sleep anger) of the MCISQ was used as the predictor in lieu of a variable about infant sleep characteristics because from a theoretical standpoint, the intensity of anger about infant sleep would better capture the presence of a distressing perceived infant sleep problem than the BISQ. In an analysis of variance (ANOVA) model testing, when a model without the variable of the BISQ infant sleep problem variable (no problem, moderate, or serious problem) was tested against a complete model with the infant sleep problem variable, there were no significant differences were found between the models ($F(1, 272) = 0.68$, $p = .41$). Thus, the infant sleep problem characteristic from the BISQ was excluded for model parsimony.

A model was built sequentially starting with maternal anger as the dependent variable regressed upon a block of demographic variables, which included income, education,

immigration, and parity (Model 1). Income, immigration, education level, and parity explained a small but significant proportion of variance in maternal anger, $R^2 = 0.084$, $F(4, 271) = 6.23$, $p < .001$ (Table 4.15). In the second block (Model 2), the variables of maternal depression, sleep quality, fatigue, support, and sleep anger were added. These variables explained a significant proportion of the variance in maternal anger $R^2 = 0.371$, $F(10, 260) = 15.3$, $p < .001$ (Table 4.15). ANOVA was used to assess the differences between Model 1 and Model 2 with significant changes to model fit ($F(6, 260) = 19.7$, $p < .01$). Finally, the presence of interaction terms between variables was explored in an attempt to address the issues found with model diagnostics related to model misspecification that will be addressed in the following section (Section 5.5). An interaction between infant age and maternal sleep anger was identified and added to the regression in Model 3. The new variable of infant age and the interaction term between sleep anger and infant age added to the total variance explained $R^2 = 0.384$, $F(12, 258) = 13.4$, $p < .001$ (Table 4.16). ANOVA was used to assess the differences between Model 2 and Model 3 with non-significant changes to model fit ($F(2, 258) = 2.8$, $p = .06$).

Table 4.16. Hierarchical Regression Explaining Maternal Anger

<i>Predictors</i>	Model 1				Model 2				Model 3			
	<i>b(SE)</i>	<i>CI</i>	<i>t</i>	<i>p</i>	<i>b(SE)</i>	<i>CI</i>	<i>t</i>	<i>p</i>	<i>b(SE)</i>	<i>CI</i>	<i>t</i>	<i>p</i>
(Intercept)	-.00 (.44)	[-.87, .85]	-.01	.995	-.02 (.38)	[-.72, .76]	.06	.955	.00 (.37)	[-.74, .73]	-.01	.991
Income	-1.14 (.44)	[-1.99, -.09]	-2.61	.009	-.28 (.39)	[-1.04, .48]	-.72	.471	-.28 (.38)	[-1.04, .47]	-.73	.464
Immigrant	-.50 (1.27)	[-2.99, 1.99]	-.40	.691	-.99 (1.1)	[-3.22, 1.2]	-.88	.382	-.79 (1.1)	[-3.0, 1.4]	-.70	.484
Education	-.72 (.33)	[-1.37, -.07]	-2.17	.031	-.42 (.3)	[-1.02, .17]	-1.4	.161	-.43 (.30)	[-1.0, -.16]	-1.4	.156
Parity	1.62 (.62)	 [.41, 2.84]	2.64	.009	1.63 (.53)	 [.59, 2.68]	3.08	.002	1.56 (.53)	 [.52, 2.61]	2.94	.004
Depression					.93 (.16)	 [.61, 1.25]	5.76	<.001	.92 (.16)	 [0.61, 1.24]	5.74	<.001
Anxiety					-.27 (.21)	[-.68-.38]	-1.3	.185	-.25 (.2)	[-.7, .15]	-1.2	.218
Maternal sleep					.01 (.19)	[-.36, .38]	0.07	.945	.02 (.19)	[-.35, .39]	.10	.917
Fatigue					.09 (.06)	[-.03, .21]	1.5	.135	.09 (.06)	[-.02, .21]	1.57	.117
Support					.04 (.04)	[-.05, .12]	.88	.381	.04 (.04)	[-.05, .12]	.84	.401
Sleep anger					.55 (.11)	 [.34, .76]	5.12	<.001	.53 (.11)	 [.32, .74]	4.97	<.001
Infant age									.29 (.20)	[-.09, .68]	1.49	.138
Sleep anger * Infant age									.09 (.05)	[.01, .19]	1.85	.066
Observations	276				271				271			
R ² / R ² adjusted	0.084 / 0.071				0.371 / 0.346				0.384 / 0.355			

Note. Model variables that are bolded are statistically significant.

In answering the research question about the contributions of the discussed predictor variables to maternal anger, the model (Table 4.16 Model 3) supported parity, depression, anger about infant sleep as variables that significantly predicted maternal anger. The interaction term between infant age and sleep anger demonstrated a significance value that was close to predicting maternal anger. Increased parity (more than 1 child at home), higher depression scores, and anger about infant sleep scores predicted higher levels of maternal anger. In the next section, I will describe the measures I took to improve the model fit (Section 4.5).

4.5 Model Diagnostics and Improving Fit

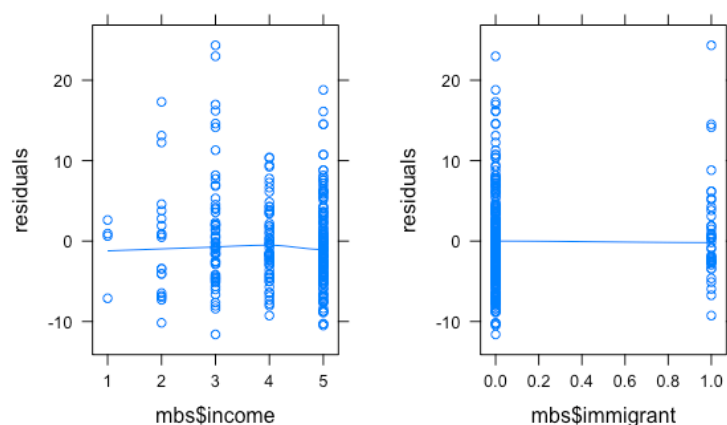
The assumptions of ordinary least squares (OLS) regression were examined against the interim model residuals. These assumptions include linearity, equal variance, normality, and independence of the residuals as well as a lack of multicollinearity (Tabachnick & Fidell, 2007). First, the assumptions for linearity and equal variances were examined in tandem by plotting the interim model residuals against each predictor variable. In terms of linearity, the predictors had approximately adequate linear associations with the residuals (Figure 4.10). In terms of the equality of variances, there was a moderately uneven distribution of residuals over the categories in maternal education and income. There was also an average negative slope in the residuals for maternal sleep quality, fatigue, depression, anxiety, support, anger about infant sleep, and infant age.

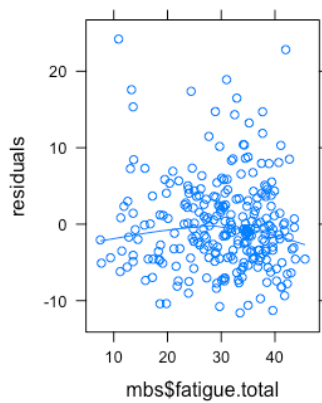
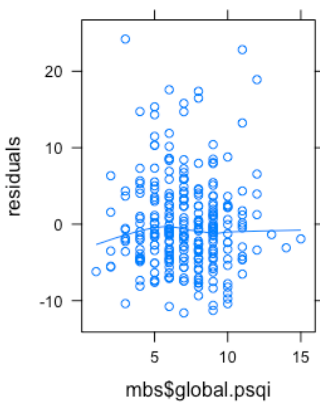
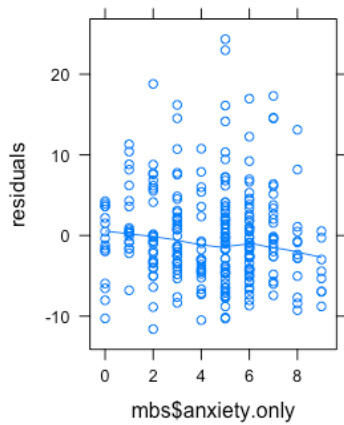
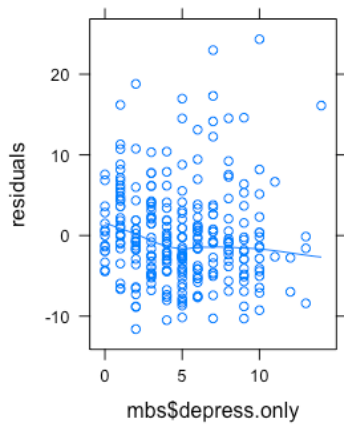
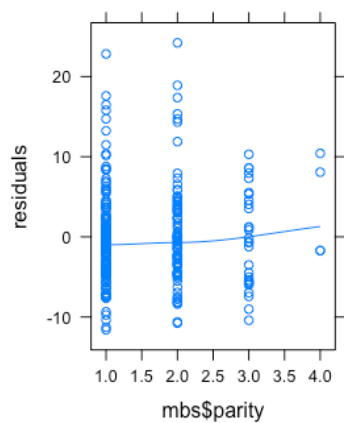
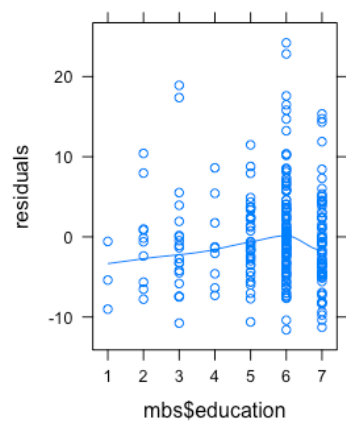
Model residuals were also plotted against the predicted model values (Figure 4.2), revealing heteroscedasticity as indicated by the funnel shape of the scatterplot, violating the assumption of equal variances. Heteroscedasticity of residuals suggests model misspecification e.g., missing interaction term or a need for higher order terms for existing variables (Cohen, 2003; Tabachnick & Fidell, 2007). Examination of the interim model's quantile and standardized

residuals plot revealed a skewed sample distribution (Figure 4.3). Skewness of the residuals was 1.04, while kurtosis was 1.6, indicating positive skew and platykurtic distribution. It has been suggested that skewness of less than 2 is tolerable (Field et al., 2012). Outliers were examined as a part of the normality assumption by inspecting the residuals versus leverage plot (Figure 4.3). Although it is apparent that there are outliers (i.e., participants 58, 101, 140); they did not have undue leverage over the regression results as evidenced by Cook's distance values for participants 58, 101, and 209 being less than 1.0, therefore they were unlikely to have a large amount of undue influence (Field et al., 2012).

Collinearity of the interim model was also examined by calculating variance inflation factors (VIF) for each predictor. VIF values of greater than 2.5 and 5 indicate possible collinearity and serious collinearity respectively. The interim model VIF values ranged from 1.03 for infant age to 1.79 for depression. Finally, the assumption for independence of data was met (Durbin Watson test = 2.06, $p = 0.68$); Durbin Watson test values of less than 1 or greater than 3 create concern (Field et al., 2012).

Figure 4.2 OLS Regression Model Predictors and Residuals Plots





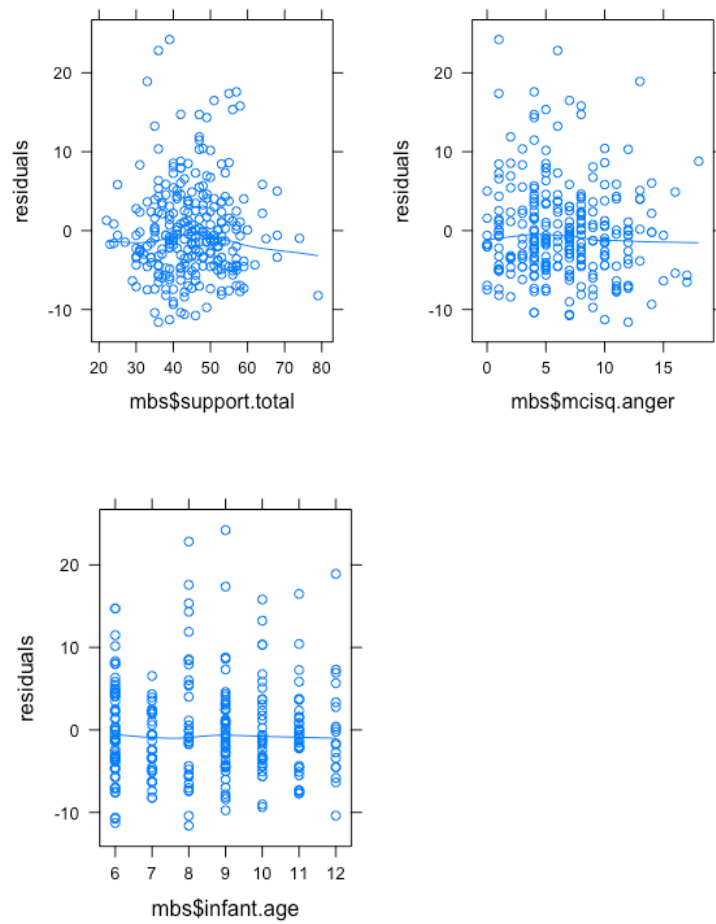


Figure 4.3 Interim Model QQ Plot and Leverage Plot

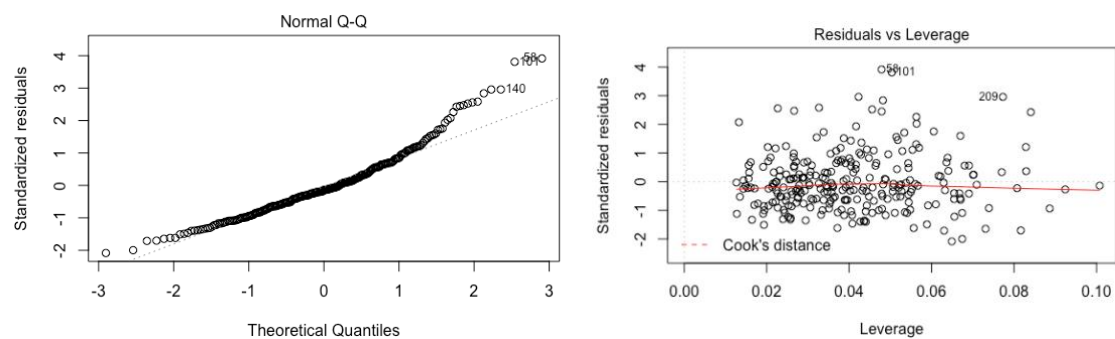
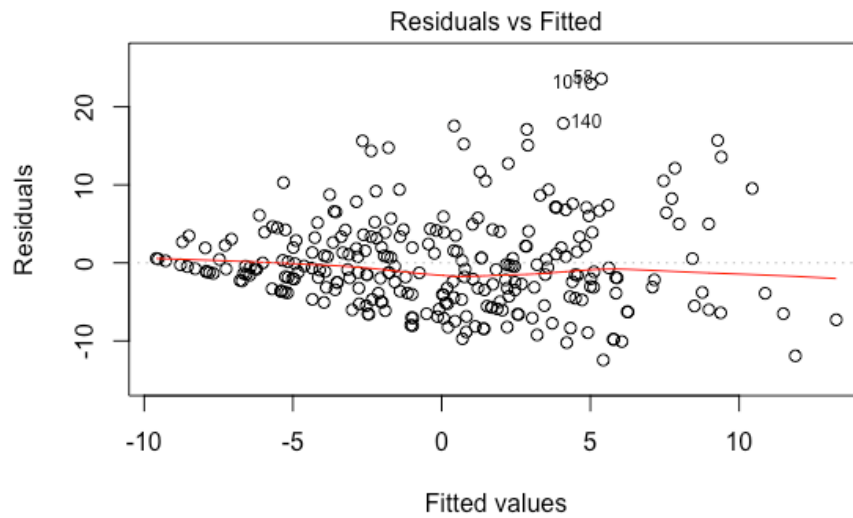


Figure 4.4 Interim Model Residuals versus Predicted Scatterplot

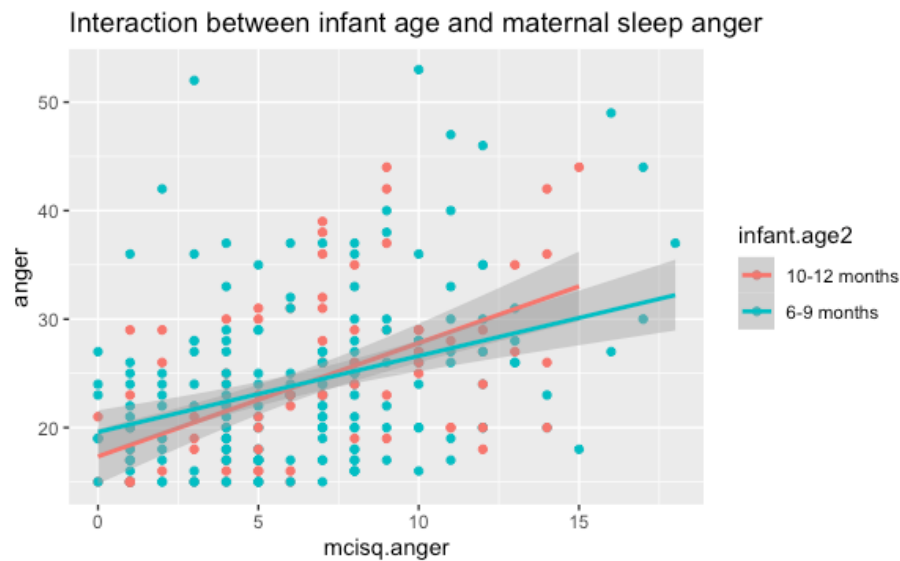


The most concerning assumption violation was that of homogeneity of variances (Figure 4.4), which can cause model misspecification (a biased model). With heteroscedasticity, the errors of prediction increase as the size of prediction increases (Tabachnick & Fidell, 2007). Omitted variables are often a source of model misspecification (Cohen, 2003; Little et al., 2017).

4.5.1. Corrections for heteroscedasticity using an interaction term

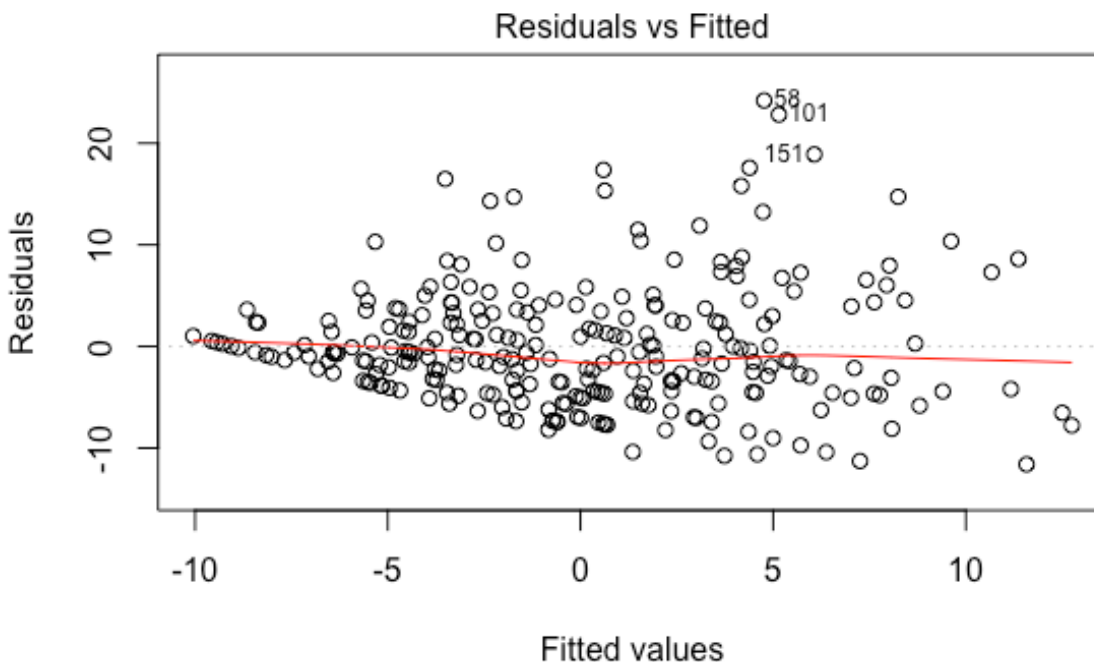
In order to address the model misspecification, the addition of higher order terms for each of the variables, which may have had non-linear relationships with anger (e.g., infant age, see Figure 4.2), were tested. However, the addition of higher order terms (e.g., quadratic terms for support and fatigue) did not correct the model misspecification. Next, possible interactions between variables were tested from a theoretical standpoint (e.g., depression and distress about fatigue). A small but nearly significant interaction between infant age and maternal anger about sleep (sleep anger) was identified, with older infant age predicting higher maternal sleep anger than younger infant age ($b = .09$, $t(261) = 1.85$, $p = .065$) (Figure 4.5). The interaction term also slightly improved the regression model fit ($R^2 = .384$, $F(12, 258) = 13.4$, $p < .001$).

Figure 4.5 Interaction Plot of Infant age and Maternal Sleep Anger



The residuals were examined for the revised model. Adding the interaction term slightly improved the heteroscedasticity. The residuals versus fitted plot (Figure 4.6) still indicated constrained variance for respondents with low anger levels and larger variance of predicted versus actual values for those with higher anger levels. This suggested that there remained a missing variable that would help to explain the lack of variance at lower levels of anger. In conditions where homogeneity of residuals are violated, the beta coefficient estimates remain unbiased, while standard errors, and therefore significance values and confidence intervals, could be inaccurate (Cohen et al., 2003). Heteroscedasticity does not invalidate the model, but caution must be taken when extrapolating results to the population level because of biased significance and confidence interval values (Tabachnick & Fidell, 2007).

Figure 4.6 Revised Model Residuals versus Predicted Scatterplot



4.5.2. Corrections for Heteroscedasticity using Robust Techniques

I used robust regression posthoc to improve the accuracy of the model estimates of standard errors and significance values of the revised model. Robust standard errors for the OLS model, as recommended by Astivia and Zumbo (2019), were also obtained for comparison purposes. Using robust regression procedure to regress anger onto income, parity, infant age, education, depression, maternal sleep quality, distress about fatigue, partner support, and sleep anger and the interaction between sleep anger and infant age produced the following results displayed in Table 4.16. With the robust regression procedure, infant age ($b = .48$, $SE = 0.20$, $t = 2.36$, $p = .02$) became a significant predictor of maternal anger. Compared to the OLS model (Table 4.17), with robust regression, the following beta coefficients increased in size: parity (from $b = 1.56$ to $b = 1.93$) and interaction between sleep anger and infant age (from $b = .09$ to $b = .13$). The sleep anger and infant age interaction also crossed the threshold for significance in

the robust regression model ($b = .13$, $SE = 0.05$, $t = 2.16$, $p = .03$). The beta coefficients for depression decreased in size in the robust regression model (from $b = .92$ to $b = .50$) as did sleep anger ($b = .50$ to $b = .43$).

Table 4.17. Robust Regression Analysis Explaining Maternal Anger

<i>Predictors</i>	Robust Model 1				Robust Model 2				Robust Model 3			
	<i>b</i> (<i>SE</i>)	<i>CI</i>	<i>t</i>	<i>p</i>	<i>b</i> (<i>SE</i>)	<i>CI</i>	<i>T</i>	<i>p</i>	<i>b</i> (<i>SE</i>)	<i>CI</i>	<i>t</i>	<i>p</i>
(Intercept)	-1.14 (.44)	[-1.80, -0.47]	-2.60	.01	-4.00 (.76)	[-5.5, -2.46]	-5.28	<.001	-.96 (.38)	[-1.6, -.28]	-2.4	.012
Income	-1.29 (.40)	[-2.10, -0.51]	-3.25	.001	-.62 (.38)	[-1.36, .10]	-1.64	.10	-.65 (.37)	[-1.40, .05]	-1.78	.07
Immigrant	-.14 (0.96)	[-1.75, 2.06]	.14	.88	-.51 (.96)	[-2.52, 1.46]	-.53	.60	-.38 (.88)	[-2.20, 1.4]	-.43	.67
Education	-.53 (.30)	[-1.12, 0.08]	-1.77	.08	-.39 (.29)	[-.97, .16]	-1.35	.18	-.34 (.28)	[-.91, .20]	-1.26	.21
Parity	2.18 (.59)	[1.06, 3.4]	3.72	<.001	2.1 (.51)	[1.07, 3.14]	4.08	<.001	1.93 (.56)	[.82, 3.07]	3.46	<.001
Depress					.52 (.19)	[.14, .90]	2.70	.007	.50 (.20)	[0.14, 0.87]	2.66	.008
Anxiety					.05 (.21)	[-.39, .45]	.146	.88	.06 (.21)	[-.36, 0.48]	.272	.79
PSQI total					.12 (.18)	[-.25, .47]	0.66	0.51	.16 (.17)	[-.17, .50]	.98	.33
Fatigue total					.07 (.05)	[.02, .17]	1.47	.14	.07 (.05)	[-.03, .17]	1.45	.15
Support					.06 (.04)	[-.00, .14]	1.79	.07	.06 (.04)	[-.01, .14]	1.85	.07
Sleep anger					.48 (.13)	[.23, .73]	3.65	<.001	.46 (.12)	[.22, .70]	3.85	<.001
Infant age									.48 (.20)	[.07, .89]	2.36	.02
Sleep anger * Infant age									.13 (.05)	[.01, .24]	2.16	.03
Observations	276				271				271			
R ² / R ² adjusted	0.137 / 0.124				0.398 / 0.375				0.437 / 0.411			

Note. Model variables that are bolded are statistically significant.

4.5.3. Comparison of Robust Techniques

Robust standard errors applied to the OLS model resulted in a model that was fairly similar to the OLS model in terms of the beta coefficients and standard errors (Table 4.18). The interaction term between infant age and sleep anger was not significant in the OLS model with robust standard errors. R^2 and adjusted R^2 remained the same ($R^2 = .3884$, adj. $R^2 = .355$) in the OLS model and the OLS model with robust standard errors. The robust regression results provide a set of variable coefficients that are less likely to be biased because robust regression is capable of producing more accurate standard errors and significance values over OLS regression (Erceg-Hurn & Mirosevich, 2008). When robust regression coefficients were compared to the OLS model, they were fairly similar in terms of the unstandardized beta coefficients. Infant age, and sleep anger as moderated by infant age, were significant predictors of maternal anger in the robust regression model, which differed from the OLS model. The use of robust regression increased R^2 from .388 in the OLS model to .437, increasing the variance explained in maternal anger using robust technique.

Table 4.18. Comparison of OLS Regression, OLS Regression with Robust Errors, and Robust Regression

<i>Predictors</i>	OLS				OLS with Robust Errors				Robust Regression			
	<i>b</i> (<i>SE</i>)	<i>CI</i>	<i>t</i>	<i>p</i>	<i>b</i> (<i>SE</i>)	<i>CI</i>	<i>T</i>	<i>p</i>	<i>b</i> (<i>SE</i>)	<i>CI</i>	<i>t</i>	<i>p</i>
(Intercept)	.00 (.37)	[-.74, .73]	-.01	.991	-.00 (.39)	[-.76, .76]	-.01	.99	-.96 (.38)	[-1.6, -.28]	-2.4	.012
Income	-.28 (.38)	[-1.04, .47]	-.73	.464	-.28 (.40)	[-1.06, .50]	-.71	.480	-.65 (.37)	[-1.40, .05]	-1.78	.07
Immigrant	-.79 (1.1)	[-3.0, 1.4]	-.70	.484	-.79 (1.18)	[-3.12, 1.53]	-.67	.504	-.38 (.88)	[-2.20, 1.4]	-.43	.67
Education	-.43 (.30)	[-1.0, -.16]	-1.4	.156	-.43 (.30)	[-1.02, .17]	-1.41	.161	-.34 (.28)	[-.91, .20]	-1.26	.21
Parity	1.56 (.53)	[.52, 2.61]	2.94	.004	1.56 (.55)	[.47, 2.65]	2.83	.005	1.93 (.56)	[.82, 3.07]	3.46	<.001
Depress	.92 (.16)	[0.61, 1.24]	5.74	<.001	.92 (.24)	[0.45, 1.39]	3.86	<.001	.50 (.20)	[0.14, 0.87]	2.66	.008
Anxiety	-.25 (.2)	[-.7, .15]	-1.24	.218	-.25 (.28)	[-.80-.29]	-.91	.36	.06 (.21)	[-.36, 0.48]	.272	.79
Maternal sleep	.02 (.19)	[-.35, .39]	.10	.917	.02 (.20)	[-.37, .41]	.1	.92	.16 (.17)	[-.17, .50]	.98	.33
Fatigue	.09 (.06)	[-.02, .21]	1.57	.117	.09 (.06)	[-.02, .21]	1.62	.106	.07 (.05)	[-.03, .17]	1.45	.15
Support	.04 (.04)	[-.05, .12]	.84	.401	.04 (.04)	[-.04, .12]	.88	.378	.06 (.04)	[-.01, .14]	1.85	.07
Sleep anger	.53 (.11)	[.32, .74]	4.97	<.001	.53 (.14)	[.27, .80]	3.94	<.001	.46 (.12)	[.22, .70]	3.85	<.001
Infant age	.29 (.20)	[-.09, .68]	1.49	.138	.29 (.21)	[-.12, .71]	1.39	.167	.48 (.20)	[.07, .89]	2.36	.02
Sleep anger * Infant age	.09 (.05)	[.01, .19]	1.85	.066	.09 (.06)	[-.03, .22]	1.47	.144	.13 (.05)	[.01, .24]	2.16	.03
Observations	271				271				271			
R ² / R ² adjusted	0.384 / 0.355				0.384 / 0.355				0.437 / 0.411			

Note. Model variables that are bolded are statistically significant. **Pink** highlight indicates a trending towards significance. **Blue** highlight indicates a change in significance.

4.6. Chapter Summary

My exploratory data analysis of the survey data revealed that the participants tended to be well-educated with higher incomes, have one to two children, and be non-immigrants. In answer to the first research question, almost one third of participants had anger scores in the 90th percentile and almost one quarter had depressive symptoms above the cut-off score. The odds of having high levels of anger was increased by a factor of 3.96 for women who scored above cut-off on depressive symptoms ($OR = 3.96$, 95 % $CI [2.25, 6.98]$, $p < 0.001$). As expected, maternal income, income adequacy, education, parity, depression, sleep quality, fatigue, infant sleep quality, and sleep anger were significantly correlated with maternal anger, while immigration and support were not significantly correlated with anger, contrary to expectations.

When demographic variables (income, education, immigration, and parity), depression, fatigue, support, sleep quality, sleep anger and an interaction term between sleep anger and infant age were entered into an OLS regression model, parity, depression, and sleep anger were found to be significant predictors of maternal anger. Model diagnostics revealed a moderate degree of heteroscedasticity in the model residuals, violating the assumption of equal variances. Robust standard errors for the OLS regression and a robust regression were undertaken to address heteroscedasticity and to improve the quality of inferences that can be made from the data. Robust standard errors applied to the OLS model resulted in fairly similar beta coefficients and standard errors and identical R^2 . Running the model using robust regression technique resulted in infant age and the interaction term between infant age and sleep anger becoming significant predictors of maternal anger in addition to parity, depression, and sleep anger. Contrary to our hypothesis, support and immigration were not predictors of maternal anger in the OLS model and robust model.

Chapter 5: Qualitative Results

This chapter details the grounded theory findings from the in-depth telephone interviews with participants recruited from the quantitative survey to address the research aim of discovering the process and conditions by which women develop and manage anger in the postpartum period. Section 5.1 details participant characteristics. In section 5.2, a grounded theory about the development of anger (seeing red) and its categories is presented and described.

5.1 Participant Characteristics

Women who completed the quantitative survey between March 31 and June 29th 2019 were asked to indicate interest in phone interviews about mood after childbirth. Interviews occurring between April 2019 and March 2020 ranged from 52 minutes to 126 minutes in length. Twenty participants who resided in British Columbia, Alberta, Ontario, Saskatchewan, or Manitoba were interviewed. Two interviews were excluded post-hoc. Data analysis indicated that the two women met the exclusion criteria because they had infants with health problems requiring medical management. Women were between 25 and 37 years of age. Because organizing and conducting the interviews took 11 months, the women's infants were between 7 and 23 months³¹ of age at the time of their interviews. Sixteen of the eighteen participants were of European descent, with one participant of Indigenous ancestry and one participant of South Asian ethnicity. All participants were in heterosexual relationships. Their household incomes

³¹ Ava's child was 12 months of age at the time of survey completion (June 25, 2019). I interviewed her on March 9, 2020 when he was 22 months old. Collen's child was 11 months at the time of survey completion (April 15, 2019). I interviewed Colleen March 16, 2020 when her child was 23 months of old.

ranged from \$30,000-59,000 to greater than \$110,000 per year³². Slightly less than half of the women were primiparous.

Participants were selected primarily based on their anger scores and secondarily on their depression scores. All but the first participant (Dawn bordered on high anger) had anger scores greater or equal to the 90th percentile on the SAS in order to increase the likelihood of capturing maternal experiences with anger. Because it was important to establish variation in the types of anger women experienced in the presence and absence of depressive symptoms, participants were included with EPDS scores ranging from 4 to 20, with 50% (n = 9) having scores above the cut-off for possible depression.

Participants also had a range of severity of infant sleep problems, with the majority reporting moderate infant sleep problems (n = 13), two reporting serious sleep problems, and three reporting no infant sleep problem. Having infants with sleep problems (moderate or serious) likely had an effect on whether participants shared experiences of infant sleep-related anger. Including women who did not perceive that their infants had a sleep problem facilitated women sharing non-sleep related anger experiences.

³² Statistics Canada reported that in 2018, the Canadian median household income was \$61,400.

Table 5.1 Participant Characteristics in Interview Order

Alias	Age	Children	Infant age in months at interview (Sex)	State Anger Score*	EPDS Score**	Infant Sleep Problem
Dawn	36	1	8 (Male)	25	8	Serious
Nicole	37	2	7 (Female)	37	12	Moderate
Liz	32	2	8 (Male)	49	15	Moderate
Frances	33	2	13 (Female)	26	7	Serious
Maya	30	1	10 (Male)	36	8	Not a problem
Sara	37	1	14 (Female)	29	17	Moderate
Audrey	35	2	14 (Female)	27	11	Not a problem
Elizabeth	31	1	14 (Female)	29	10	Not a problem
Serenity	25	1	12 (Male)	27	20	Moderate
Margaret	34	2	13 (Male)	30	6	Moderate
Alicia	32	1	17 (Male)	31	14	Moderate
Shannon	30	2	13 (Female)	30	12	Moderate
Megan	33	1	17 (Male)	42	13	Moderate
Meadow	31	1	15 (Male)	28	16	Moderate
Elisabeth	35	4	18 (Female)	38	16	Moderate
Ava	37	2	22 (Male)	36	8	Moderate
Colleen	28	2	23 (Male)	31	4	Moderate
Kelly	25	2	19 (Male)	40	14	Moderate

*State Anger Score of 27 constitutes 90th percentile in anger (high anger). **Edinburgh Postnatal Depression Scale Cut-off for possible depression is >12

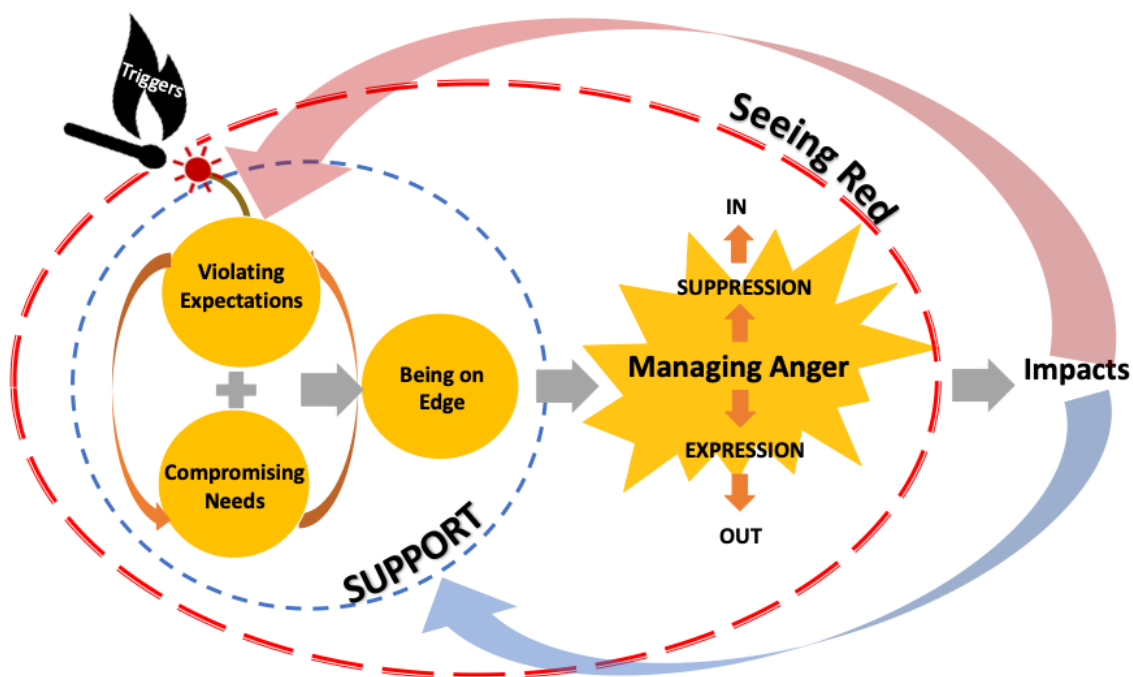
5.3 Basic Social Process: Seeing Red

A core category or core variable is arguably the heart of any grounded theory. Glaser (1978) described a basic social process as a type of core category that is processual in nature with two or more emergent stages. This section delineates the basic social process of seeing red and its three stages of 1) triggers illuminating violated expectations and compromised needs, 2) managing anger, and 3) anger impacts. The development and management of anger, which occurred in varying intensities from frustration to rage, encompassed the experience of seeing red. In the postpartum period, the first stage (trigger stage) of seeing red occurs when women experience a triggering situation which symbolizes a violation of their expectations, which are associated with compromised needs. Violated expectations transpired when there was a mismatch between what a woman expected to happen in a situation and what actually happened; violated expectations were exposed by a trigger. Regarding their expectations as violated and needs as compromised led women to be on edge (Figure 5.1). A trigger was a situation or behavior from another person that symbolized a perceived insult, rejection, unfairness, or an obstruction of their expectations that compromised needs for the women. Triggers offered opportunities for anger to erupt because they represented a breaking point for women in tolerating the situation at hand.

Violated expectations led to compromised needs, which included physiological needs (e.g., for sleep, rest, food), emotional connection needs (belonging, being heard, and loved and cared for), esteem needs (self-esteem, respect from others, and mastery of parenting), and self-actualization needs (time for self for personal growth, self-expression, and autonomy). For example, a common trigger for seeing red was an infant who did not go back to sleep at night after a nighttime wake, which illuminated violated expectations about maternal competence and

compromised a woman's need to get enough sleep. In the second stage (management stage) of seeing red, anger was expressed or suppressed and could be reduced. Anger was expressed at one's self and/or expressed towards others. Anger towards others could be suppressed when women tried to hide it. In managing anger women sometimes attempted to control it or come down from anger. In the last stage (impact stage), outcomes occurred after participants' attempts to manage their anger. Anger could create tension and conflict when expressed to others. On the other hand, when women suppressed their anger it could be difficult to resolve their anger because they could not address the reason behind their anger with the person they regarded as angering them. Alternatively, when women expressed their anger a possible effect was the recruitment of support from others, even though anger could temporarily create tension and conflict. A recruitment of support helped to reduce the participants' violated expectations, compromised needs, and feelings of being on edge.

Figure 5.1 Seeing Red – Trigger, Management, and Impacts



Viewed through the theoretical framework of relational autonomy, the category of support (or lack thereof) maps onto a core idea in relational autonomy that an individual's autonomy and well-being is dependent on systemic structures and those around them (Goering, 2017; Mackenzie & Stoljar, 2000). Support was an important category that affected the intensity of seeing red for the women (Figure 5.1). Support given to participants contributed to meeting women's compromised needs and lessening women's feelings of being on edge, thereby reducing the frequency and intensity of their anger. Support decreased or removed the fuel for women's anger. The women described two layers of support that were related to their autonomy and well-being. The layers were availability of social (e.g., partners, kin, and friends) and structural supports (e.g., postpartum programs and health care providers).

Support as a category threaded through the three stages of seeing red. Examples of the availability of support and its influence on anger are integrated throughout the stages of the theory. The availability of support influenced all aspects of the participants' experiences and management of anger. When participants regarded others' efforts at supporting them as lacking or inappropriate, the lack of acknowledgement of their struggles served as a trigger for seeing red. Inadequate efforts at support symbolized a wrong or harm (e.g., others' disregard for participants' expectations and needs) provoking participant reaction. When appropriate support (as perceived by participants) was given by others or provided by external structures (such as postpartum support groups), triggers for seeing red were reduced because participants felt 'validated' or heard. Validation reduced their perceptions of violated expectations, compromised needs, and being on edge. Absent or inappropriate social and structural support symbolized through events, particularly in response to women's expression of anger triggered seeing red and entering the process again (violated expectations, compromised needs, and being on edge).

Participants who had family, friends, and structural supports that were available and helpful indicated fewer episodes of intense anger. Conversely, participants who described absent and inappropriate support indicated having continued violation of expectations, compromise of needs, feelings of being on edge, and persistent anger.

5.3.1 Characteristics of Participants' Anger

Almost every woman interviewed could describe multiple experiences of anger in the first year of their infants' lives. Women reported having feelings of anger that ranged in intensity from frustration to fury. The episodes usually involved themselves, their partners, children, families, or health care providers. Women recounted the incidents that stood out for them. A few women resisted characterizing these experiences as anger and instead labeled them as frustration. In each of the 'frustrating' scenarios described, the participants indicated that the intensity of emotion was enough to prompt them to take a break from the situation in order to come down from frustration and feeling upset with the situation. For example, although Dawn did not relate her experiences as feeling angry, she shared that:

I don't think I'd go so far as to say that I felt angry. For me, it's frustration. Just you know, like I mentioned we have those days where he is really whiny. Or I find that the behavior to be more challenging. You know stuff like that that get really frustrating for me. I work in child development so I think I have a different lens that allows me to try to be constructive but it would sometimes still be difficult right? Definitely frustration has come on. Sometimes just in how I feel with him and also in life in general.

In most cases, participants described their experiences as prompting them to feel angry.

Elizabeth described a memorable incident:

This one night [the baby] just wouldn't stop arching and screaming. He wouldn't latch on. And then my husband warmed up a bottle and he went in and James completely finished the bottle, fell asleep instantly. He was down no problem and I lost it. I just started crying. I got into bed and I looked at my husband and I said, "You know what, I'm done. I cannot do this anymore. He is your problem for the next 24 hours. I'm done." He [the baby] broke me. I was so upset and angry and sad. I literally stayed in bed all day

long. I didn't eat. I got up to go to the bathroom and have water. I stayed in bed. That was a pretty big break down that I had that day.

Incidents where participants described feeling furious and full of rage also occurred. Some participants were surprised at the depth of their anger, which they expressed was unlike any other anger they had felt prior to having a baby. Alicia recalled that:

There were so many times when I would just be so mad and yelling at my husband, like, this isn't me, what is wrong with me, this isn't who I am, and just so angry. And raging, like, definitely raging, because there was just so much anger built-up. And it's funny that we have this Incredible Hulk poster, and it says, *The Monster Unleashed*, and I literally remember seeing that a couple of times and thinking that I – like, seeing myself as that, seeing myself as this monster being unleashed, because there's so much rage inside of me, that I needed an outlet. It had to come out. So yeah, I would definitely identify with being filled with rage.

Sometimes women described the expression of their anger as purposeful because they used it to help ameliorate their violated expectations, meet their unmet needs, and/or to achieve an outcome, while other times participants indicated that expressing anger simply meant a loss of control over their emotions.

When participants were asked what anger and rage felt like, they described physical sensations. The physical sensations of anger included feeling “hot”, “heavy” in the head and/or chest, or stomach or, as like a full body or inner sensation, where “blood is boiling”, “bubbling”, “burning,” “vibrating”, “shaking”, “pulsing”, “radiating” and participants could be “exuding” anger or feel “tense”. Another physical quality of anger described by participants was the build-up of emotion that felt like it needed to be released or vented, such as feeling “like a pressure cooker and that I need to release the pressure somehow (Megan)”. Anger coming out was also described as feeling like a “snap”, “blowing up”, “losing it”. Feeling anger was often followed by attempts to “try not to explode” or to lose control. Nicole described trying to hold in anger as

“you can see it, but it [anger] is ahead of you, like you are chasing it, but it’s already out the gate”.

Anger was depicted as overtaking reason and perspective. A quality of anger and rage was that it could occur quickly. Alicia shared that intense anger put her “beyond any kind of emotional regulation”. Women often expressed awareness about their overreaction to a situation. Sara related losing perspective and described feeling unable to stop the path of anger she was going down. Nicole described an episode of anger where she was, “... picking everything up and slamming it all into the dishwasher and just so angry and I’m watching myself going, ‘what?’ – this is what I decide to get mad about? What is going on?” Some recounted that anger could occur unexpectedly without warning, like a “flash in a pan” (Colleen). Ava elaborated on the unexpectedness of anger:

I think I can be fine, fine, fine and then all of a sudden something just snaps and I get so angry. And I see that in my kids too, that they’re fine and they’re having fun, and then all of a sudden something happens and then they get super angry. And so I always wonder, like wow that changed so fast. But then it also happens for myself.

Their anger could catch participants off guard or transpire as a result of continued obstructions to respected expectations and/or meeting needs.

At other times, participants described anger building up when there were a series of irritations or frustrations. That build-up paved the way for anger to be expressed through a triggering event (e.g., a symbol for others’ lack of consideration for the participants) which became a breaking point for an outburst of anger. For example, Alicia recalled raging after many frustrating hours of attempting to get her baby to sleep one night.

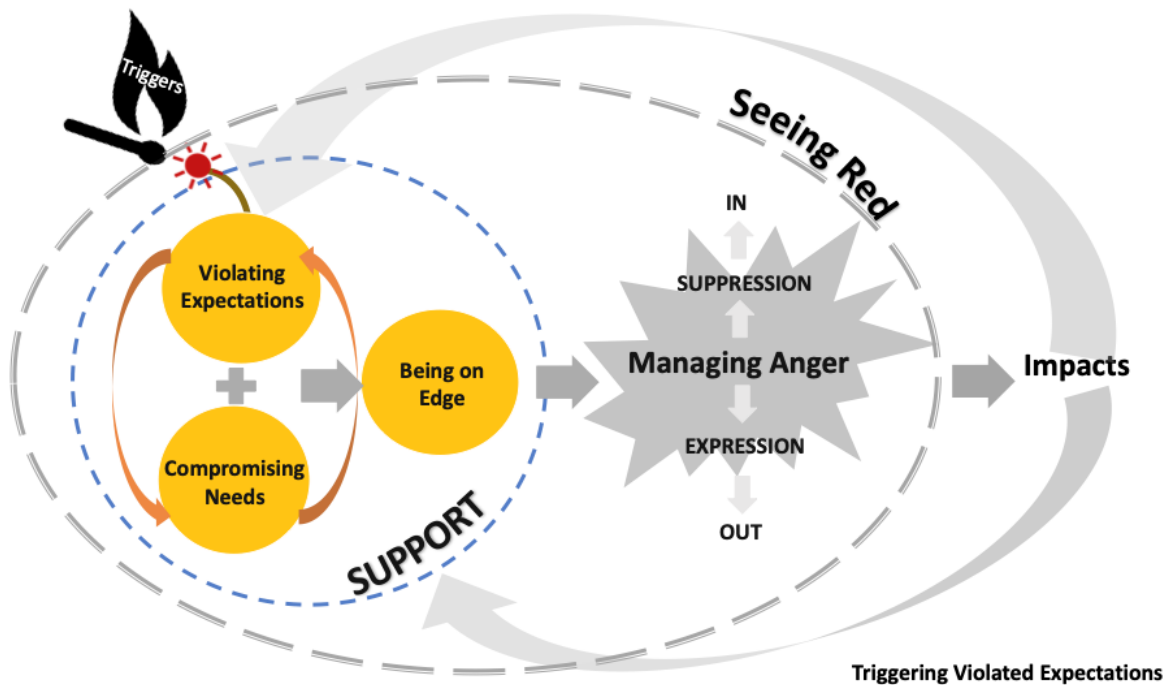
5.3.2 Triggers Illuminate Violated Expectations and Compromised Needs

The initial stage of seeing red involved a trigger, which is a symbol of a wrong, such as an injustice or unfairness, not being heard, as perceived by the individual. The trigger illuminates violated expectations, which in turn added fuel for anger because participants recognized their violated expectations were associated with their compromised needs, which contributed to feelings of being on edge (Figure 5.2).

Examples of triggers for anger include unsupportive remarks or actions from a partner, which symbolized a wrong for the women. For example, Ava was struggling to settle her infant back to sleep after a night wake when her partner came in and asked in exasperated tone why the baby was still crying. For her, the remark symbolized his lack of empathy for her struggle and appreciation for caring for their infant. Other triggers included repeated defiance from an older child (e.g., Shannon's daughter not listening to her mother's request not to play with the cat litter). These events symbolized being treated poorly and not being heard by others. Supportive behaviors that were desired but not available from partners, family, and friends also acted as triggers. Kelly shared that she had made great efforts to establish a relationship with her in-laws prior to having children. Kelly wanted her in-laws to be more involved with their new family, and their unwillingness to do so symbolized lack of reciprocity from them, illuminating her violated expectations and compromised needs and contributing to her anger at them. When women failed to meet their expectations for themselves (e.g., Serenity feeling like she was failing as a mother when she could not get herself to fall sleep at nighttime so that she could be well-rested enough to take care of her child), the events symbolized a wrong, as their need to be a competent mother was compromised. Triggers were events that symbolized an injustice or

unfairness or indifference which highlighted participants' violated expectations, compromised needs, and put them on edge, the first stage of seeing red.

Figure 5.2 Triggers Illuminating Violated Expectations and Compromised Needs



Participants indicated that they entered motherhood expecting that they would be able to attain their needs for adequate rest, sleep, nutrition, time for self, parental competence, and that they would achieve their needs through their own efforts and the support of others, especially partners. Violations of expectations to get adequate sleep served as a considerable source of anger for participants. Violated expectations were illuminated by a triggering event; for example, a baby not falling asleep despite numerous attempts at settling the baby highlights a mother's lack of feelings of maternal competence and her compromised need to get some sleep herself. Participants indicated that other commonly violated expectations included expectations of partners to engage in parenting as a fully shared undertaking; partners did not always partake in infant and household care to the degree that the women indicated they wanted or needed.

Participants also had expectations that they would have time for themselves that were often violated, and this was related to inadequate support from others and the community, for example, from partners, parents, health care providers or community programs. When the actions or inactions of others illuminated women's violated expectations and compromised needs, the women felt on edge (e.g., stressed, anxious, exhausted, and/or resentful).

After giving birth to her second child, Shannon expected her partner to support her by stepping up his parenting efforts. However, because her partner was dealing with his own mental health issues, Shannon had to singlehandedly pull most of the weight of childcare and household work. Shannon explained her expectations of her partner:

I had read an off-hand comment somebody had made about how second kids are often harder for dads because like they really have to step up. When the first baby comes, they [dads] kind of just take care of mom a lot, especially if mom's breastfeeding, which I did. But when baby number two comes, that's when [dads] like really have to be, like, parenting. And I found that was true, for me. And I found that my husband didn't adjust well. And I didn't feel like he was giving it back and I was really resentful of the fact that I was having to be emotionally supportive to him.

She went on to explain:

I got tired of accommodating him and I have since told him one of things I find infuriating about that situation is, I was the person who was supposed to be taken care of and I was taking care of literally everyone else. Like, I was taking care of his parents and their feelings and him and his feelings and the [older child] and the [older child's] feelings, and the new baby, and nobody was taking care of me.

She had expected to be supported and helped by her partner but instead found herself shouldering the work of the family, which left her with compromised needs for to be cared for by others as well as for time for herself.

Triggering events were symbols of a wrong that illuminated violated expectations or badly compromised needs; after those events, participants felt as though they could not tolerate

the present situation any longer. Anger followed as a reaction. For example, Meadow repeatedly encountered situations where her partner was not helping with the baby, leaving her to feel overwhelmed and exhausted and having violated expectations of parenting as a shared undertaking and her partner being competent as a parent. She was triggered when she had to ask her partner repeatedly to help with infant care, which illuminated her violated expectations and compromised needs. She related:

[I was] feeling really tired and frustrated and feeling like my husband wasn't helping out enough. And then just yelling at him that he needs to help me more and that it's tough going through what I'm going through and he probably doesn't get it. I think that same conversation happened several times throughout the first year.

For Serenity, a trigger was her husband entertaining friends while she was left alone having to manage the baby in their bedroom without his help. Serenity regarded her partner's actions as unsupportive, which highlighted the violation of her expectations of sharing the work of parenting with her partner and also having time for herself:

...I would get really angry when in my head I would be stuck in my room at nighttime because of the baby but my partner would be out in the living room with all of his friends drinking and having fun. I would really get angry about that because I felt like this isn't just my kid, why am I having to go through all of this?

Not being listened to and feeling disrespected acted as particularly potent triggers that illuminated violated expectations. Kelly returned home from a trip with her baby after leaving money for her partner to get the apartment cleaned before their return. When she opened the door to find that her partner had a party, resulting in an apartment that was too dirty to put her baby down, and then discovered that someone had messed up the nursery, Kelly raged because she felt betrayed by her partner; his actions illuminated his lack of respect for her needs. Kelly's expectations that her partner would care about her needs were violated.

Women were triggered when they felt unsupported and unheard by others. When Liz tried to explain to her family she wanted to sleep train her baby so that everyone could have a better night's sleep, Liz's parents questioned her choice by countering that Liz was never sleep trained and telling her that sleep training was wrong. Their responses illuminated their lack of support for Liz's expectations to be a competent parent and needs for sleep. When asked how she felt during those conversations, she replied:

I felt angry. I felt frustrated. I felt like I'm not being heard. I felt like they think that I'm a total idiot and I have no idea what I'm doing. I don't feel like what I want matters. I felt like they're thinking that I'm being selfish. I just don't feel heard basically.

Conversely, women described how having consistent support reduced triggers because events in their lives were less likely to illuminate violated expectations and compromised needs. Feelings of being on edge were reduced, making them less likely to reach the breaking point and express anger. Margaret provided a clear example of how support increased her threshold for keeping anger at bay. She had been struggling with not losing her temper with her older child, who was going through a long phase of having tantrums, while juggling the demands of infant care for the baby. Family support allowed Margaret the rest she needed. She explained:

Yesterday she [older child] had been away for the weekend with her grandparents and she came home and I was trying to make dinner, and they're both kind of in a stage where they're both jealous for my attention and fighting over my attention now. Because we had been without her all weekend, when she was having a tantrum last night, on the ground screaming and thrashing and I was trying to make dinner and she was clawing at me, I had a lot more patience for her and a lot more understanding that she'd been without us and this was her reaction, than I would have if I'd had a whole weekend of her having tantrums. I didn't have those big rage feelings at all – it was very annoying, but I had more understanding.

Support reduced the likelihood for women to experience triggers for seeing red. Margaret also described how her husband would routinely take the children out while she cooked dinner, which

allowed her to do something she enjoyed undisturbed, meeting her need for time to herself and a break from the children.

Participants who had lost their usual community and family support, including those who had moved to a new place without their usual supports, described many episodes of recurring anger. Lack of ongoing support increased women's risk of having violated expectations for personal time and parenting competence. Some participants described moving and other similar circumstances that led to the loss of immediate help and support from family members as particularly difficult. For example, despite Alicia's infant never having been a good sleeper, Alicia shared that,

So [at first] were at my mum's place and I had my mum and my grandfather there and we were at my husband's parents' place. So no matter how bad the nights were, we had someone to take him in the morning and then I would get a couple of hours' sleep.

Alicia's family was initially able to watch the baby during the morning so that she could catch up on her sleep. However, after moving out of her mother's house when the baby was 4 months old, she was unable to meet her expectations for sleep and rest, and her baby not settling to sleep at night acted as a trigger, highlighting her violated expectations and compromised needs and resulting in anger. Kelly described her family as intensely supportive, which helped her meet her expectations for parenting competence during challenging early days of mothering her first baby. However, her mother was less available to help her with her second baby because her sister gave birth to twins around the same time and required more of their mother's support. As a result, Kelly described caring for two small children as violating her expectations for parenting competence and time for herself. The loss of her mother's support left her on edge because it exposed the expectations that were violated and needs that were compromised and predisposed Kelly to anger at herself and her partner. Having family support available helped women to meet

their expectations for sleep and rest, and when support was not available, meeting those expectations became more difficult and needs were compromised.

Often, women reacted angrily when the behaviors from their infants and older children violated their expectations for sleep and rest. Infants waking constantly at night and being difficult to settle back to sleep were events that served as symbols of women's violated expectations and compromised needs and resulted in anger for several participants. Elisabeth related how she was frustrated because her fourth baby was still not sleeping through the night at a point when all her previous babies had started sleeping through the night. The difficulty with her baby learning to self-soothe to sleep was an event that illuminated the violation of expectations about being a competent parent and needs for getting sleep and rest. Audrey talked about how comparisons with other friends who had babies who were sleeping through the night (implications of parental competence) when her baby was still not sleeping through the night were frustrating. On other occasions, others' expectations about parental competence that were internalized by mothers indicated sociocultural dynamics that could be at play. Alicia explained,

And I think that social media is blessing and a curse. If I could change anything, it would be that I did not focus on any kind of sleep control. The kid is going to sleep if he or she is ready. I know it's developmental, I know there are so many factors, and I put a lot of weight on what these sleep trainers, society, or culture was saying. I'm still struggling with letting it go, but I know a lot of other mums now whose kids are two years and up, who still wake a couple of times a night. Everybody wakes at night; some can go back to sleep on their own and some can't.

Nights when it was difficult for Alicia to settle the baby to sleep, despite trying many strategies, served as a trigger because they illuminated the violations of her expectations and compromised needs. This resulted in Alicia feeling on edge and angry. She related:

I definitely had a lot of anger around sleep. I attribute it back to the inability to control his sleep. And then getting frustrated with, why the hell won't you sleep, and what's wrong

with you, what's wrong with me, because I haven't been able to fix it for him, I haven't been able to make him more comfortable or figure out what's causing the problem.

For Alicia, her son's ongoing sleep problems illuminated the violation of her expectations to be a competent parent who can get her child to sleep. Similarly, Megan's son's challenges with sleep illuminated the violation of her expectations of being a competent parent, which contributed to her being on edge and angry. Megan recalled:

Actually every time that I would feel angry would coincide with trying to put Milo to sleep. And I didn't have any of those angry feelings when I would just be on my own. It would be like strongly linked to trying to get him to fall asleep.

Liz indicated that her parents deliberately undermined her efforts at sleep training with the baby whenever she was away in the evenings. They also argued with her about her decision to sleep train. For Liz, the actions symbolized her partner and parents not supporting her expectations of being a competent parent or having adequate sleep and rest, which put her on edge and contributed to her anger. She expressed that her anger was at them rather than at her baby for waking up and not being able to self-soothe back to sleep.

Children's misbehavior, especially when demonstrated by older children/toddlers, also acted as triggers because they symbolized a lack of care/attention to their mothers. They highlighted mothers' challenges with meeting expectations for being a competent parent, putting them on edge and resulting in their anger. Liz described that her children could "push my buttons in a way that's never been pushed before" which undermined her expectations of being a competent parent. Shannon related:

I feel like that's one of my triggers - I have very little patience for my children not listening to me, because I don't feel listened to. I used to be like stoic and laid back, go with the flow and flexible, and that's not me anymore.

She described a time where her older child was defying her explicit instructions not to play with the cat litter. Her daughter being about to dump the cat litter on Shannon's bed was the breaking point. Her behavior symbolized a lack of respect for her mother's wishes, which put Shannon on edge; the anger arose because Shannon's expectations for being a competent mother were violated.

Participants' expectations of themselves as a competent mother were internalized from others, in this case, societal depictions of a 'good mother' who can gracefully manage all the ups and downs of parenting. For example, Maya explained about how parenting events symbolized violations of what she had internalized as reasonable expectations for parenting. That put her on edge and contributed to her feelings of anger in the postpartum period:

There were explosive moments and they definitely felt out of control. I think a lot of it was also just like pent up frustrations and feelings that I think as mothers, there's this belief that we have to be super warm and loving and just sort of like take everything, all the shit that you have to deal with. And just like very gracefully deal with it but that's so not my experience like the day-to-day is really hard and it leads to like a lot of negative feelings.

Maya's expectations of being a competent parent were violated when she realized she did not want take care of the baby by herself all day long. Maya indicated that being alone for hours with the baby without a break with the baby demanding constant attention was a major trigger that illuminated her violated expectations and compromised needs for self-actualization, leading to anger.

There were also violations of the expectation that participants would have time for themselves so that they could maintain their pre-motherhood activities. Megan's baby was sleeping poorly at night, which demonstrated behavior that symbolized lack of response to her efforts to settle him to sleep and illuminated her violated expectations and her compromised

needs. Her lack of sleep and rest reduced her enjoyment of motherhood and undermined her expectations that she would be a competent mother and have time for herself. Megan explained, “It felt like I wasn't able to enjoy any of my time as a new mother. I put a lot of pressure on myself to think I could continue to travel and work and do all these things as a new mother.” Megan also had anger at her broken expectations about the ideals she had held for herself, and related, “It definitely affected my confidence in myself as a mother, and this ideal I had in my mind to just be always present and loving and gentle sort of state”. Dawn articulated the disconnect between ‘knowing’ the demands of having a baby prior to the baby’s arrival and events that illuminated that she had little idea what it was actually going to be like that violated her expectations about being a competent parent:

Absolutely, parenthood is what I wanted. I wanted to be in this situation, I always wanted to be a parent. We worked very hard for this pregnancy, this is what I wanted. I knew kind of what to expect, I knew it wouldn't be easy, I knew it's tiring, and up at night, that babies are demanding, but at the same time resenting parts of it as well. And for sure I feel a lot of guilt around that. And [now] also feeling that's it's okay to feel both things at the same time. What's been hard is going through periods of almost grief, grieving the life before me and feeling terrible about that because I wanted this baby this so badly and I'm so fortunate to have him in my life.

Dawn’s anger partly arose from violating her expectations about time for herself. These examples illustrate how, despite consciously knowing that motherhood could be difficult and tiring, women had expectations about enjoyment and competence in motherhood that were not always met. Having violated expectations was part of the fuel for anger. Violated expectations increased the risks of compromised needs, which contributed to feeling on edge and fuel for anger.

5.4.2 Compromised Needs

Violated expectations were associated with women's compromised needs, which drove them to being on edge (e.g., feeling exhausted or being in despair); all of those conditions provided fuel for women's anger. Participants indicated that their needs ranged from basic physical needs (for nutrition, sleep, rest, hygiene, and exercise), to needs for esteem (self-esteem, parenting and role confidence, respect from others) and being heard, loved, and cared for, as well as self-actualization (having autonomy and time for self). Women who became very angry typically experienced a combination of compromised needs. For instance, unmet needs for adequate sleep had effects of making them too tired to engage in meaningful emotional connections with partners or family members, and/or acted as a hurdle to engaging in activities that would contribute to self-actualization due to lack of motivation and energy.

5.4.2.1. Physical Needs

In terms of compromised physical needs, some women spoke about how they failed to eat adequately because they lacked the time or energy to prioritize eating. Other women had partners or family members who recognized that they were not eating and made sure they had food and ate regularly. Colleen explained that it was sometimes having enough to eat and having had enough sleep that made the difference between a day where she would erupt in anger versus being able to hold off on reacting to her older child's defiance. Dawn shared that she did not have the energy to prepare foods that would have been nutritious for her and instead, she was drawn to sugary foods to compensate for how exhausted she felt.

The need for adequate sleep was the most predominant compromised need that contributed to being on edge (distress) and ultimately anger. Many participants indicated they

experienced multiple infant night wakes, which interrupted their sleep. Ava related being both angry and sad about her situation, with her anger sometimes expressed by tears:

There would be times where I would be in tears. Maybe feeling sorry for myself. Like, why do I have to be up taking care of this baby, having to breastfeed the baby? Just wanting my needs met, and they're not being met, like night after night. I'm not getting sleep. I would say nighttime tears would be pretty - that would be what it would end to. During the day then I wouldn't cry, normally. That's when I would get angry and want to yell. But at night then it would be no, I'm angry and I'm going to cry.

Meadow, a nurse who was familiar with night shift work, explained that her compromised need for sleep arose from the sleep fragmentation from infant nighttime care and was harder to manage than working night shifts. Elisabeth shared that almost every day, she felt exhausted as soon as she woke up in the morning having to face the day with inadequate sleep. Some participants indicated that the combination of infants waking frequently and anxiety about sleep severely compromised their need for sleep. Serenity explained:

He didn't sleep, like obviously he didn't sleep through the night til he was about 6 months. He'd wake up once or two times a night. From the beginning I was really in a dark place for the first 2 months because I was barely sleeping and he would sleep like maybe thirty minutes to an hour stretch. We were bed sharing as well at that time and then at 4 months I couldn't handle it anymore and I so moved him into his own room in his crib. Maybe it was anxiety when he was sleeping next to me that when he fell asleep that I needed to fall asleep right away as well or I'm not going to get any sleep and that made me not able sleep which would be make me angry.

During the early months, Serenity was so incapacitated from poor quality sleep that it prevented her and her baby from leaving the bedroom during the day until she transitioned him to his own room and her sleep gradually improved. Even women whose babies slept without waking during the night had compromised sleep needs. For example, Maya shared that it was hard balancing household responsibilities, having enough time with her husband, time to herself, and meeting her sleep needs, all the while having a baby who could wake up unexpectedly early.

Compromised needs for adequate sleep negatively affected intimacy and self-actualization in

terms of time with her husband and by herself. Dawn spoke of how despite going to bed by 8pm at night, she was still struggling with getting enough sleep because of the baby's night wakes. Dawn believed that every aspect of her life would be less difficult and frustrating if she could meet her need for sleep; being sleep-deprived affected her ability to carry through with plans to see others, which also compromised her social needs to be cared for by others.

Closely related to compromised needs for sleep at night was a compromised need for rest during the daytime. Several women talked about how the oft given advice of "sleep when the baby sleeps" did not work for them. Dawn spoke of how she wanted to nap during the day, but by the time she was able to 'turn-off' to fall asleep after she had put her baby down for a nap, he would be waking again. Alicia and Meadow explained that, although they would try to nap in the daytime, thoughts about all the other things that they had to do would prevent them from falling asleep, while Megan shared that having daytime naps just made her more tired.

Another aspect of rest was just getting a break or meeting the need for self-actualization through time for self. Maya indicated that keeping up with her baby as he grew more mobile and required even more of her vigilance and hands-on supervision interfered with her need for rest. She elaborated "I feel like I'm tired from the last 18 months of carrying him inside of me and then like looking after him after giving birth to him. And I think it's wear and tear on the body and the mind and it doesn't help what's happening during the day." Maya noted that her comprised needs for sleep and rest contributed to her being on edge, leading to less capacity to regulate her emotions and manage her frustration and anger.

5.4.2.2. Being Cared for and Esteem Needs

Women indicated that they needed to feel cared for and loved and for their needs to be acknowledged by others but described compromised needs for being cared for and esteemed by

others. With respect to receiving care from others, women differed in the degree of their compromised receipt of care from family members such as partners, parents, and in-laws. Dawn spoke of missing physical and emotional intimacy with her husband, which was hampered by co-sleeping with their baby and lack of time for each other.

Other aspects of compromised care and esteem were partners' difficulties in appreciating participants' struggles, needs, and how to help them. Shannon described her partner's failure to anticipate her needs. He could not read her cues and needed to be explicitly told how and when to provide care and attention. For example, Shannon was bedridden with a painful medical problem a few months after the baby was born. Her partner provided what she saw as the bare minimum in her care and was unable to provide the reassurance and emotional support she wanted. Similar to Shannon, Kelly felt that her partner's inability to understand her perspective interfered with him accepting her needs, or supporting her to meet needs to be cared for and esteemed:

Even though my anger has definitely brought out the points that are a problem, I don't think we've dealt with them well. And it's not that I haven't asked him, it's not that I haven't brought them up, it's that he's unwilling to deal with them and he just doesn't see my point of view at all.

Kelly provided the example of asking her partner to watch the kids so that she could go grocery shopping alone. Kelly saw solo shopping as meeting her need for time for herself and autonomy. Being met with resistance from her partner acted as a trigger. The trigger illuminated her violated expectations and compromised needs, which led to being on edge and expressing anger. She articulated:

Like one of the really big ones that I struggled with was self-care. I don't ever get time away from my kids. And when I do it's, you know, like grocery shopping. And my husband's always, like he doesn't understand why it's so important for me to get away

from my children, but yet he can't even be with them for 10 hours without losing his mind.

Kelly's partner's inability to understand her needs resulted in compromised needs for rest and time for herself, as well as her need to be cared for. Her feelings of being on edge led to resentment toward her partner. Kelly indicated, in part, that she resented her partner's assumption that childcare tasks would be delegated to women.

Several participants spoke about needing to feel more cared for by their partners by connecting emotionally; however, sometimes, they indicated they had no energy left at the end of the day for this type of communication. It was difficult to express angry feelings as a way of managing anger when fatigue was high from compromised needs for rest and sleep. Dawn explained, "My husband comes home and we barely speak to each other for the evening because we are just too tired to engage in conversation. I would say right now, we're surviving. I would not say we're thriving at the moment." In a similar vein, Maya explained:

I think before we had Zane if there were any issues that we wanted to communicate about, it was really easy to just stop what we were doing and focus on each other 110 percent. But now, Zane is like running around...he might be crying for attention or food and that makes it harder to communicate...I find that, if we wait until after Zane has gone to bed to try and communicate, I just can't be bothered at that point. My day is done and I guess it's part of those feelings of anger. Sometimes when you're communicating, you need to be able to manage any frustrations you have with your partner to have a proper conversation, a constructive conversation. At the end of the day, that's the last thing I want to do...I don't feel like having challenging or upsetting discussions. I'm tired. It just feels like it's not the right time to be having like big discussions about what changes need to be made and especially when a lot of the changes are me asking my husband to make changes.

Participants experienced triggers when they perceived that their partners did not understand their struggles or, despite showing empathy, their partners failed to offer practical support to their wives to help them meet their needs or to engage consistently in behaviors requested so their

wives could meet their needs. Those triggers illuminated compromised needs and the combination of violated expectations and compromised needs put women on edge.

A few participants suggested that they needed to feel loved and cared from by mothers during the postpartum period because childbirth left them feeling vulnerable. Some participants indicated that the kind of caring they wanted was not possible because their mothers were not close by for help and support. Participants spoke of needing to “mothered” by partners and their mothers, if they were available. Megan, Elisabeth, and Liz explained that despite their mothers helping them meet practical needs, such as bringing food and occasional child minding, their mothers were unable to provide emotional connection and care. Megan indicated that she wanted her mother to mother her like she was mothering her new baby. Serenity expressed that she had feelings of hurt and anger about her mother’s refusal to provide emotional care by not visiting Serenity in the hospital after she delivered her baby. Serenity indicated that she needed her mother to be there for her and to be held in her mother’s esteem. Kelly needed evidence of reciprocity by feeling loved by her in-laws and for her and partner to be held in their esteem, given that she cared for them:

I don’t really need them to care for me, but it would be nice if they cared about me, if they actually thought about what affected me before they did things. I don’t need them to bring me things. I don’t need them to take care of my kids. What I need is for them to just care enough to see how I’m doing. I want them to care about me as much as I care about them. I’m a very giving person. I go out of my way to help people, and I do not feel that that is the case with them. I feel like I will literally do anything that helps them out or to make sure that they are comfortable and they could care less about how I feel.

Her in-laws’ lack of emotional connection with her family, even though they lived in relatively close proximity, compromised her needs for emotional connection and esteem, put her on edge, and contributed to her anger. All of the participants who indicated that they had compromised

needs for care and love from others close to them and for esteem at a time when they felt they needed it most described feeling on edge. All of those elements were potent fuel for their anger.

5.4.2.3. Parenting Confidence and Self-Actualization Needs

Participants also described compromised needs for mastery in the form of confidence in their parenting abilities. With regards to her expectation to feel competent as a mother, Shannon talked about how her confidence (need) was shaken after she had her second baby when she realized that having a baby and toddler was more than double the amount of work. The level of work involved violated her expectations of herself as a competent mother and compromised her need to feel confident because of her difficulty in handling the challenges of having two young children. Violated expectations and compromised needs contributed to Shannon feeling on edge from stress and feeling overwhelmed. A trigger that illuminated her compromised need was expressing her anger by yelling at her toddler. Her behavior violated her expectation to be a competent mother and her need to feel confident as a mother. Megan, Alicia, and Ava all shared that their needs were compromised because repetitive events of struggling with their infants' sleep undermined their feelings of confidence and highlighted their helplessness as mothers. They felt like failures and were on edge, leading to episodes of anger about infant sleep at nighttime. Prior to her baby's sleep improving, Serenity's need for feeling confident as a parent was unmet. Having that need compromised increased her anxiety and anger for having difficulty with the demands of motherhood and a compromised need for sleep.

Lastly, for some participants, their needs for self-actualization through engaging in their activities and goals not associated with motherhood were compromised, especially during early infancy. Participants expressed how returning to work and engaging in non-motherhood activities helped them manage their compromised needs for self-actualization. Maya's baby

started a few days of daycare at the time of her interview, and she expressed how that alone reinvigorated her by giving time to herself to work. She looked forward to returning to a role where she felt confident and competent. Alicia talked about how engaging in teaching gave her post-baby life a semblance of normalcy, which was supported by her partner:

People think I'm crazy because I took a teaching job, despite the lack of sleep. It was probably the best thing for me; I felt I found me again, post-baby. I got to teach without him – I spent a full day away from him, and it was really good. It was really good to have that time apart, and the sense that I was contributing to society again and doing what I love. And that was probably, although it doesn't really sound like, self-care. Working was a really great blessing.

The participants' experiences spoke to women's needs to engage in activities beyond their motherhood role and how that need is easily compromised after having a baby, given the extensive responsibilities related to infant care.

Participants indicated that partner support demonstrated by partners' actively caring for their infants was critical for women to meet their physical needs (e.g., for sleep and exercise). Some participants who were experiencing severe sleep problems explained that their sleep deficits were at least slightly ameliorated by partners who would take the 'morning shift' with the baby before they went to work so that the women could get 1-2 hours of uninterrupted sleep before starting their day. For example, Colleen's partner also took turns sleeping with the baby so that she could have some nights where she actually slept.

Partners and family members could help participants meet their compromised needs by providing breaks and time so that women could meet their needs for self-care. Meadow's mother would come watch the baby for a couple of hours once a week so she could take a shower in peace or go for a massage. Margaret's parents and her in-laws regularly babysat the children, which allowed her to meet her need for time for herself and quality time with her partner to

facilitate emotional connection. Ava's partner, who was a teacher, had the summer months off. His nonwork time facilitated him caring for the baby so that she could recover from an injury that occurred during the postpartum period and meet her physical needs for rest and nourishment. For Audrey, support was crucial, as her partner and her mother's hands-on care of the baby and active encouragement to take care of herself helped her meet her needs for respect and the time for herself to go to counselling and therapy to deal with her grief over her father's death.

Even after participants were triggered by an event that illustrated their violated expectations and their compromised needs, they benefited from support via emotional connection and practical help from others to manage their stress and anxiety, especially from partners and loved ones. Support buffered women's feelings of anger and helped them to meet compromised needs.

With support, participants described being able to reduce their anger and resolve their anger more easily. Serenity talked about how a terrifying intrusive dream about her ripping out her hair and screaming because she was angry at herself for the baby's poor sleep when he was 4 months old resulted in her partner stepping up to help more with the baby and around the house. Some participants described how partners could read their cues and sense that they were starting to feel on edge and intervene to help with the baby to give the participant a break. When partners were able to read women's cues of being on edge and step in, this support allowed participants to make active efforts to address their compromised needs, thereby reducing the intensity of their anger.

Unfortunately, participants did not always receive the support they wanted. Liz related that her parents were a good source of practical support when it came to childcare so that she

could meet her needs for time for self. She indicated, however, that they were unable to contribute to meeting her need for emotional connection, and said:

The kind of support I needed I couldn't get. They do help me with childcare, so I don't mean in that way. I could just hand my kids off to them and they'll gladly take them, but I don't feel comfortable talking to them about how I feel.

The lack of emotional connection with her parents, in addition to their continued objections to her sleep training efforts, which acted as a trigger, contributed to Liz having recurring anger about their lack of support for her efforts to meet her needs for sleep.

There were also compromised needs for connections with persons outside the family, such as friends. Women wanted emotional connections with the outside world and opportunities to have adult conversations. Dawn indicated that invitations to go out with friends stopped because her friends were aware that she was exhausted (compromised needs for sleep and rest) and unlikely to join their activities. Meadow lacked emotional connection with her friends who did not have babies because they did not understand that she was “stuck” at home and could not participate. Changes in available support left some participants lacking emotional connection with friends. For example, Elisabeth felt her reduction in support when her close friend moved away. Shannon, after having moved to a new city away from friends with children and community supports, struggled with being unable to make outside emotional connections because of the demands of caring for her two children. Shannon explained:

There is nowhere for me to meet other parents. The programs that exist here are programs that are designed to foster a better relationship between kids and their parents. I spend all my time with my kids. I don't need more time with my kids. I need to talk to a grown up.

Shannon's experience speaks to the lack of structural supports tailored to parents' needs affecting women's wellbeing. It highlights her frustration with the emphasis placed by institutions on the mother-infant relationship and the infant-centric nature of programs.

Some participants sought to meet their needs for emotional connection by attending postpartum groups or play groups so that they could talk to other adults, while the toddlers played with each other. Other participants indicated that they could not meet their need for outside human connection because some groups did not permit mothers with more than one child. The lack of community program support for older siblings contributed to Shannon's compromised needs for meaningful connections with others. Shannon's experience of trying to meet mothers with her two children ended in tears, as she recalled:

There's one free support group for new moms in the city that they refer everyone to and it's run out of the YMCA downtown, called Y-Moms. And they run multiple support groups, and so I started going to one but they don't accommodate older siblings. You can bring them but they don't have anything for them. There's no-one childminding and the way the program runs is each mom sits on like a little work out mat with her less than 1-year old baby and you talk about how you are doing and they do pictures. It's facilitated but for me to bring like a very energetic 2-year old was not feasible. It was not feasible. I went 3 times, I left the 2nd time early and cried hysterically in my car and I sort of feel like that was the moment that was the beginning of my downward spiral.

Elisabeth spoke about how the number of local community-based programs had gotten fewer and less available over the course of having four children. Their lack of availability made emotional connection outside her home more difficult. A few participants talked about how some community-based programs were tailored for younger infants but that they were not available at all where they lived. Where there were support programs for mothers they were not consistently appropriate for making an emotional connection. Kelly related:

I went to these postpartum depression groups and even though I found them helpful 99 percent of the time, what they were looking for was trying to find out whether I was going to harm myself or my baby. And that's not the issue. I don't feel like my life isn't worth anything. I don't feel like I want to kill myself or hurt my child. What I feel like is that nobody cares. I feel like I'm doing everything in my power to be in control of my life, and no matter what I do, it's not good enough. It was very much the feeling of abandonment. I have a huge tribe [but] I still felt angry and abandoned. I felt like the postpartum groups did cater to depression versus anxiety and anger.

Because community supports were not always appropriate (or available) for meeting participants' compromised needs for emotional connection, they were more likely to experience enhanced feelings of being on edge, the next stage of seeing red.

5.4.3 Being on Edge

The process of seeing red began with participants experiencing triggers which illuminated their violated expectations and compromised needs. Their lack of resolution of violated expectations and compromised needs led to participants being on edge, which was a struggle with distressing emotions as a result of triggers, violated expectations and compromised needs. That struggle was often kept hidden from others. Participants experienced distressing emotions, such as frustration, stress, anxiety, and despair, which created further problems with violated expectations and compromised needs, particularly when they were suppressed. The emotions were the precursors to episodes of anger. Shannon related:

I was doing the duck thing. I think I just repressed a lot... at the time I was still very duck like - calm on the surface but paddling furiously underneath. And so what it looked like is a lot of like gritted teeth and clenched jaws and now, and it [has] turned into me lashing out more at my kids.

Being on edge was most commonly portrayed by participants as overwhelming stress, anxiety, exhaustion, despair, and resentment. Stress, anxiety, exhaustion, despair, and resentment were all fuel for anger.

5.4.3.1. Stress

Stress was an important component of being on edge resulting from compromised needs. Participants indicated that experiencing overwhelming stress was the result of feeling like they had to shoulder the weight of what they regarded as crushing responsibilities. The first-time

mothers indicated that managing the unrelenting demands of their infants was difficult. Maya shared:

In terms of my feelings, [being] tired and overwhelmed pretty much summarized my day. Zane was an early mover, so he started taking his first steps when he was eight months. It requires so much more energy to try and keep up with him. We don't have any family support, our family live in different countries and so it's a lot harder because we pretty much do everything when it comes to Zane. And so yeah, my typical day really is just quite stressful. I'm usually waiting by the door for when my husband gets home, so I can hand Zane off to him. I love him but it's really hard. I definitely feel stressed and overwhelmed. And how tired I've been feeling has been getting worse.

First-time mother Serenity was stressed when trying to figure out what the baby wanted when he was crying. Her expectation to demonstrate parenting competence was consistently violated. She related her experience in coming home with the baby for the first time:

I didn't know if he needed to be fed or changed or if he was colicky. That was overwhelming... I was just really uncertain with Johnson. I think all together it made me feel not confident.

Serenity indicated that her experience violated her expectations for herself for maternal competence and compromised her needs for confidence as a mother resulting in feeling stressed.

Mothers with more than one child indicated that singlehandedly trying to manage several children enhanced their difficulty of meeting the needs of all persons in the family, which violated their expectations about maternal competence. Multiparous mothers' descriptions of their daily lives emphasized their stress. Elisabeth described her challenges with trying to meet all of the children's needs:

In the morning for example it would be super chaotic in trying to get everybody ready and lunches ready and making sure they have all their things to get out the door on time. The baby is suddenly crying because she's hungry and just woke up and needs to be fed or she had a diaper blowout and so you're trying to deal with cleaning up and getting the kids ready and then getting myself ready and out the door all at the same time. Sometimes that would be just throwing the baby in the car seat and trying to get out the door and she's meanwhile just screaming and it's challenging trying to manage all the different age groups at the time and then having a child who doesn't want to get dressed

or something like that. There's always multiple things going on because everybody has all these needs and I'm only one person trying to field all these different needs.

Elisabeth indicated that she had to push through her stress by trying to deal with it while simultaneously wanting to escape. Elisabeth and many other mothers indicated they were trying to fulfill societal expectations of intensive-mothering that assumed mothers should and could meet all of their children's needs. The constant feelings of stress were described by Shannon as "practicing for the misery Olympics". She related having to deal with living out of boxes while undergoing mold remediation at her new house after moving provinces, while her infant and toddler were both sick.

Feeling like the only one who could really meet a young infant's needs was another reason that participants experienced feelings of stress. Dawn described her baby as her "ball and chains", because her baby's refusal to drink breastmilk from a bottle meant that she had to be present for all feedings. Following societal expectations for exclusively breastfeeding precluded her from having any extended periods of time alone or being able to go out without the baby, compromising her needs for self-actualization and autonomy, and leading her to feeling on edge, stressed, and exhausted. Ava also related similar feelings associated with expectations for exclusive breastfeeding:

Baby only wants mum, and the baby only can be breastfed from mum, so there was definitely times when it was like I have to do this and I'm the only one that can do it. There's this added pressure on myself, because I'm the only one that can meet the needs of the baby. That was really hard, but also this is what I have to do so I have to do it.

Margaret and Moe similarly related how the 24-hour nature of singlehandedly caring for an infant violated their expectations for maternal competence and made them feel stressed, trapped, and exhausted. Margaret shared:

[It's] that you are responsible twenty-four hours a day and thinking, this is forever, or for whatever, the next twenty years, and that just felt daunting to me. And my husband is definitely an equal partner in our house and with our kids, but ultimately, it's on you, and so sometimes I feel frustrated with that, even though it's nothing either of us can really do anything about.

5.4.3.2. Anxiety

In addition to feeling stressed, many participants described spiraling anxiety as a component of being on edge. Sometimes, women's concerns about whether they were providing the best care for their infant illuminated their violated expectations of themselves as competent mothers, compromised their need for parenting confidence, and resulted in anxious thoughts, worry, and fear. Participants indicated that their anxiety and fear centered on their infants' safety and wellbeing. Women's anxiety about their infants' safety also included descriptions of fear, specifically scary, intrusive thoughts that could be panic-inducing. For example, Serenity related the experience of waking up in panic thinking she had lost her baby or that the baby was smothered under the sheets, only to find the baby asleep in the crib at the foot of the bed.

Shannon described how her anxious thoughts would put a very negative wash on her day:

I'd put her on her change table, and – every time, I had like a vision of her falling off the change table. Rolling off of it and smacking her head on the footstool to the rocking chair on her way down. And it would be like a split-second kind of thing – her neck would break, or her head would split open, and it was every time. And it was – it was like I had lost – like, my day just looked so bleak.

Having intrusive thoughts violated women's expectations for what motherhood would be like and compromised their needs for mothering confidence. Shannon sought help for her intrusive thoughts when she pictured herself getting in the car and starting the car with the garage door closed during a particularly hard night with the baby when the baby refused to sleep, violating her expectations for being a competent mother who can get her baby to sleep. She reached out for help from a public health nurse and as a result was able to receive telephone counseling for

postpartum depression. For participants who described feeling anxious, anxiety not only pervaded their days but also was difficult to turn off as it lingered in the background.

Participants described other anxieties that were a part of being on edge. Their anxieties resulted from feeling like they were violating expectations of themselves as competent mothers who could manage everything, in addition to caring for their children. They were anxious about events such as managing visitors in the home, the state of the house and not being able to keep up with messes and household tasks that were piling up, and going out with the baby and worrying about the baby's schedule. When circumstances changed they were anxious about managing an infant and a toddler alone such as when a partner was leaving on a trip. Some mothers indicated that their anxiety was particularly pronounced at nighttime before sleep, and interfered with their ability to fall asleep. Megan explained that her inability to fall asleep at night and the resulting lack of sleep:

So a lot of times my mind would just kind of be racing with all kinds of thoughts, some of them meaningless, some of them just general to-do lists, just having a really like busy mind. Then feeling anxious about the fact that I couldn't just relax and fall asleep because I was so tired. I knew that I needed to sleep and not being able to sleep made me feel anxious. Feeling like the baby was going to wake up any moment made me feel anxious, the idea that maybe I was doing something wrong and that's why the baby wouldn't sleep for longer periods at a time made me feel anxious. I think also just generally being exhausted kind of lent me to feeling anxious.

Megan's inability to fall asleep violated her expectations about what motherhood would be like, compromised her need for sleep, and led her to be on edge with anxiety.

5.4.3.3. Exhaustion.

The state of being on edge included feelings of exhaustion and depletion. The majority of participants described frequently feeling exhausted from their violated expectations about maternal competence and compromised needs for sleep. Beginning the day feeling exhausted

affected energy levels during the day and maternal motivation. Their feelings of depletion seemed to go beyond physical tiredness. Dawn explained that her exhaustion was not just physical, but also emotional and mental:

Generally I would say, I am in a constant state of exhaustion for sure. I feel pretty depleted overall. Sometimes I just feel kind of a bit like my cup is empty. I don't have a lot of energy. I'd make plans for the day and then cancel them because I am not.... because I don't have all the energy to go out and do all the things I had lined up to do. So sometimes I feel disappointed about that because I might have had play dates. I might have activities planned and I am just not able to follow through because I'm too exhausted for that.

Dawn had violated expectations for the activities she had envisioned herself doing while on maternity leave and compromised needs for self-esteem related to being a competent parent who could manage a baby and a social life. Nicole described exhaustion as a fog, and for the rare nights where the baby only woke once, she would feel like the fog had lifted and that the world would seem to come in focus for her.

5.4.3.4. Despair

Despair was another component of being on edge. Despair was characterized by participants as grief, disappointment, and feeling trapped. Kelly had violated expectations about what it would be like to have a second child that compromised needs for self-esteem. Kelly described her experience with despair:

It was Christmas. And I remember thinking I should be happy. I should be enjoying myself. I should be having fun. And I'm just not. I'm hating every second of it. I'm hating every second of this Christmas dinner. All I want to do is crawl up in a ball and cry on my bed. And that was really the breaking point for me where I realized I needed to go to postpartum groups because things that normally make me happy, I wasn't enjoying. And I actively pursued things that normally would make me happy and they were not making me happy at all.

Despair made participants feel raw and less able to regulate their emotions.

Despair was also fuel for anger for some mothers. Audrey was grieving for her father, who had died shortly after her baby was born, and felt angry about the unfairness of her father dying. Elisabeth shared that she had an outburst of anger after the children were getting out of hand with their complaints and antics in the car while she was grieving about her cousin who was dying in the hospital. Meanwhile, Dawn shared that she experienced periods of grief over the loss of her former life and autonomy after becoming a mother; her grief was interspersed with guilt and frustration at herself related to her own and societal expectations for competent mothering. Despair represented by feeling trapped and helpless could arise when women 'blamed themselves' for their situations. Megan described how she felt trapped into a problem of her own making by breastfeeding the baby to sleep, which resulted in her always having to breastfeed the baby as part of getting the baby to sleep:

It [anger] definitely increased while we were travelling. And a lot of the anger was also just frustration that I felt like just kind of trapped. Like I had put myself in this situation where I was travelling, I wasn't really able to control a lot of the factors in my life that was contributing to the hard times I was having and just feeling like helpless and frustrated that I was responsible for putting ourselves in this situation.

Megan had violated expectations for autonomy and her need for freedom constrained by her view that she had to breastfeed the baby to sleep. Despair, as a component of being on edge, was a precursor to anger because expressing anger was a way to assert control over feelings of despair.

5.4.3.5. Resentment

Finally, resentment was another major component of being on edge. Many participants described feelings of resentment, often towards their partners, for the freedoms that they enjoyed that were not available to the participants. The women regarded that as, in part, being related to how motherhood is constructed by society as compared to fatherhood. They were resentful about

their responsibilities when their partners could not or would not provide help. Participants' resentment was linked to partners' and social expectations about competent mothering. Sometimes the sense of heavy responsibilities was because mothers were exclusively breastfeeding their infants, especially when the infants would not take a bottle. As a result, the participants had to do all of the nighttime caregiving.

Some participants' resentment was coloured by jealousy, longing, and animosity over their partners' abilities to leave the house every day to go to work because they could get a break and socialize with others. Other reasons the women gave for resentment were: children wanting only their mothers even when partners were around; partners refraining from taking a more active role with the children when at home; and partners not recognizing that the women needed some time to themselves during the day, even if it was to have an uninterrupted shower.

Resentment was a precursor to anger. Kelly talked about resenting her partner for not understanding her needs for time alone when he was at home:

I get to shower twice a week. My husband has a shower every single day. I do not get to have a shower ever peacefully. He's supposed to have the kids so I can shower without being interrupted and it's not two minutes before both my children are sitting on the bathroom floor screaming at me or throwing things in the tub and he's out sitting on the couch on his phone and cannot be bothered to take the kids. Or if I lock the bathroom door they literally stand at the bathroom door and pound on the bathroom door while I'm trying to take a shower. It's very frustrating. Like, why don't I get to have a shower in peace?

Not only did some participants start the day feeling drained and exhausted, but also they experienced stress, despair, anxiety or resentment, and sometimes a combination of these feelings. These facets of being on edge were precursors to anger. They affected how participants perceived all of the situations and events around them. Participants described how their fatigue wore away their capacity to regulate their emotions, especially anger. Alicia described knowing

she was sleep deprived and exhausted when she would lash out at her partner unfairly for small things like leaving his clothes on the floor. Likewise, with anxiety, Serenity explained that she would lay in bed at night anxious about being able to fall asleep and then grow angry about not being able to sleep.

Being on edge with despair was also a precursor to anger. Shannon related how exhaustion and lack of sleep amped up her anxiety, and in turn, anger. Sara described how exhaustion and resentment towards her partner brewed her anger:

I definitely have felt out of control anger. It usually gets directed at my husband. During maternity leave your job is to take care of the baby but it's 24/7, you never get a break, it feels like you don't get much me time. I become very resentful and that will lead to just lashing out at my husband at times because I am exhausted and I am just feeling like I'm taking on way more of the work... It's a hard feeling. I feel like I'm taking on all the responsibility of the parenting and that he doesn't recognize the breaks that he gets by going to work, just having time by himself and things like that that I – that you crave as a mom who's 24/7 taking care of their kid sort of thing.

Arising from result of violated expectations and compromised needs, being on edge was a critical precursor for anger.

The sense of being on edge could be reduced by support from others or enhanced when support was lacking. Participants indicated that support from loved ones was important for attending to violated expectations and compromised needs and reducing their negative feelings of being on edge. Audrey related:

I had a lot of people check in. Like at first I had a friend who would check in and be like, Audrey how are you doing today, or thinking of you today, or how's your day. At first, I would get kind of annoyed and I'd be, like, leave me alone. But when I reflect on it now, [I'm like] thank you so much for taking that time to check in on me every day. Because I was struggling. Because I just wanted to shut down.

Serenity spoke about a friend who would also be up at night with her baby and with whom she could commiserate over the phone. Serenity explained, “We would talk at like 2 in the morning,

3 in the morning. Having someone else go through it at the same time was really nice. I didn't really feel as lonely at night as I did in the day.” Being able to share their experiences with others reduced participants’ feelings of being on edge as a result of experiencing violated expectations and compromised needs. Nicole professed that, aside from her partner, her biggest source of support was girlfriends who also had children:

I think the bigger support[s] are girlfriends now. I’ve built up a network through the first time around of people with kids. And so my best friend who’s got two young kids similar aged and then other girlfriends are huge network support for just that text message, “I am so mad about this” or even just the, “She has this rash” or like, “Oh look at this, what do you think?” “Oh, I’ve seen that, don’t worry”.

Receiving emotional support from loved ones indicated to participants that their challenges were recognized (reducing triggers), decreased their feelings of being on edge, and met their needs for self-esteem and esteem from others as well as being cared for by others. Support from health care providers, such as nurses, lactation consultants, and midwives, could also mitigate participants’ sense of being on edge. Some participants recalled health care providers who, by virtue of recognizing their challenges, connected mothers with the help they needed such as with counseling, regular check-ins, and cognitive behavioral therapy. Those efforts helped them reduce their violated expectations, meet their compromised needs, and reduce feelings of being on edge.

Other participants found support to be unavailable from health care providers. Elizabeth reflected upon her experience with public health nurses and their failure to assess her wellbeing, which contributed to her being on edge:

I do wish that the nurses at his immunization had done better screening for postpartum depression and anxiety because I was aware that I was slipping down that slope but I wasn’t about to bring it up. And I also kind of thought to myself, “What are they going to actually do for you other than tell you to go talk to somebody? And I’m already talking to people so what else is there?” After that two-month immunization appointment, they

never really asked, “Well how are you doing? How are you coping?” So I do wish they had not just been focused on baby but also on me. I think that would’ve helped.

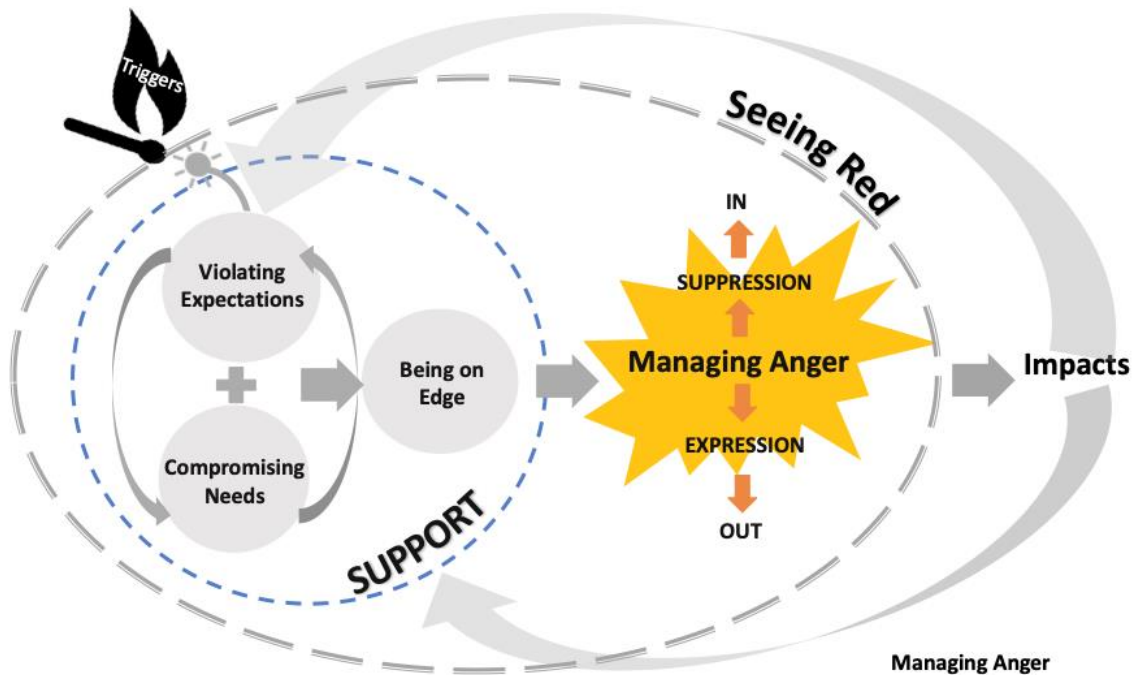
A lack of screening (recognition of challenges) and intervention on the part of health care providers also compromised Elizabeth’s needs for emotional connection with others, which made her more vulnerable to frustration and anger at herself and at her baby. Participants recognized that social structures, that emphasized the well-being of the infant and neglected the well-being of mothers, contributed to women’s compromised needs and feelings of being on edge.

Some participants related incidents where health care providers provided inappropriate support. In the postpartum period, visits with family doctors could be a source of tension. Some participants were already on edge as a result of their violated expectations about parenting and compromised need to demonstrate parenting confidence. Alicia’s family doctor refused to address her baby’s discomfort at nighttime and pressured her to sleep train as a solution to his nighttime crying. When her baby was not gaining weight adequately, Serenity broke down and confided her struggles to her family doctor but was brushed off, leaving her to cry in the car. Physicians’ lack of support contributed to participants feeling troubled and their lack of confidence in being a mother. Because lack of appropriate support contributed to women’s feelings of being on edge it enhanced the role of those feelings as precursors to anger and moved participants to the next stage of seeing red, which was anger management.

5.5 Anger Management

The third stage of seeing red involved managing anger through the expression or suppression of anger and, sometimes, subsequent reduction of anger following being on edge (Figure 5.3). Women managed their anger differently depending on where they were directing their anger.

Figure 5.3 Management Stage of Seeing Red



5.5.1 Anger Direction

When participants saw red as a result of triggers, violated expectations, experiencing compromised needs, and feeling on edge, there were two possible directions for the anger that participants developed (Figure 5.3). One direction that they described was outwards towards the person(s) who they held as responsible for their anger. The other direction was inwards at their self. The participants indicated it was possible to be simultaneously angry at others while also directing anger at their selves. For example, Alicia related that when she saw red, the anger was directed at herself, her partner, and her baby:

A lot of it was me blaming myself, and I know a lot of my outbursts towards my husband, were questioning why I can't figure it out and how come I keep failing him [the baby]. So definitely a lot of anger and disappointment towards myself. And that in the middle of the night, a lot of frustration towards Stuart [baby].

The participants indicated that the majority of their anger was directed at their partners, whom they assumed would be responsible for stepping up in terms of providing infant care and support to meet participants' needs. They also directed their anger at their children, especially when an older child was being difficult to manage, or when an infant would not sleep or was particularly fussy. When some mothers directed or expressed their anger towards someone (e.g., especially their child), they would also describe feeling disappointed at themselves for being angry, because they were violating their expectations about how they would parent. Liz reflected about experiences where she expressed her anger in front of her children:

I would just feel so sad and so mad at myself like for getting angry. Like why are you getting angry? It's just a baby. I would just feel awful after. And then, you know, feeling bad about myself. Like what kind of parent are you? Like who gets mad at a baby?

Participants also described directing their anger towards their parents, in-laws, and health care providers.

On some occasions, participants indicated that anger was triggered by one party but directed at another. For example, Colleen was far from home walking with the baby in the stroller and her toddler. Her toddler refused to walk onwards despite her mother's asking and tears. Colleen shared that, although it was the toddler's stubbornness that was the cause of her anger, she directed it towards her husband because it was safer for her to be angry at him. She felt that she could be angry at him because he was not directly exposed to her anger and that was her way of protecting her child from her anger. This was a strategy she used to manage her anger because it would have violated her expectations about parenting to direct anger at her child. Other participants described their anger about a partner's behavior being taken out on the children who were in closer proximity. Shannon described having less patience with her

children's misbehavior and subsequently yelling at them, while her partner was at work. Her anger expressed her general resentment about his inadequate efforts at childcare, household management, and his lack of support to help her meet her needs. Shannon related:

I think it's easier for me to yell at my kids than it is for me to yell at my husband because that's a much more difficult conversation to have. Whereas with my kids, I can just be like, I am your mother and you will do as you're told.

Shannon 's difficulty with having a conversation about her anger with her partner occurred because she felt simultaneously protective of him, with his mental health challenges, while also being resentful of him.

Several participants expressed anger at themselves for getting angry at all. They felt that they should have been more prepared for having compromised needs and being on edge, thereby avoiding any anger. Ava said:

I guess just the fact of getting angry at something so small and simple is frustrating. Like oh, why am I getting so upset about a baby crying every few hours? Like, I should be over it. I should know that it's coming. So why am I getting angry at something like this when I know what the night is going to be like?

When asked about what anger at self looked like, participants talked about being hard on themselves for their perceived failures. Anger at self intensified feelings of being on edge and could be long lasting. On the one hand, participants who were able to forgive themselves for being angry, who viewed anger as par for the course, or who saw anger as a purposeful tool had lower intensities of anger. On the other hand, participants who described being unable to come to terms with their anger at themselves, would ruminate on their anger with consequences of reliving their anger and their perceptions of inadequacy. In the worst cases, a few mothers talked about having thoughts about self-harm and even suicide when they were very angry at themselves. One mother would deliberately scratch at her skin and thought about taking the

remainder of her partner's post-surgery analgesics while another had thoughts about hurting herself like she did when she was a teenager. Those thoughts about self-harm and acts of self-harm were expressed by women with unremitting anger at self, which exacerbated their feelings of being on edge.

5.5.2 Expressing Anger

When participants saw red, they frequently experienced physical effects while expressing their anger that helped to make their anger known to others around them. They described clenching their fists and gritting their teeth. Angry participants sometimes yelled, screamed, or swore. They described stomping about; slamming cupboards and doors; and, on a few occasions, actually breaking or throwing things. Some women would punch or scream into pillows. Women indicated that expressing their anger could help to alleviate the lack of control that they felt over their untenable situations, such as with Alicia when it came to her baby's failure to sleep. Participants would separate themselves from everyone to engage in these physical behaviors.

Many participants spoke of crying in anger. They also shared experiences of getting 'snappy' or snapping at the person to whom their anger was directed or snapping at their partners through text messages if partners were not at home. Participants could engage in heated arguments with partners and sometimes children. Mothers sent children to time out for misbehavior that made them angry, such as a toddler throwing her plate of food across the room, or a child deliberately dumping out a box of cat litter. They would also engage in angry cleaning around the house.

5.5.3 Suppressing Anger

Participants suppressed their anger when they were reluctant to express it. Suppressing anger was described by participants as internalizing how they felt to avoid showing it. Elisabeth

talked about ‘stewing’ about situations that had made her angry. Suppressing anger could be associated with participants fearing they would violate their expectations of themselves as parents if they expressed their anger. When Dawn was asked about how she expressed her frustration or anger, she replied:

I internalize things. That's the kind of person I am. There has been a couple of times when I've sent a couple of text messages to my husband that are shorter than I intend because I'm frustrated but, no, typically I don't express it. I don't want it to come out to other people and it's important to me not to let it come out to my baby, so I work really hard, sometimes I work very hard, to make sure that's not happening because that's important to my parenting philosophy.

Dawn attributed her anger suppression to her personality and her fears about jeopardizing her relationship with her partner because she had seen relationships fall apart when there was a lot of expressed anger and conflict. Similarly to Dawn, Margaret described how she tried to swallow her anger at her daughter who was having tantrums everyday to avoid violating her own expectations for herself as a calm mother who did not get angry at her children:

I definitely have felt huge anger towards my daughter when she's – especially if we're trying to do something, like, we need to get out of the house, or whatever, where I just feel like screaming. But I feel it's very controlled for the most part, and very internalized. I think more I internalize my frustration by clenching my teeth or my fists, or holding my breath, like, swallowing my anger.

Margaret explained how her immediate reaction to her own anger was to leave the situation and calm down, even for a few moments, before she had to deal with her crying child.

At times, mothers feared the consequences of expressing their anger because they wanted to protect their relationships. Kelly and Shannon were hesitant to express their anger and resentment towards their partners because they feared compromising their relationships. Serenity indicated that she had not expressed the anger she had towards her partner while he was entertaining friends in the living room and drinking, with her trapped in the bedroom with the

baby, although she had wanted to do so. Serenity tearfully related not wanting to express her anger to others, leading to overwhelming feelings such as sadness, because she was fearful of upsetting others with uncontrolled anger:

It's anger at first and then I would get sad. But, I still do want to make that person happy even though I'm mad. I don't want to show that I'm mad... I think I'm just too scared to make other people upset and so I just don't. Like my fear of making people upset is more than me wanting to tell people. I feel like I don't really know how to control my anger or how to get rid of it or lower it down. I don't lash out at anybody but in my head it's like very overwhelming, sometimes when I get mad.

When participants managed their anger by suppressing it they further compromised their needs, exacerbated their feelings of being on edge, and intensified the negative feelings associated with anger (e.g., shame and sadness). They missed the potential benefits of expressing anger (i.e., actions to change an anger inducing situation). When Dawn was asked if there were negative consequences to internalizing her anger, she replied:

There could be support available or help if I needed it and it's not being made available because I'm not letting people know what I need. I try to make it seem like everything's fine and I don't need anything. I'm sure if I could let people know more that I need something, it might be made available to me.

5.5.4 Reducing Anger

At the onset of anger, most participants talked about reducing their anger through walking away or leaving the situation. Women wanted to manage their anger by protecting children from their anger. Margaret talked about walking up the stairs to get away temporarily even if moments later the children would follow her. Participants often distracted themselves, if they could not physically remove themselves. Dawn would manage her mounting frustrations with her baby when he was having an unsettled or fussy day by taking him out for walks in the stroller in order to get a bit of a break. Using that strategy gave her time to come down from irritated feelings. A few mothers would turn on a show or movie for their children and listen to

music or podcasts using earphones as a way to reduce their anger when they could not get away from the children. Several participants also talked about engaging in some deep breathing to calm themselves down. Kelly shared her strategy:

I try to really calm myself especially when it comes to my kids. I try really hard not to have an immediate reaction because usually they have something that they need. So if they're really on top of me I try to take like really deep breaths and I try to stop what I'm doing and I get down on their level and try to understand what they need.

Focusing on breathing and taking deep breaths were effective for some participants to temporarily reduce anger. When partners were around, participants would have their partners take over the care of the baby or children, drawing on their support to help reduce their anger. Many participants talked about really wanting to protect their babies and children from anger. Nicole identified a “mother-sense” that would take over when she felt angry at her child:

I feel like the times when I get angry with her [baby], I'm much quicker to catch myself. It's interesting, it's something I'm very quick to catch myself in my head, like when she's just you know, crying and I'll find myself being like, “Oh my God, shut up” and then I'm like “she's just a baby” and I very quickly come back down. And even with my toddler, there's times where I just want to murmur under my breath, “You're such an asshole”, then I'm like “oh, he doesn't know how to tell you, he's just a kid”. So very much quicker to kind of catch myself.

By protecting their children from their anger and having their partners take over if they were at home, participants avoided violating their expectations about being a competent parent. However, if partners were not readily available, a few participants also engaged in physiological strategies to calm down such as deliberately slowing their actions down and talking in a low voice to prevent their anger from being expressed to children.

Several participants talked about purposefully trying to reframe the situation and changing course to save the moment. This could entail seeing and understanding their anger as an over-reaction to the situation, taking their children's perspectives on the issue, or using humor

as strategies to regulate anger. They also used a combination of the strategies. Ava would say out loud why she was angry and that was enough to help her see the humor in the situation, for example, her toddler refusing to put his shoes on when they were trying to rush to an appointment. Shannon tried to change course and save the day after a blow out with the children by lowering expectations for the day and having everyone change into pajamas and ordering pizza. Finally, some participants accepted their feelings of anger and reminded themselves that “this too shall pass”. They spoke of “pushing through it” because they had no other choice but to wait until their partners could get home so that they could catch a break or for the current phase to pass.

Participants also used support to vent or displace their anger by calling or texting partners and close friends to talk about their angry feelings and the tough time they were having. For some women, crying was an important and acceptable means to reduce their anger. Spending time alone was another way women reduced their anger. A few participants spoke about writing in their journals as a way to come down from their angry feelings.

Participants used other activities to distract themselves from their anger as part of their strategies to reduce anger in the moment. On occasion, they worked on meeting their own needs to lessen their anger, for example, getting something to eat. Sometimes mothers would use a combination of strategies. Colleen engaged in venting to a friend and meeting her own needs through going for coffee as a way to come down from her anger. She shared:

We went and I got myself an A&W burger with a friend and we ended up having a coffee party, and it was just really pleasant and it went from like I almost cried and I actually did lose my temper at somebody that morning, to like, okay, I can now handle the rest of the day.

Finding new supports helped to reduce participants' feelings of being on edge and to meet their compromised needs. For example, Colleen talked about how her youngest was a screamer who could cry for eight hours a day, and that as a result, she had grown a large support network in the community because "you can't ignore the person with the screaming child". She went on to say,

What I'm always jealous of is grandparents' support, which is one of the things I don't have, but I feel so blessed for all the program support that I have, like I think that really is incredibly helpful – things like Strong Start and stuff like that. I just feel so blessed by the supports that are out there, including friendships.

Even without immediate family support, mothers indicated that it was possible, if they were able to leave their homes with their children, to get a mental break and emotional support from other parents/friends and health authority programs, such as Strong Start.

A few mothers also sought counseling as a sustainable way of managing their anger.

Kelly's persistent anger was one of the reasons contributing to Kelly's decision to get counseling. When Kelly's second child was 5 months of age, she saw a counsellor who helped her to vocalize, identify her unmet needs, and strategize how to prioritize her needs. As a result, Kelly was more successful in setting boundaries to meet her needs, sharing that:

And now I [mention] to my husband, well, hey, I think I'm going to go for a run tonight. He says yeah, yeah, OK. And then later that night I'll literally put on my shoes and say bye. I'm leaving. He says "Oh wait. Can you help me with this first?" And I'm like "No. I'm leaving because that's my time and I'm way more demanding about what I need to be happy".

Similarly, Shannon also sought counseling to manage her resentment and anger towards her partner.

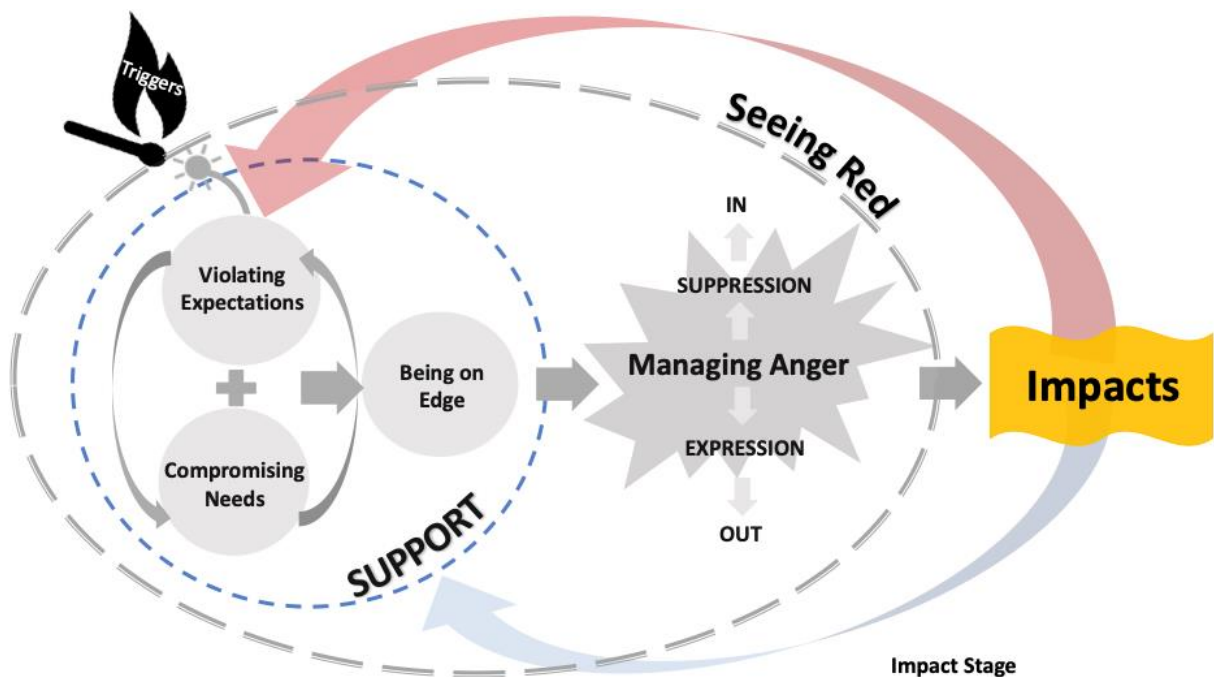
5.6 Anger Impacts

The final stage of seeing red was anger impacts (Figure 5.4). Women's development and management of anger had effects. The way that women expressed or suppressed their anger affected their expectations, needs, sense of being on edge, and ability to recruit support.

Outcomes of participants' anger included relationship effects and sense of control

Participants who did not express their anger to others who could possibly help, or whose expressed anger was overlooked by others (e.g., a partner), indicated that they experienced re-violation of their expectations, and continued to have compromised needs, and to feel on edge. They also experienced other negative outcomes such as feeling inadequate as a parent. Megan related "I think that the anger definitely affected my confidence in myself as a mother... and not meeting expectations of myself made me doubt myself and my abilities." On the other hand, participants who communicated their anger to others and recruited a supportive reaction indicated that they enhanced their ability to meet their expectations and needs. Alicia shared that she and her husband would email one another to communicate what was upsetting them as a way to elicit each other's support without emotions running high during face-to-face communication.

Figure 5.4 Impact Stage of Seeing Red



Mothers' outward expression of anger through yelling or snapping generally served to reduce their anger quickly. After managing their anger through expressing it, participants talked about calming down together with their children if the anger was directed at their children. This would often entail embracing their children, explaining to them what had happened, and apologizing. Ava related:

If I yell at them then I feel awful. I feel guilty, that I shouldn't be doing it. Usually, I apologize to my kids pretty fast after this happens. [My] oldest has a harder time with when I get angry than my youngest does, and so there are times when the oldest will be in tears because I've been upset. So when something does happen like that then usually I have to – at the end of ...me getting angry it's usually my son is crying and then I'm holding him and I'm apologizing and we are trying to calm down together.

Participants indicated that coming down from anger expressed towards partners or other adults usually entailed acknowledging that there was disagreement, the reason behind their

anger, and moving on. However, the women indicated that having expressed anger following a conflict did not preclude conflict from re-occurring with the same person, if their expectations remained violated and needs compromised. It was simply a short-term reduction in anger. In other words, expressing anger did not necessarily get to the root of the problem, e.g., being unheard and having violated expectations and compromised needs. Sara shared:

I feel like we usually – one or both of us, often both of us, will apologize for our behaviour because we know that we’ve crossed the line and shouldn’t have done that and try and reiterate our points in a more calm, precise manner sort of thing and ... Yeah, often – I do think oftentimes we end up agreeing to disagree. There’s not always a productive step forward.

Mothers indicated that anger directed at the self could be more easily resolved when they reached out and received emotional support or validation from others (meeting compromised needs for care from others). Even after receiving support, however, anger at self could remain bottled up and resurface at other times. The women indicated that happened if they felt unsupported despite reaching out for support, leading to more despair (being on edge) and their anger at themselves being prolonged. Serenity described her anger at her mother for failing to be there for her despite being close by. In addition to feeling anger at her mother, she felt sadness and hurt about her mother’s rejection, and then anger at herself for failing to secure her mother’s esteem and love. She tearfully recalled:

She [her mother] was the first person we called when Johnson was born and then I was still drugged up from the c-section so I was trying to talk to her on the phone. And she said, like oh, I don't sound happy enough to her right now so she's not going to come and see Johnson. So she didn't come the first day, she came the second day after I begged her to come to the hospital. So that type of thing, that's just my normal mom. Just thinking about herself, so that was hard. I was not feeling great about myself and then my mom would just add to the fire.

The lack of support from her mother compromised Serenity's need for love and emotional connection, contributed to her despair, and fueled her anger at herself for her perceived inadequacies.

Anger expression could trigger other negative thoughts and emotions. Participants indicated that negative thoughts and emotions were often intertwined with reactions from others to their expression of anger. Mothers reported that their children were surprised at, upset by, or frightened by their anger. This made mothers feel sad because they realized that their expression of anger violated their expectations of parenting competence and compromised their needs to be a confident parent. Participants frequently described experiencing guilt and shame after outward anger expression, especially when they directed their anger at children. Some women cried when feeling guilty, ashamed, and disappointed at themselves. Shannon shared that she felt disappointed with herself after being angry:

I had like a little rage cry while they were both in the tub, and started trying to clean up, and was getting more frustrated because they were crying, and like overwhelmed. And I kept trying to take deep breaths and get a handle on this and I just couldn't. And even, like, that feeling of being out of control at that point was like very aggravating. It was one of those, like, I am a grown up. Like, I am not acting like a grown up, but I am a grown up. Why is this happening to me?

Participants reported feeling inadequate when they violated their expectations of the competent mother they wanted to be (e.g., calm, patient, gentle).

The participants indicated that anger at self could be resolved by exercising some self-compassion, viewing anger as an acceptable emotion to have, and feeling that it was important to model the process of anger and resolving anger for their children. Mothers who were more comfortable with expressing anger made comments, such as wanting to teach their children that

it was “okay to be angry” and that it was also “okay to move on” (Kelly). When Ava was asked how she deals with anger at herself, she related:

In those moments, if I think about it too much then – yeah, then I can feel upset at myself, for sure. But I’m trying to see the positive in that. I don’t want to yell at my kids, but if I do, and when I do, that we can see it as okay. I need to say I’m sorry and they need to see those actions as well, of how to forgive and how to ask for forgiveness. It’s all part of life and we’re never perfect, and I know that, and –obviously I’d love to be but I also know that that’s not possible - and that I am going to yell at my kids, and that we can also see this as something that we can work on.

Her willingness to move on and not dwell on her anger at herself helped her to prevent an exacerbation of being on edge. Similarly to Ava, Colleen and Frances spoke about how they accepted their expression of anger because they felt it was important to teach their children that their anger was valid and to model appropriate ways of processing anger.

5.6.1. Relationship Effects

Participants’ expression of anger directed at partners could take an immediate negative toll. For example, participants talked about how their eruption of anger could trigger their partner’s anger, resulting in conflict that could become heated. The participants referred to throwing objects and making unkind comments. Sara recalled:

We’ve had a couple actually like really just knockdown, drag them out fights just screaming at each other and yeah, being very unkind, slamming doors, throwing things. Rage would be a good way to refer to it for sure and I feel like mine just ends up escalating his.

Similarly, Colleen recounted:

[Partner] walked in the door and he literally cannot even get the door open because it’s so messy. He gets home and the baby is screaming, so I am passing off the baby while I’m being like “You need to go play with your two-year-old, because I am about to lose it, I’m about to yell at somebody.” And he is frustrated and he is tired so he’s being like, “Why can’t you handle this? What’s going on?” Just snapping back and forth, sometimes screaming bloody murder, I mean, screaming very loudly back and forth between us.

When participants expressed anger at partners they felt it could further constrain communication and compromise needs for esteem from others and emotional connection. When asked whether Serenity would express her anger to her partner about her expectations being violated and needs not being met, Serenity responded:

I think once in a while I do. And then I'll usually instantly regret it and I'll try to put it back down and I won't let it come out again. Like sometimes I might lash out and say a mean comment or something like "why didn't you do this" or "you should have did it this way". If I do that he shuts down at that point and he won't talk. Even though I'm mad about something, it kind of turns into my fault even if he did something and I'm telling him I didn't like it and then he wouldn't talk and then I feel like I'm the bad guy. And so I prefer not lashing out because like he still talks.

Serenity's partner, who shut down when faced with her anger, contributed to her unresolved violated expectations and compromised needs and exacerbated her feelings of being on edge. Being unable to resolve ongoing problems increased the women's despair and anger about their situations. Having partners shut down communication affected participants' abilities to recruit support for their unmet needs and continued to violate their expectations.

Beyond the immediate instigation of tension and conflict that anger expression could bring, mothers indicated that anger expression could take a longer-term toll on relationships.

Elizabeth related:

I was quick to get frustrated and I mean I've never been so sleep deprived and so irritable ever in my life as I am now. I feel like maybe I was saying things that weren't very fair to my husband at times. Saying and feeling, "Oh my god. Our marriage is over." I know that was pretty awful. I think maybe we both suffered from that and I think I took it out on him more than I should have.

Several women linked the expression of their anger to the slow erosion of good will in their relationships because they were focused on day-to-day survival. They indicated that, at times, their partners were 'safer' recipients of their anger than their children. Shannon talked about wanting to 'blow up' her marriage as a result of all the built-up resentment she had at her partner

and fantasizing about divorce as a way she could finally get a break from shouldering the majority of the household and childcare responsibilities. Although there were negative effects from anger on relationships, expression of anger also prompted some women and their partners to take a step back so they could evaluate the situation and make changes, allowing for more positive relationship outcomes.

Participants often described short- and longer-term positive outcomes of expressing anger on relationships. They indicated that expressing their anger acted as a catalyst for change in relationships. In the short term, anger helped partners and others to become aware of mothers' needs for help and support. For example, Elizabeth described:

When I would get really, really frustrated, my husband would always step in or my mom or my sister would come over. Somebody would step in. My husband was great. He would come home and he would take the baby and I'd go upstairs and I'd lay down for half an hour or I'd go take a shower or I would just sit in my room. I'd always feel better after that half an hour to an hour of alone time. He was always really good at making sure I had that at least once a day just so I could kind of decompress on my own.

Elizabeth expressed her anger as a way of seeking support from others so that she could get the help she needed in order to calm down and meet her own needs. Alicia recounted a particularly tender moment of emotional connection with her partner after she had raged because her baby was having difficulty sleeping at night:

Charles was still awake at that point. He came over and he hugged me and I just cried. I probably cried for forty-five minutes to an hour, just sobbing. And by that point, Stuart had nursed back to sleep, so he was fine, and he was asleep. Yeah, it was a beautiful moment at the end, because Charles was able to come and comfort me and soothe me.

Most mothers, who expressed rather than suppressed their anger, indicated that their anger displays were ways of expressing their need for support. Partners who responded positively to participants' bids for support allowed them to come down from anger in the short-term and

supported them to meet compromised needs. Partners' supportive actions reduced the intensity of the women's feelings of being on edge.

Anger displays were also useful for helping the women to be heard by partners who were not recognizing their needs. Nicole and Meadow described how their partners could not pick up on signs of their distress, leading them to have to express their anger in order to get their partners' attention and help. Nonetheless, those women wished that they did not have to get angry to get more help and support from their partners. Frances recounted telling her partner: "It's unfortunate that the only way that I can actually get you to hear me and, you know, respond, is to lose my cool in a very serious way, but unfortunately that is what you respond to." In these instances, anger was a communication tool, even though the mothers did not view it as a desirable tool.

As a longer-term benefit of expressing anger arising from conflict between participants and their partners, some participants described moving beyond their anger to put conscious effort into mending and strengthening their relationships. Colleen articulated that her anger experiences actually served to push her and her partner to cultivate 'compassion and graciousness' towards one another as a survival strategy and allowed them to reframe their anger. She explained:

We've had a lot of conversations talking about what we see happening in our lives, like, oh "I go to work and this what happens to me at work" and I'm like, "this is what it's like at home", and I think we both see the value that the other one brings. And also I think that him and I are incredibly hard-working and we both try very, very hard to be kind to one another. My kid screams a lot less now, like he used to scream 8 hours a day. And on days when he is screaming a lot we do tend to still get mad at each other, but we have the ability to be like we're just fighting because we've been screamed at for two hours.

Shannon talked about her anger leading her to start marriage counseling with her partner in an effort to overcome her resentment and to solicit better support from him. Ava shared that having a heated conflict in the middle of the night about the baby not sleeping ultimately allowed her

and her partner to open up a conversation after they had calmed down the next day. They discussed how to better support one another, and she recounted that the conflict opened the door to sharing their feelings more deeply with each other. In a similar vein, Alicia reflected about her relationship:

So we went through a really rough patch, we went through stages when we were hardly talking. We were talking, but we weren't communicating and supporting each other, the way that we both needed the support... this entire experience has really brought my husband and I together, and taught us [about] really getting down to the basics on our communication, learning new strategies and really working hard on improving that side. This year has been a huge learning process...he's opening up more about his feelings. If I had talked to you when Stuart was a year old, it would have looked different. The last six months we've had a lot of time to reevaluate and get things sorted out.

For the women, who expressed anger that facilitated relationship growth and deeper connections with their partners, anger was not wholly negative.

5.6.2. Sense of Control

Anger had other positive personal outcomes for participants in terms of helping women to try to take control of what they regarded as untenable situations. Although some participants had described anger as a consequence of losing control over a situation, anger could also be a way to regain the control even if it had undesirable effects. For example, Elisabeth recounted being in a particularly overwhelming situation in which she described her anxiety exploding into anger because two of her children were fighting, while the younger one was trying to play with the dog food, and her mother and her older daughter bombarded her with questions. She recalled “blowing up” and yelling at everyone when nobody was listening to her, after which the room fell silent. Despite the expression of anger creating feelings of guilt and shame, Elisabeth's expression of anger conveyed her feelings of being overwhelmed by the situation and put a stop to the behaviors that were distressing her. Colleen explained that a positive outcome of her anger

was that she learned not to second guess her needs and that she saw her anger as fuel to keep on going. Colleen felt that she could now better motivate herself to get through difficult situations without using anger. Participants also spoke of being able to better accept their anger as legitimate and to have self-compassion when they did lash out in anger. Women often reported being able to process and recover from their anger faster and not let anger ruin the day or prevent them from having a fresh start the next day.

Anger also helped women to reaffirm their expectations, prioritize their needs, and look after themselves as a way to both prevent and mitigate being on edge and, ultimately, anger. Participants did this by soliciting help from others and creating boundaries. For example, Kelly related:

I'm way more demanding about what I need to be happy. I'm not trying to be bossy...[or] be mean. But if I'm going to the gym, it would be let's clean the kitchen before you go...And then I would never end up going. And now I'm like no. I've decided I'm doing this. My alarm's gone off. I'm going right now. Don't care. You figure it out. So just being more demanding about what I need to feel good as a human.

Shannon shared that she splurged on a YMCA membership for the childminding so that she could have some time to herself; Shannon could exercise, have a coffee alone, or even have a nap at YMCA. Colleen invested in a double stroller so that she could meet her needs to connect with other mothers at community groups by being able to get around with her children without a car and to avoid episodes like the one when her daughter refused to walk. Sara explained that she was now better able to articulate and stand up for her needs with her partner.

Participants invited partners to step up to the plate and many times they did. For example, Ava's partner started taking turns with Ava in providing nighttime care for their baby after he

was weaned. Other partners would take the morning shift with the baby or children so that mothers could make up some of their sleep deficit.

When women were unable to recruit support after their anger expression or if they chose to suppress their anger and not make their needs known, they indicated that they had to change their expectations and accept that their needs would be compromised. Some women also consciously made the choice to let go of expectations they thought were not useful. That helped to decrease the number of their expectations that were violated. Colleen related,

It was just always like I had to play each day ear by ear, and there was no right or wrong. It was just like letting go of your own expectations and letting go of your own things and prioritizing your needs over your wants.

Similarly, Frances, Alicia, Dawn and Audrey echoed that letting go of some expectations helped them avoid getting angry as much by reducing violated expectations. However, that approach did not always work well because some participants could not accept that support was not forthcoming. That led them to continue to get angry. For example, Liz repeatedly got into conflicts with her parents and partner about trying to meet her sleep needs by sleep training her baby. Serenity continued to be angry at her mother for not caring for her in the way that she needed. Finally, women also spoke about being kinder to themselves and celebrating wins, such as keeping the children alive and fed.

5.7 Chapter Summary

The process of ‘seeing red’ in the postpartum has three stages of 1) triggers illuminating violated expectations, compromised needs, and being on edge, 2) managing anger, and the 3) impacts of anger. The first stage involves triggers that symbolize a wrong and illuminate women’s violated expectations and compromised her needs, leading to feeling on edge, in the absence of support. Feeling on edge could include stress, anxiety, exhaustion, despair, and/or

resentment. Feeling on edge served as a precursor to anger. Support was consistently associated with the prevention or reduction of anger. Lack of support for participants resulted in more anger. In the second stage of seeing red, participants' feelings of anger were managed through suppression or expression of anger and some strategies to reduce anger. Participants varied in their ability and willingness to express anger. Many times, women could also be angry at themselves. Finally, in the third stage, participants experienced the effects of anger expression or suppression. When women were able to elicit support from others by expressing anger they felt less on edge and could reduce their anger and address the causes of violated expectations and compromised needs. When women suppressed their anger and did not make their expectations and needs known, they were prone to persisting violated expectations and compromised needs. In those conditions, women remained on edge leading to more instances of anger.

Chapter 6: Discussion & Implications

In this chapter, the first and second sections provide a discussion of the respective quantitative and qualitative findings. The third section delineates the meta-inferences derived from interpreting, comparing, and integrating the two sets of findings. In the fourth section, I discuss the implications for practice, education, and research, and delineate future research directions that build on the current work. Next, I discuss the knowledge mobilization work I have undertaken to disseminate this research and related research findings. Finally, I consider the strengths and limitations of this mixed methods study, summarize the chapter, and conclude the dissertation.

6.1 Quantitative Findings Discussion

The study survey generated wide interest amongst women with infants. The study advertisement was circulated by organizations such as Association of British Columbia Midwives, Families Canada, and Childbearing Society through Facebook posts and by participants themselves. The survey was framed around mother-infant sleep. Over 1100 interested potential participants completed the screening questions survey, indicating that sleep is a salient topic in the first year after childbirth. More than half of the participants who completed the actual survey (56%) indicated that they were willing to participate in a phone interview about mood after childbirth, suggesting that many women welcomed being asked about their psychosocial wellbeing in the postpartum period.

6.1.1 Participant Characteristics

Characteristics of sample participants were compared to Canadian demographic averages. In 2018, the median household income was \$61,400 (Statistics Canada, 2020). Only a small proportion of participants (8.3%) in this sample had household incomes of less than \$60,000,

indicating a relatively affluent sample. Close to 70% of study participants were university educated. In comparison, 28.5% of Canadians between 25 to 64 years of age had a bachelor's degree or higher (Statistics Canada, 2017). The difference suggests that the study had a highly educated sample. As expected, higher income and education were associated with lower levels of anger but the association did not reach significance. This may have been because participants from lower income and education brackets were underrepresented in the sample.

As of 2016, 21.9% of people residing in Canada were immigrants (Statistics Canada, 2017). In the study, 15% percent of the respondents were immigrants, reflecting a less diverse sample when compared to the Canadian population. Contrary to the hypothesis that immigration status would predict higher levels of maternal anger, in this study, immigrant status was negatively and non-significantly associated with anger. It may be that, in this sample of generally higher income participants, women who were immigrants were more protected from the challenges of immigration, such as having food security (Emerson & Carbert, 2019), and being able to secure good employment and access and navigate health care (Urindwanayo, 2018).

The purpose of advertising this study as a survey about maternal-infant sleep was to increase the likelihood of identifying women with postpartum anger because maternal mental health has been strongly linked with maternal-infant sleep problems (e.g., Kempler et al., 2015; Lawson et al., 2015; Sadeh et al., 2010). This purpose was accomplished. However, it is possible that women who experienced anger but had no infant sleep issues may have thought the study would not be relevant for them and thus excluded themselves from this study. In this study, nearly 70% percent of mothers perceived an infant sleep problem ranging from mild to serious using the BISQ item on perceptions of infant sleep problems. In comparison, 25% of North American parents (n = 5006) (Sadeh et al., 2009), and close to 10% of Brazilian mothers (n =

2222) (Halal et al., 2020) perceived any degree of infant sleep problems, using the same BISQ item. In this dissertation sample of women, only 5% classified their infant's sleep problem as a serious problem, even though 18% of infants did not meet requirements for 24-hour sleep according to AASM guidelines (Paruthi et al., 2016). Blunden et al., (2004) found that despite almost 25% of 361 children experiencing sleep problems of clinical significance using the Sleep Disturbance Scale for Children, only a small fraction of parents (11 out of 79) had discussed their children's sleep with their primary care provider in the previous 12 months. Moreover, in a review of 30 infant sleep studies, Honaker and Meltzer (2016) found that only 14-16% of parents who identified their children's sleep as problematic talked to a primary care provider about their child's sleep. The authors theorized that a contributing reason may be that parents lack knowledge of the norms for children's sleep. It may also be that parents attempt to normalize infant sleep problems as par for the course of infancy; normalizing infant sleep problems is influenced by the discourse of some infant sleep experts (e.g., Ball, Tomori, & McKenna, 2019) who promote viewing infant night wakes as a normal part of infancy regardless of its effects on parents.

6.1.2 Mood

Close to one third of participants (30.6%) reported high levels of anger. This finding reflects those in other studies of maternal anger. In a study of 163 predominantly primiparous women from higher socioeconomic backgrounds living in the suburban area of a city in the United States, 34% of women had high levels of anger (using a high-low median split on the Affect Balance Scale) at 6 weeks postpartum (Graham, Lobel, DeLuca, 2002). Parfitt and Ayers (2012) found that 22% (10 out of 45 primiparous women) reported high levels of anger towards their infant using the Birmingham Interview of Maternal Mental Health (BIMMH) in a

subsample of parents from a longitudinal study of parenthood in the United Kingdom. However, the use of the BIMMH would not have captured anger parents had towards themselves or others, such as their partners. In this dissertation study, the mean state anger score was 24 ($SD = 7.6$). In a recent study on the relationships between anger, forgiveness, and depression in the first three postpartum years in both primiparous and multiparous women in Australia, Ascenzo and Collard (2018) found that women ($n = 48$) with depression diagnoses had a mean state anger score of 29.8 ($SD = 7.97$) while women with no depression diagnosis ($n = 45$) had a mean SAS of 24.8 ($SD = 5.08$), providing further evidence that anger can be comorbid with depression in the postpartum period. Using a multivariate analysis of variance (MANOVA), with state anger, trait anger, anger expression as dependent variables, they found a statistically significant difference between the depressed and non-depressed groups on the combined dependent variables (Wilks' $\Lambda = .82$, $F(4, 88) = 4.69$, $p < .002$, $\eta^2 = .18$) with depressed women having higher anger scores.

I used 27 on the SAS as a cut-off to indicate high levels of anger³³. This is a very conservative cut-off because Spielberger (1999) indicated that individuals with anger scores above the 75th percentile³⁴ may have angry feelings that interfere with optimal functioning. SAS scores in both this dissertation study and Ascenzo and Collard's (2018) work reflect high anger scores for women who have had a baby. This may suggest that women in the postpartum period may have different anger norms than non-childbearing women. It may also be that the current social construction of motherhood of being joyful and fulfilling that is internalized by women

³³ Indicating 90th percentile for non-psychiatric women 30 years of age and above (Spielberger, 1999)

³⁴ Scores between 25th and 75th percentile on the State Anger Scale are within the normal range (Spielberger, 1999)

leads them to have negative mood outcomes when the actual experience falls short of their expectations (Mauthner, 1999; Powell & Karraker, 2019). The qualitative findings support that explanation because women referred to their expectations about competent motherhood being violated and their needs to feel confident as mothers compromised.

While this study was able to demonstrate some of the factors that contributed to high levels of anger, factors that were protective against low levels of anger were less apparent. There is research evidence for a linkage between resilience, trait anger, and postpartum depression, with resilience during pregnancy partially mediating the association between trait anger during pregnancy and postpartum depression at one month after childbirth (Tobe, Kita, Hayashi, Umeshita, & Kamibepu, 2020). Resilience, as measured by positive thinking, tenacity, and help-seeking, has been associated with lower levels of anger and affects the relationship between coping and anger and other psychopathology (anxiety, depression, aggression) (Ng, Ang, & Ho, 2012). Participants' trait anger data were not collected in this dissertation study; however, trait anger plays a role in explaining levels of state anger in individuals (Deffenbacher et al., 1996; Spielberger, 1999). Trait anger is theoretically and empirically associated with state anger, with higher trait anger predicting higher state anger during anger-provoking situations (Harmon-Jones, 2007; Wilkowski & Robinson, 2010). It is possible that collecting data on variables, such as trait anger and trait resilience, would help to explain the variance in women's state anger. Moreover, maternal trait anger may also be an important predictor of depression symptoms and family functioning (e.g., parent-infant mentalization and parent relationship conflict).

More than a quarter of participants (26%) in this sample experienced depression symptoms above the cut-off on the EPDS. This is in-line with a recent Statistics Canada (2019) report that found that 24% of surveyed women (n = 7085) who were 5 to 13 months postpartum

reported symptoms consistent with postpartum depression or anxiety. A meta-analysis of 291 studies from 56 countries ($n = 296,284$ women) identified a pooled prevalence of 17.7% globally, which included women from very different contexts (Hahn-Holbrook, Cornwell-Hinrichs, & Anaya, 2018).

Similarly to the combination of depression and anxiety co-occurring during and outside of the perinatal time frame (Falah-Hassani, Shiri, & Dennis, 2017; Saha et al., 2020), high levels of anger and depressive symptoms can also co-occur. Fourteen percent of the study sample experienced high levels of anger and depressive symptoms. Outside the perinatal time frame, linkages between anger and depression as mood disturbances have been established, but more research has explored men's than women's anger and depression (DiGiuseppe & Tafrate, 2007). In this study, women who experienced depressive symptoms above cut-off were nearly 4 times more likely to experience high levels of anger, speaking to the important linkage between anger and depression in the postnatal period. Moreover, 14% of participants endorsed thoughts about self-harm, which was correlated with anger ($r = .27, p < 0.01$) and depressive symptoms ($r = 0.41, p < 0.01$). Anger and hopelessness has been associated with men and women's suicidality (Hunt, Wilson, Caputi, Wilson, & Woodward, 2018), making anger an important mood disturbance to study. Researchers in the area of perinatal mortality have maintained that perinatal suicide³⁵ is a leading cause of maternal mortality in developed countries (Gressier et al., 2017; Oates, 2003).

³⁵ Accurate estimates are rarely available as cause of maternal death is often attributed to drug overdose and other high-risk actions rather than as suicide (Gressier et al., 2017); furthermore, gross underreporting occurs because pregnancy or recent childbirth is not always recorded on death certificates (Grigoriadis et al., 2017)

In this study, significant predictors of maternal anger included parity, depression, and anger about infant sleep (MCISQ anger) as moderated by infant age. Graham, Lobel, and DeLuca (2002) carried out 2 separate regression models to determine significant predictors of 1) postpartum anger, and 2) postpartum depression. They hypothesized that the correlates of and protective factors for depression would also act as correlates of, and protective factors for, anger with religiosity as being protective against depression symptoms and anger. They identified that stress about childcare, older age, and religious identification (being non-religious or Jewish) predicted postpartum anger in 163 women 6 weeks after childbirth. Postpartum depression was predicted by the delivery experience, stress about childcare, partner support, personality traits (self-esteem and neuroticism), marital status, and younger age. The authors' selection of variables was not theoretically driven, and they had expected that the variables that would predict depression would also predict anger. This dissertation study is the first to test the relationships between maternal anger and maternal-infant sleep variables, with support for problematic infant sleep (i.e., anger about infant sleep) being associated with maternal anger.

6.1.3 Sleep and Fatigue

In this dissertation study, 73% of women had PSQI global scores above the cut-off, indicating problematic sleep. In subjectively rating their sleep quality, over half of women (52%) perceived their sleep as “bad” (either ‘fairly bad’ or ‘very bad’). Women who rated their sleep quality as poor (PSQI item) were 2.9 times more likely to have high levels of anger ($OR = 2.9$, 95% $CI [1.68 - 4.96]$, $p < 0.01$). Moreover, 35% of women experienced daily fatigue and 42% experienced fatigue almost every day (42%). Wilson, Lee, and Bei (2019) suggested that up to 60% of women experience elevated fatigue in the postpartum period. Women who experience insomnia and fatigue associated with infant sleep problems are more vulnerable to negative

mood states. Maternal subjective assessments of their own and their infant's sleep quality are often more important than objective measurements in determining the association between sleep and maternal mental health (e.g., Goldberg et al., 2013; Stremmler et al., 2019). It is noteworthy that nearly 70% of women perceived that their infant had a sleep problem in this dissertation study. When examining the characteristics of infant sleep, 18% of infants did not meet the minimum 24-hour requirements for sleep as outlined by Paruthi et al. (2016) while 13% of infants were awake two or more hours at nighttime. Infants had a mean of 2.4 night-wakes ($SD = 1.6$, range = 0-18). In a systematic review of reference values for sleep-wake behavior for the first 12 months of life, Dias, Figueredo, Rocha, and Field (2017) established reference values for nighttime sleep, number of night-wakes, and night-wake duration using a combination of polysomnography and actigraphy findings. They established that 6- to 12-month old infants had an average of 2.5 night wakes and an average of 36 minutes of night-wake duration. Their findings suggest that some infants in the dissertation study had considerable behavioral sleep problems in relation to night wake duration.

In a population-based study of Brazilian mothers, Halal et al., (2020) identified that maternal perinatal depression (at pregnancy or postpartum) predicted mothers' subjective estimates of infant sleep problems (using the BISQ) but not objective infant sleep problems (using actigraphy), supporting the importance of maternal subjective assessments of maternal and infant sleep quality when predicting PMDs. Taken together, the results from this sample indicate that a sizeable portion of women struggle with infant sleep problems, their own sleep problems and fatigue in the latter half of the first postpartum year.

Previous studies have typically focused on one primary dimension of sleep (e.g., infant sleep problems, maternal sleep quality, or maternal fatigue) in connection with maternal mental

health (e.g., Giallo et al., 2011 [fatigue]; Tikotzky, 2015 [maternal sleep]; Wake & Hiscock, 2001 [infant sleep]). This dissertation is original in that it investigates maternal perceptions about maternal and infant sleep and maternal fatigue when examining maternal anger as a postpartum mood disturbance. In this study, maternal fatigue and maternal sleep quality, as indicated by the MAF and PSQI total scores respectively, were not significant predictors of maternal anger but anger about infant sleep was a significant predictor. Given that maternal fatigue and maternal sleep quality are constructs that have considerable overlap, this may have contributed to difficulty in disentangling the separate effects of each variable in the model, resulting in a problem of multicollinearity (Cohen et al., 2003). Multicollinearity occurs when explanatory variables have strong (although imperfect) relationships leading to uncertainty about contributions of overlapping variables to the dependent variable and unreliable parameter estimates (i.e., inaccurate estimates for the beta coefficients, standard errors, and thus, significance values) (Field et al., 2012; Hutcheson & Sofroniou, 1999). Such problems were evidenced by the large standard errors for maternal sleep (global PSQI score) and fatigue (fatigue total score) in both the OLS and robust regression models in this study. Cohen et al., (2003) have indicated that even moderate degrees of multicollinearity can bias a regression model. Statisticians have suggested strategies to mitigate the effects of multicollinearity include collecting more data, creating composite variables, or removing a variable; however, they have also suggested that it is acceptable to leave correlated variables in the model if their presence makes theoretical sense (Cohen et al., 2003; Field et al., 2012; Hutcheson & Sofroniou, 1999).

The extant literature demonstrates significant relationships between maternal depressive symptoms and maternal perceptions of infant sleep problems (Cook et al., 2020; Halal et al., 2020), fatigue (Giallo, Gartland, Woolhouse, & Brown, 2016) and maternal sleep quality (Lewis,

Gjerdingen, Schuver, Avery, & Marcus, 2018; Okun, Mancuso, Hobel, Schetter, & Coussons-Read, 2018). Although fatigue, and maternal ‘objective’ sleep quality (PSQI global score) and subjective sleep quality (PSQI item) were significantly correlated with maternal anger in the quantitative dissertation study, they were not predictors in the tested models. Anger about infant sleep, indicating the presence of perceived infant sleep problems, was a significant predictor of maternal anger. This is in line with Galbally, Watson, Teti, and Lewis’s (2018) finding in a longitudinal study of 264 women, using cross-lagged regression models, that maternal cognitions about infant sleep (MCISQ) at 6 months of age predicted maternal depression symptoms at 12 months of age ($b = .12$, $SE = .05$, $p < .05$). Hiscock and Wake (2001) identified maternal sleep quality (using the PSQI item on perception of sleep quality) as mediating the relationship between infant sleep problems and depression. Outside of the perinatal timeframe, Krizan and Hisler (2019) studied 142 adults with experimentally-induced sleep restriction and reported that participants who were sleep restricted (curtailed sleep of 5-6 hours at nighttime) had higher levels of anger than participants who did not have sleep restrictions. In their study, subjective sleepiness mediated the relationship between sleep restriction and anger (significant indirect effect of .23, 95% CI [.10-.39], $p < 0.05$) and accounted for 70% of the total effect of sleep restriction on anger. Their findings speak to the importance of subjective assessments of sleep when considering mood disturbances. It is possible that the relationships between maternal fatigue, maternal-infant sleep quality and anger were misspecified in the dissertation regression model because I did not consider or test any mediating relationships between maternal sleep and anger via fatigue or other variables.

6.1.4 Social Support

Contrary to theoretical representations of support, social support scores were neither significantly correlated with maternal anger nor predictors of maternal anger in the quantitative study. The Family Support Scale (FSS) was used to measure the amount of social support participants perceived. The FSS asked the participant to rate 20 different sources of support on their availability and degree of helpfulness in terms of raising their child(ren). Higher numbers of available support sources who are perceived to be helpful contribute to higher support scores. It was expected that higher scores would contribute to lower levels of anger. Several factors may have contributed to why social support as measured by the FSS was not predictive of maternal anger in this study. Partner support was folded into social support and not weighted more heavily than any other support source such as neighbors or friends. It could be argued that partner support warranted a heavier weight because individuals in modern romantic relationships tend to rely on and expect their partners to be their greatest source of emotional and instrumental support (Finkel et al., 2014) and certainly during the transition to parenthood (Dennis, Brown & Brennenstuhl, 2017). Although some participants may have had available and helpful sources of support, this does not mean that they always accessed those supports. The FSS question was oriented to care of the child (“How helpful has each of the following been to you in terms of raising your child(ren)”; thus, the measure did not capture perceived support for mothers themselves beyond care for the children.

6.2 Qualitative Findings Discussion

The grounded theory was developed from qualitative interviews with women between the 6th to 24th postpartum month³⁶. It delineates the basic social process of seeing red and its interrelated categories, which capture the development and management of anger. Triggers, violated expectations, compromised needs, being on edge, and managing anger, as well as the impacts of anger, were essential categories as components of the grounded theory; these findings will be compared to current literature to assess their unique contributions and fit.

6.2.1 Violated Expectations and Compromised Needs

In this study, violated expectations were the discrepancies between women's preconceived ideas of how life would be after having a baby and what actually followed. Violated expectations took many forms and were associated with women's needs being compromised. There were several types of violated expectations. Violated expectations included expectations women held about themselves as competent mothers, expectations of partners' parenting competence and emotional connections with partners and family members, and expectations of infants' development, with regards to their sleep. For example, women in the qualitative dissertation study recounted feeling angry, or frustrated with themselves that they were not able to be the mother that they envisioned they would be (e.g., "warm," "gentle", "calm", and being able to "gracefully deal with everything"). In a qualitative descriptive study, Staneva and Wittkowski (2012) found that first-time mothers had difficulty reconciling romanticized notions of what welcoming a child into their lives would be like with their reality

³⁶ Putnick et al., (2020) found in a population-based birth cohort study that postpartum mood disturbances could persist 36 months after childbirth.

even while recognizing their notions as unrealistic. While the extant literature has linked violated expectations with maternal depressive symptoms (Harwood, McLean, & Durkin, 2007; Lazarus & Rossouw, 2015; Rizzo & Watsford, 2020), in this study, violated expectations were concepts that contributed to women's anger. The finding supports a literature review that found that anger after childbirth was associated with a mismatch between reality and expectations (Ou & Hall, 2018).

One important aspect of violated expectations regarding partners' roles was related to partners not contributing as much to child caregiving activities as women had envisioned, which was associated with women's compromised needs. Women expected their partners to attain parenting competence. Although women expected parenting to be shared with their partners they found that they were both responsible for and accountable for most of the parenting. Their perceptions fit with the literature that represents parenting as a highly gendered role, with social norms affecting the equity of infant care responsibilities between parents (Douglas & Michaels, 2004; Dow, 2016, Henderson, Harmon, & Newman, 2016). Participants in this dissertation study reported that reasons for anger included perceived injustice (e.g., with respect to inequity in division of childcare labor) or failure of others to follow expectations; these have been established in theoretical work as causes of anger (Potegal & Novaco, 2010; Tavris, 1989).

Given modern ideological expectations for egalitarian romantic relationships (Perry-Jenkins & Gerstel, 2020), it is not surprising that the gendered nature of inequity in the division of childcare responsibilities would be associated with participants' distress in the form of stress, resentment, and anger when having to manage the lion's share of caregiving responsibilities. With respect to gender roles, other authors have reported that greater burden and responsibility for childcare still falls to mothers within families (Bianchi, 2011) even if they desire otherwise

(Powell & Karraker, 2019)³⁷. The American Time Use Survey revealed that while, in the last few decades, fathers have increased the amount of time they spend on childrearing activities compared to previous generations, mothers are still providing more hours of childrearing activities than fathers and, in doing so, sacrificing time for themselves (Bianchi, 2011). Participants in this dissertation study complained about their inability to meet their needs for self-actualization. In such situations, women's desires for equity, in particular instrumental support from partners to reduce workloads, may be violated resulting in compromised needs to be supported and cared for.

In this study, women's violated expectations about what signified maternal competence (e.g., being able to settle the baby to sleep or being able to manage their children's and their own needs with ease) led to participants' compromised needs for personal esteem and reduced confidence in their parenting abilities. Some participants in the qualitative study were highly self-critical and ruminated on their perceived failings, especially related to feeling unable to manage parenting challenges. Their perceptions fit with literature that has indicated the perinatal period as a time of transition where issues related to identity and self-esteem are likely to arise (Priel & Besser, 2000) and that women with higher trait self-criticism are more likely to experience anger and depressive symptoms (Vliegen et al., 2010; Vliegen & Luyten, 2008). Experiencing a compromised need for confidence put women on edge, encompassing feelings of frustration, stress, and anxiety which were precursors to anger directed at women themselves.

³⁷ Powell and Karraker (2019) tested whether violated expectations were a mismatch between postpartum desires and postpartum experiences and found that women's experiences fell significantly short of their desires/expectations about the division of labour with the majority of women wanting partners to contribute more to infant caregiving.

Violated expectations went hand-in-hand with compromised needs. Study participants had expectations violated about personal time (including sleep), emotional connection, and support which then compromised needs for sleep, care from others, feeling confident in their parenting abilities, and time for themselves. Women's affective responses (e.g., distress in the form of anger or sadness) to compromised needs may act as a bid for others to offer support to help meet their needs. Edward Hagen (1999), an anthropologist who examined postpartum depression as a support and resource deficit model for depression in general, argued that postpartum depression is a functional and evolutionary adaptation that assists mothers to gain adequate social support to meet unmet needs. His hypothesis fits with a relational autonomy perspective because the rearing of human offspring involves considerable investment of time, energy, and resources from parents, and mothers especially, who require supportive relational contexts. According to Hagen (1999), when others (partners and kin) around the mother witness her depressed mood and reduced engagement with the infant, they are more likely to increase the provision of support for the mother. In the same vein, Dow (2016) has contended that a model of integrated mothering/parenting where childcare responsibilities are shared amongst family and community members would be an advantageous alternative to personally cost-intensive mothering by one person.

Women's display of anger in this study was an alternate way (even if not necessarily a desirable way) to call attention to their distress over unmet needs. This in contrast to the way described by Hagen (i.e., through a display of sadness to others) which has been seen as a typical way of helping women meet their needs. It is important to note that the majority of participants talked about not wanting to expose their children to anger. This may have been because women implicitly understood that their children did not have the capacity to assist them with meeting

their needs or attaining their goals, in addition to women recognizing that children were vulnerable to the negative effects of anger.

There is empirical evidence to support anger expression as prompting others to change their behavior in order to assist with goal attainment³⁸ (Lench, Tibbett, and Bench, 2016). Work by Sinaceur and Tidens (2006), outside the context of parenthood, suggests that anger expression is an important element of inter-person negotiations for a desired outcome. In seminal work by Averill (1982), anger expressed in close relationships helped to increase respect from the target of anger for the person who was angered. Moreover, Clark and Finkel (2005) pointed out that expressing anger serves to convey the needs and vulnerabilities of the expresser. For some women in the dissertation study, a display of anger was a part of what women saw to be a critical process of negotiating more help and support from their partners.

6.2.2 Being on Edge

An important category of seeing red was being on edge. Participants in this study reported feeling stressed, exhausted, anxious, sad, and resentful thus revealing a diversity of feelings that preceded anger. The finding is supported by studies outside of the perinatal time frame that have linked anger with stress (Martin & Dahlen, 2005), sadness and hopelessness (DiGuiseppe & Tafrate, 2007; Ellsworth & Tong, 2006), anxiety (Hawkins & Cougle, 2010; Minkel et al., 2012), exhaustion (Minkel et al., 2012), and resentment (Miceli & Castelfranchi, 2017) and extends these findings into the postpartum period. However, given that these were cross-sectional studies, we cannot infer causality of stress on anger. This grounded theory

³⁸ Lench, Tibbett, & Bench (2016) also found that expressing sadness could perform this function.

dissertation study and other studies demonstrate the remarkable variability in the presentation and symptoms of postpartum distress and mood disturbances. Williamson et al. (2015) found that irritability (defined as increased anger and ill-temper) had strong and significant factor loadings with depression in the postpartum time frame. Similarly, Kettunen et al. (2014) found postpartum depression to be a non-homogenous disorder among women and demonstrated that women could also experience concurrent anxiety, hostility, and somatic symptoms. Koukopoulos et al. (2020) argued for the recognition of mixed negative affective states in the postpartum timeframe, inclusive of anger, anxiety, depression, and emotional lability.

6.2.3 Managing Anger

When participants reached the anger stage of seeing red, they could manage their anger by displaying their anger to others or by suppressing their anger. A number of women described themselves as “internalizing” their anger, which was often described as suppressing a display of their anger to others, i.e., to children or partners. Other participants reported expressing their anger to others (although this was not consequence-free because there were associated feelings of guilt and shame). In this study, it appeared that women who ultimately expressed their anger were more likely to resolve their anger by addressing the circumstances that led to their anger (e.g., Ava was ultimately able to elicit more help from her partner with nighttime infant care, a primary source of the inequity about infant-care that distressed her, after expressing her anger about the situation to him) compared to women who chose to conceal their anger (e.g., Serenity spoke about how communication with her partner was an ongoing issue and a source of her distress).

Anger functions to signal distress or dissatisfaction to others (Averill, 1982; Potegal & Novaco, 2010; Tavris, 1989), thus inviting action to change situations that are distressing for the

individual (Butler, Meloy-Miller, Seedall, Dicus, 2018). This presentation of anger also fits with Hagen's (1999) theoretical contention that maternal depression is a bid for support and resources from partners and kin. When anger is not expressed, this signaling to others may not occur.

Women in this study who were not able to alert others to their anger met barriers to resolving the causes of their anger. However, there can be potential costs to anger expression. Women who express a lot of anger towards partners can suffer adverse consequences such as relationship stress, conflict, and even dissolution (DeGroot & Vik, 2020; Huss & Pollman-Schult, 2020; Parfitt & Ayers, 2012; Rogge, Bradbury, Hahleg, Engl, & Thurmaier, 2006).

Mothers in this qualitative study talked about the importance of protecting their children from their anger and taking steps to suppress a display of anger around children where possible. Hajal, Teti, Cole, and Ram (2019) examined maternal motivation to engage or disengage with their children and actual behavior when mothers experienced happiness, sadness, worry, and anger while caring for their 14–24-month-old children. They used daily repeat phone interviews. Hajal et al. found that mothers were not motivated to engage and engaged less with their children when they were angry and irritated, contrary to theoretical and empirical work that has demonstrated anger as an approach-oriented rather than avoidance-oriented emotion (e.g., Carver & Harmon-Jones, 2009³⁹). Hajal et al. theorized that mothers automatically down-regulate their anger and purposefully disengage in order to protect their children from their anger. Their theoretical suppositions are supported by participants in this dissertation study describing how they wanted to shield their children from their anger.

³⁹ However, Carver and Harmon-Jones (2009) did not account for how people act when children are the targets of anger in their empirical work.

It may be that participants who engaged in self-blame for their situations, in other words, who were angry at themselves (on top of anger towards others) were more likely to inhibit an expression of their anger. For example, participants Serenity and Elisabeth expressed feeling angry at themselves and generally hesitated to display their anger to others, whereas Colleen and Frances blamed others for their anger (e.g., partners and health care providers) and did not hesitate to express their anger. In a study examining the differences between anger at others and self-anger, Ellsworth and Tong (2006) found that self-anger was strongly characterized by wanting to withdraw from a situation and associated with greater sadness, shame, guilt, and regret when compared with anger at others. They argued that self-anger is different from anger at others because withdrawal is the reaction of self-anger while anger at others motivates individuals to take action and hold others accountable.

Another factor that may contribute to women hiding their anger is social stigma about women feeling and expressing anger. Some participants, in the qualitative dissertation study who were fearful of compromising relationships with partners through expressing anger, suppressed showing anger to them. Studies have identified that women are more likely to suppress a display of anger when they fear negative consequences of anger expression, such as jeopardizing relationships, especially in romantic relationships (Jack, 2001; Evers, Fischer, Rodriguez, & Manstead, 2005; Fischer & Evers, 2011). Despite anger being a universal emotion, anger has been stigmatized for women as being unfeminine (Chemaly, 2018; Tavris, 1989) and incongruent with sociocultural expectations of motherhood (Ou & Hall, 2018). Thus, some women are more likely to internalize their anger to conform to societal expectations of an outward appearance of contentment in their motherhood roles (Knudson-Martin & Martin, 2009; Mauthner, 1999). Graside and Klimes-Dougan (2011) and Hagen (1999) suggested that

sociocultural expectations have shaped how women express distress, and that sadness is seen as an appropriately feminine expression of distress that is more likely to elicit support from others. Although Chemaly (2018) argued that women who display anger are perceived to be violating gender norms and experience social sanctions such as not being taken seriously (Chemaly, 2018), in this study, some women were not taken seriously until they expressed anger.

In this dissertation study, some participants used anger as a tool to get partners' attention about their distress with childcare and relationship dissatisfaction; those women were comfortable with displaying or expressing their anger. Some participants also described anger as serving as a tool for prompting relationship repair. Some participants in this study reflected on valuing their relationships with their partners after episodes of anger and took steps to repair the wear and tear on their relationships when anger arose in response to stressors of caring for infants and young children. For the study participants who kept their anger private, initiating relationship repair was difficult. This led to some women's feelings of inadequacy and helplessness because they continued to have exposure to situations that triggered them to anger. These participants recognized that others were unaware of their distress which impeded their efforts to change or prevent problematic situations. Comparably, Guerrero, La Valley, and Farinelli (2008) found that the way women express their anger mediated the relationship between anger and marital satisfaction with avoidance anger expression (suppression) negatively predicting marital satisfaction and assertive anger expression positively predicting marital satisfaction in women.

6.2.4 Support

Participants in the grounded theory study talked about using, wanting, needing, or pursuing social and structural supports to cope with their distress and anger and to assist with

meeting their needs. They also spoke about receiving a lot of social support being associated with being least likely to feel angry because they were able to meet their needs (e.g., getting adequate sleep, time for self). When women did describe being angry, social and structural supports were crucial for helping participants manage and reduce their anger. On the other hand, inadequate social and structural supports contributed to and exacerbated women's anger and distress (i.e., guilt, shame, and anger at themselves) and increased barriers to meeting their needs (i.e., inadequate instrumental support). The qualitative findings underscore the importance of a relational view of autonomy in the postnatal period because it can highlight the importance of social, political, and health care provider supports for women so that they are able to meet both their infants' needs and their own needs.

Based on an integrative review of the literature on self-care in the early postpartum period, Lambermon, Vandenbussche, Dedding, and Duijnhoven (2020) conceptualized a framework of maternal self-care needs and explained that maternal self-care, which may be seen as a person's ability to meet their needs, is bidirectionally related to self-care agency and situated within a societal context. Self-care agency is facilitated by personal situation (e.g., socioeconomic status, number of children), current physical and mental health, and crucially, amount of support received from partners, kin, and formal supports, such as health care providers. Lambermon et al.'s framework views maternal self-care as critical to meeting needs. They explicate that maternal self-care is influenced by both self-care agency and society.

Women in the qualitative study were often able to exercise personal agency but not always autonomy by Sherwin's (1998) definition, with autonomy being the ability to have choices and to exercise self-determination. To a limited degree, women were able to choose how they reacted in a situation (e.g., expressing their anger or hiding it) but many of the women were

unable to avoid stressful circumstances. For example, mothers who were overwhelmed with the day-to-day care of children were largely left to their own devices. Hagen (1999) and others (Beck 2002; Mauthner, 1999) have theorized that postpartum mood disorders speak to women's experiences of powerlessness and inadequate interpersonal supports. Relational and structural supports enhance women's efforts to exercise autonomy (both personal agency and self-governance) during the perinatal time frame.

Ingrained and pervasive sociocultural gender roles contribute to perinatal PMADs by reinforcing expectations that predominantly women will manage childrearing responsibilities; the gender roles constrain women's autonomy when women have challenges in meeting their child's needs and their own needs (Choi, Henshaw, Baker, & Tree, 2005; Dow, 2016, Henderson, Harmon, & Newman, 2016). Dow (2016) argued for a model of integrated mothering/parenting where childcare responsibilities are shared amongst mothers, partners, family members, and the community as an alternative to the hegemonic perspective of intensive mothering as an individualistic enterprise. Integrated mothering reflects Bergum (1997) and Goering's (2017) assertions that mothering, rather than being an individual responsibility, is a social and community responsibility. Studies indicate that there are better outcomes for maternal mental health, maternal-child sleep, and couples' relationship satisfaction when partners are more involved with childcare (Bernier et al., 2017; Demaris & Mahoney, 2017; Tikotzky et al., 2015).

The perinatal time frame is regarded as a time of vulnerability for mental health problems for women (Beck, 2002). In this dissertation study, although many women reported relative affluence, they were not immune to the experience of anger, depressive symptoms, and poor sleep. Anderson (2004) argued that privilege does not protect persons from situations of

vulnerability to human suffering. Globalization, neoliberal policies, and health care reform propelled by economic priorities shape people's experiences (Anderson et al., 2003). Her work speaks to the systemic factors that influence people's personal and relational autonomy (including assumptions about economic vulnerability), which was reflected in the experiences women shared in this study.

6.3 Mixed-Methods Meta-Inferences and Implications

Tashakkori and Teddlie (2008) defined inferences as the conclusions and interpretations that can be made on the basis of collected data. In turn, they characterized meta-inferences as the essential integration of the findings from the quantitative and qualitative strands of mixed methods research. They also stressed that meta-inferences need to offer holistic understandings of phenomena under study while taking into account people and context. In the process of proceeding to making meta-inferences, I first considered the answers the quantitative data provided for my quantitative research questions. I also considered the grounded theory I developed about the process of maternal anger development and management after childbirth. I deliberated carefully upon joint meta-inferences I could make by comparing what I learned from each study and considered how the quantitative and qualitative data triangulated, complemented and corroborated the other, and diverged from the other (Greene et al., 1989; Tashakkori & Teddlie, 2008). Through this process, I established three meta-inferences, which are as follows: 1) anger is a relevant mood disturbance after childbirth, 2) sleep is an important component of postnatal well-being, and 3) relational and systemic supports are paramount to preventing and managing PMDs. These three inferences and their implications are discussed.

6.3.1 Meta-Inference 1: Anger is a Relevant Mood Disturbance after Childbirth

A considerable percentage of the participants reported feeling angry in the survey and this was reflected strongly in the qualitative study. Of the participants who experienced high levels of anger ($\geq 90^{\text{th}}$ percentile), almost half (46%) had concurrent depressive symptoms (>12 on the EPDS) while the other half (54%) did not. That finding suggests that anger as a PMD occurs in its own right. Women in the qualitative study complemented the findings from the quantitative study because they specified the nature of anger at themselves, partners, children, and others. The qualitative results extended the quantitative results by indicating that anger, in the postpartum period, was related to violations of expectations about motherhood and compromised maternal needs that were illuminated by triggers. Rather than treating anger as a transitory state or a personality trait, the qualitative findings diverged from conceptualizations of anger as a temporary state because the women spoke to chronicity of feelings of anger. In other words, experiencing anger about the same problems was common (e.g., regarding inadequate instrumental support from partner or about infant sleep). Taken together, these findings suggest that anger is indeed a salient mood disturbance within the broader spectrum of perinatal mood and anxiety disorders (PMADs)⁴⁰.

⁴⁰There has been a trend towards referring to postpartum mood disorders as perinatal mood disorders as there is increasing recognition that mood disturbances after childbirth can and often originate prenatally or before conception. Therefore the term *perinatal mood and anxiety disorders (PMADs)* may be a more accurate descriptor of mood problems than *postpartum depression* (Kettunen, Koistinen, & Hintikka, 2014; Stewart & Vigod, 2019; Wisner, Sit, & McShea, 2013). Recognizing this, the use of ‘postpartum’ in this dissertation is for the purpose of noting the time of data collection as being after childbirth.

6.3.2 Meta-Inference 2: Sleep is an Important Component of Postnatal Well-being

In the quantitative dissertation study, over two-thirds of women rated their infant's sleep as problematic to some degree. Eighteen percent of infants did not meet the minimum 24-hour requirements for sleep as outlined by Paruthi et al. (2016) while mothers reported that 13% of infants were awake for two or more hours at nighttime. Moreover, 74% of women had global PSQI scores above the cut-off, indicating that many women experienced problematic sleep. Over half of women rated their sleep quality as either fairly bad or very bad. Poor quality sleep significantly increased their odds for experiencing high levels of anger and depression symptoms above cut-off. The qualitative results corroborated the quantitative results because more than half of the participants talked about infant sleep problems and their own sleep problems as being a major source of anger and frustration. Qualitative findings extended the quantitative findings because participants gave detailed accounts about how their lack of quality sleep negatively affected their day-to-day functioning and mood. The evidence from the qualitative study complemented the quantitative findings because participants described 1) partners' sleep and functioning being negatively affected by infant nighttime awakenings, 2) feeling alone in having to provide nighttime infant care, 3) relationship strain arising from sleep issues, and 4) partners' support as being crucial to helping them get adequate sleep. Taken together, these findings suggest that sleep quality for mothers and infants represent important components of healthy postnatal transition to parenting.

6.3.3 Meta-Inference 3: Support is Paramount

In the qualitative study, participants emphasized their need for more relational and instrumental support from partners and family members. Some women described the postpartum health care they received as being infant-centered (e.g., some clinicians did not inquire as to the

wellbeing of mothers or minimized their concerns). The qualitative findings complemented that quantitative result that increased parity predicted maternal anger; the qualitative findings suggested that, as parenting demands increased, i.e., mothers had additional children they required more support from kin and community as their family size grew. The quantitative findings indicated that maternal anger about infant sleep predicted maternal anger; those findings were corroborated and extended by the qualitative study findings because women indicated they were angry about lack of support from partners around infant sleep and night-waking. Both quantitative and qualitative findings point to support as a crucial component of postnatal well-being.

6.4 Nursing Implications

When considering the findings of the qualitative and quantitative dissertation study, there are practice, policy, education, and research implications with regards to the recognition and management of postnatal anger and maternal-infant sleep problems. They will be discussed in the next sections.

6.4.1 Practice Implications

There are several practice implications with regards to postnatal anger and sleep. To begin, practice implications for anger will be discussed and linked with implications for maternal-infant sleep in the second half of the postnatal year.

Parents and the public need to be educated about anger as a PMD so that they have increased awareness about the different presentation of PMADs. Increased awareness about anger as a PMAD can assist individuals in recognizing their own, or their partners', need for support, an important step in accessing mental health care. Anger may have deleterious effects on maternal-child interactions, which may lead to impaired maternal-infant attachment and

poorer developmental outcomes for children; Field and colleagues (2005) compared depressed mothers with high levels of anger to depressed mothers with low levels of anger (based on a median split) and found that depressed mothers with comorbid anger showed less positive behavior towards their infants (less smiling and gameplaying) and engaged in less imitative behavior. Moreover, the infants of mothers with depression and comorbid anger displayed more negative affect (less smiling and vocalizing, and more distress behaviors). Vliegen et al. (2013) found that mothers who had depression symptoms and anger had significantly lower levels of mutual attunement with their infants (an indicator of emotional availability). It makes intuitive sense that women who are inwardly focused on their distress would have less emotional bandwidth for their child, which may be a further cause of distress, guilt, and shame for women. This suggests that we need to attend to both maternal well-being and facilitating effective maternal-infant interactions for promoting dyadic wellbeing. Prolonged anger can also have adverse effects on the maternal-child relationship if women act in hostile ways towards children (Binda, Figueroa, & Olhaberry, 2019), which may contribute to worse child developmental outcomes (Pinquart, 2017). Thus, it is imperative to enhance clinicians' and families' awareness of anger as a mood problem that women may experience. Clinicians who work with postpartum clients should inquire about women's experiences of anger, as well as sadness and anxiety, as unrecognized and unmanaged anger can have negative effects on maternal wellbeing, partner relationships, and child development. Inclusion of education about the signs and symptoms of PMDs can be integrated into antenatal education and upon discharge from hospital by nurses or during home visits and well-baby checks by public health nurses and midwives after childbirth.

When women describe recurrent angry feelings after childbirth, it is also important for clinicians to assess the direction of women's angry or negative feelings because it has

implications for treatment. Anger towards the partner could indicate relationship problems that may need to be addressed with relational interventions (e.g., couples therapy) in addition to individual therapy, while anger towards the self might suggest a CBT or other psychotherapeutic approach that cultivates self-compassion or self-forgiveness. Ascenzo and Collard (2018) demonstrated that women with anger and depressive symptoms were less likely to engage in forgiving others and themselves. For women who are managing anger at themselves, cultivating self-forgiveness through self-compassion may be an important and helpful intervention as studies have indicated that women with postpartum mood symptoms had lower levels of self-compassion than non-symptomatic women (Monteiro, Fonesca, Pereira, Alves & Canavarro, 2019). Persistent anger towards children may necessitate additional interventions for maternal-child attachment and interaction guidance as a recent meta-analysis indicates that certain therapies (e.g., interpersonal psychotherapy) had nonsignificant effects on maternal-child attachment (Letourneau, Dennis, Cosic, Linder, 2017).

In terms of formal and systemic supports for maternal anger and distress, a number of treatment options exist that inconsistently address the reasons for women's distress; they may focus on acknowledging and validating mothering challenges and giving women spaces where they can feel heard. At a personal level, interventions to assist women coping with distress from violated expectations related to parenthood can include psychosocial and psychological interventions such as cognitive behavioral therapy (CBT). CBT can help individuals to change the expectations they hold for themselves and others and provide tools to help decrease negative situational appraisals that lead to anger and other distress (Li et al., 2020; Sockol, 2015). Other popular and efficacious non-pharmacological treatment modalities for postpartum mood disturbances include counseling (Stephens, Ford, Paudyal, & Smith, 2016), peer-support (Huang

et al., 2020), interpersonal psychotherapy (Sockol, 2018), and mindfulness-based interventions (Taylor, Cavanagh, Strauss, 2016). These may have limited efficacy in improving maternal self-care agency when there are problems with inequitable childcare responsibilities and lack of instrumental support. In this study, women talked about needing emotional connection and instrumental support from partners. As such, partner-inclusive interventions for postpartum mood disturbances (Alves, Martins, Fonesca, Canavarro, & Pereira, 2018) may be especially helpful for women who have violated expectations about and compromised needs for partner support. In partner inclusive interventions, tools for effective communication and support can be taught to couples, so that couples can maintain emotional closeness while teaching partners to provide global and instrumental support to women (Pilkington, Milne, Cairns, Lewis, Whelan, 2015). Partner-inclusive interventions such as “Bringing Baby Home” (Shapiro & Gottman, 2005) that occur antenatally can serve as important health promotion interventions or postnatally to address challenges during the transition to parenthood to improve parental mental health.

Many barriers exist to accessing formal supports for PMDs, including women’s hesitance to seek formal supports, clinicians’ inadequate understanding of PMDs and knowledge regarding management, and low accessibility of perinatal mental health care (Grisette, Spratling, Aycock, 2018; Viveiros & Darling, 2019). As a result, women are frequently informed by popular media and clinicians to engage in self-care. Self-care is often prescribed as a strategy for managing mild to moderate postpartum mood disturbances after childbirth (e.g., BC Reproductive Mental Health, 2011). Self-care includes looking after one’s physical and emotional needs and prioritizing time for self (Lambermon et al., 2020). The ability to engage in self-care requires a delicate balancing act as mothers have to learn how to meet intensive infant care demands and their own needs. Mothers report that they prioritize infant needs over their own physical and

emotional needs (Barkin & Wisner, 2013; Hjalhmult & Lomborg, 2012) with some women adhering to the expectation that motherhood demands extreme self-sacrifice (Barkin & Wisner, 2013). While emphasizing and prescribing self-care is certainly important as a reminder for women to prioritize their needs, it would be problematic to place the sole responsibility for caring for themselves on women during the challenging transition of integrating a new infant into their lives. Lambermon et al. (2020) explicated that maternal self-care was not possible without self-care agency and that self-care agency is facilitated by situational factors, personal beliefs, socioeconomic status, and crucially, the amount of support received from others (e.g., partner, kin, clinicians). Lambermon et al. (2020) conjectured that self-care may be a more palatable label for neoliberalist self-reliance and caution against placing the sole burden of self-care on the individual. From a relational autonomy perspective, women need social and systemic supports to acquire maternal autonomy (as entwined with the infant's autonomy) without sacrificing their personal wellbeing (Goering, 2017; Bergum 1989; 1997).

Improving maternal parenting efficacy is important on a number of levels. Realistic expectations may assist mothers who have accepted the hegemonic perspective of intensive mothering as an individualistic enterprise. Changing those expectations can assist with improving parenting self-efficacy, given that low parenting efficacy has been linked to stress and postpartum mood disturbances (Aydemir & Onan, 2020) and poorer developmental outcomes for children (Pinquart, 2017).

Community programs need to be inclusive and supportive of multiparous mothers because mothers in this dissertation study have alluded to a paucity of community resources and programs that accommodate more than one child or older children. Lagerberg and Magnusson (2013) found that multiparous mothers scored higher on parental incompetence stress, found

their workload more demanding, and received less social support than primiparous mothers, pointing to the continued, if not heightened, need for relational and structural supports for multiparous mothers. Parenting programs like Triple P and Nobody's Perfect are created to support mothers' sense of parenting efficacy (e.g., confidence and competence in parenting abilities) (Pereira & Barros, 2019; Popp, Fuths, & Schneider, 2019). Thus parenting programs may be a helpful intervention for managing maternal self-anger by increasing parenting-efficacy. In sum, because the presence of anger has implications for the severity and duration of postpartum mood disorders and for appropriate management strategies, it is critical to assess for the presence of anger and co-morbidity with other mood problems after childbirth and to offer structural supports that cover a range of parenting situations.

This study and other studies (e.g., Richter et al., 2019, Weinraub et al., 2012; Yang et al., 2020) demonstrate that women experience challenges with infant sleep and their own sleep quality during the postpartum time frame. Researchers and clinicians have recommended that screening for sleep and mental health problems should begin in pregnancy and continue in the early child years (Richter et al., 2019; Sedov et al., 2018). A meta-analysis of 28 studies identified a pooled total PSQI score of 7.54 (SE = 0.40) for samples of prenatal-to-postnatal and postnatal-only women (Yang et al., 2020). The authors also found that the prevalence of poor sleep quality for postnatal women was 67.2% (95% CI [57.6-75.5%]) across studies, although it is unclear whether the authors used a cut-off of >5 or ≥ 5 . Furthermore, in a population-based longitudinal study (n = 4659) with 2 data collection time-points prior to childbirth and 4 time points after childbirth over the course of 6 years, Richter et al. (2019) found that parental sleep satisfaction and duration (mothers and fathers) sharply decreased for parents during the first year, with greater decreases for mothers. Sleep duration and satisfaction did not recover fully even up

to 6 years after the birth of a first child, suggesting parental-child sleep quality can be an issue well beyond the perinatal period that should be assessed by clinicians early on.

The aforementioned studies provide ample evidence that women experience clinically relevant decreases in sleep quality during the perinatal timeframe and even beyond. In turn, poor sleep quality has been linked with mental health problems in women (Emanian et al., 2019; Kiviruusu et al., 2020; Lawson et al., 2015) and men (Kiviruusu et al., 2020). The dissertation results suggest that we should be universally screening for and managing sleep and mood problems for families during the perinatal period. Moreover, the findings support counseling women and partners around the importance of prioritizing sleep during the perinatal time frame. Journalist Crysta Balis (2020) argued that sleep is the most basic form of parental self-care yet so few clinicians have solutions for parents as to how to meet their needs for sleep.

The dissertation findings suggest that many mothers were struggling with infant behavioral sleep problems and some were meeting resistance from family members when they tried to manage them. The literature indicates that although a significant number of parents perceive infant sleep problems, a large portion of these parents do not consult with clinicians about sleep and clinicians often fail to ask about sleep (Blunden et al., 2004; Honaker & Meltzer, 2016). Some of the difficulties families face are lack of child care so they can plan visits to care providers, lack of training for care providers, and costs charged by community-based ‘sleep consultants’ (Corkum et al., 2019). Thus it is critical that clinicians inform themselves about children’s healthy sleep development and inquire about sleep as it can also help to open up conversations about parental daily functioning and mood as it related to sleep. In turn, this line of dialogue between clinician and parent increases the opportunities to screen for PMADs.

Women frequently assume responsibility for infant nighttime care because of infant breastfeeding and societal norms. Women in the study spoke about how their partners' sleep could also be affected by infant sleep problems. Nonetheless, women appreciated instrumental support from partners to manage their own sleep debt. Men's sleep, mental health, and role in caring for infants at nighttime have largely been overlooked because of the high priority placed on exclusive breastfeeding for the first 6 months of life as per World Health Organization recommendations (American Academy of Pediatrics, 2012) and problems related to infant refusal to bottle feed. The breastfeeding expectations are compounded by expectations around men needing to sleep at night so that they can safely work to support the family during the day⁴¹, thereby signaling a tendency for society to exempt men from being as fully involved in nighttime infant care. As such, much of research focuses on maternal and infant sleep outcomes without due consideration of fathers. Baglioni et al. (2020) have argued for a family-systems approach to examining postnatal sleep problems because one individual's poor sleep can have effects on both parents, the infant, and family as a triad. An infant's sleep problems can strain the relationship between parents. There is also evidence to suggest that greater paternal involvement in day and nighttime infant care contributes to better maternal-infant sleep quality and lower levels of mood disturbances (Demaris & Mahoney, 2017; Tikotzky et al., 2015) suggesting that partners have an important role to play in enhancing maternal mood and promoting family sleep quality. Baglioni et al. stressed that fathers/partners need to be included in the prevention, assessment and treatment of sleep and mental health problems because of the complex interactions.

⁴¹ Sleep deprivation has been associated with decreases in workplace safety behaviors and greater risk for workplace injuries (Brossoit et al., 2019) as well as impaired driving performance and motor vehicle collisions (Bioulac et al., 2017; Caponecchia & Williamson, 2018).

Clinicians need to take a family-centered approach when inquiring and advising about sleep and avoid dismissing parents' concerns about sleep. Maternal perceptions of maternal and infant sleep problems are predictive of depressive symptoms whether or not objective sleep quality is problematic (Goldberg et al., 2013; Stremler et al., 2019). Inquiring about sleep is a stigma-free way to engage women in discussions of mental health because it opens additional opportunities to screen for mood problems outside of infrequent checks of maternal recovery and baby wellness. Discussions about parental-infant sleep characteristics and quality affords the opportunity for clinicians to inform families about the associations between disturbed sleep and mood disturbances, and to co-create a plan to improve sleep and follow-up on parental-infant sleep and mental health.

6.4.2 Policy Implications

Having and sustaining an infant is perhaps one of the most physically and psychologically demanding times in the lifespan (Shapiro & Gottman, 2005). Hahn-Holbrook and Haselton (2014) have argued that PMD is a disease of modern civilization where modern life has taken away collectivistic ways of living, such as living in multi-generational kin groups or neighborhoods where families are collectively going through similar or overlapping stages of childrearing. Instead, singular family units tend to be isolated from immediate kin support. Therefore, we must question how sociopolitical environs contribute to these types of living environments and high levels of postnatal anger and depressive symptoms for women. We must be critical of the sociopolitical factors that contribute to poor maternal mental health and work towards adopting a more socially integrated and shared view of caring for children (e.g., shared amongst partners, kin, funded child care, and community resources) that does not place the lion's share of responsibility on women alone.

Despite the many advances made in treatment for PMADs, from a relational autonomy perspective, there remain many personal and systemic barriers to the prevention, detection and effective management of mood disturbances. On an individual and family level, parents and partners have a difficult time recognizing symptoms of postpartum mood disturbances; they may also attempt to ignore or normalize problematic moods as part of the experience of having a new baby, anticipate negative consequences from confiding in health care providers, or simply be too overwhelmed and tired to access formal supports (Grisette, Spratling, Aycock, 2018). Although PMADs are recognized as the most common complication of the perinatal period (American College of Obstetricians and Gynecologists, 2016), there has been very little policy development to support detection and treatment of PMADs or to support families after childbirth. Policy action is required to address the care gap in perinatal mental health for families. Moreover, gendered conceptions of care work need to be changed.

Despite the many calls by researcher and clinicians to incorporate a consideration of paternal sleep and mental health in the perinatal period (e.g., Da Costa et al., 2019; Hamel et al., 2019; Paavonen et al., 2017; Tikotzky et al., 2015; Wynter et al., 2020) there has been little policy action. Moreover, fathers remain in the periphery in research and practice (Wynter et al., 2020). As such, governmental policies that prioritize new parents' physical and mental health are critical. Lack of postnatal supports are part of a larger systemic problem of a lack of a coordinated strategy for perinatal mental health and universal screening for PMADs despite the known harms of perinatal mental health illness on Canadian mothers, children, and families (Hamel et al., 2019; Roos & Tomfohr-Madsen, 2020; Viveiros & Darling, 2019). Countries. such

as Australia and the United Kingdom,⁴² have implemented policies to support perinatal mental health that facilitate universal screening of, and access to treatment for PMADs, (Austin, Highet, & Expert Working Group, 2017; Howard & Khalifeh, 2020) with demonstrated efficacy in identifying and supporting the management of PMADs (Biggs, McLachlan, Shafiei, Liamputtong, & Forster, 2018; Coates, Saleeba, & Howe, 2018; Howard & Khalifeh, 2020). In Canada, a national strategy for perinatal mental health care that is inclusive of mothers, fathers, and children is necessary, as well as attention to family sleep as a crucial component of perinatal mental health.

Moreover, as a society, we need to challenge ingrained gendered representations of parenthood and address the structural factors that contribute to poor mental health outcomes in early motherhood by promoting gender equitable relationships and parenting. The ideology of motherhood has been socio-culturally constructed as a critical facet of femininity (Stoppard, 2000). The media and others portray having a baby as being a joyful time and this arguably sets women up for having violated expectations when there are not enough supports to help women achieve that experience of mothering (Choi, Henshaw, Baker, & Tree, 2005). Moreover, women internalize the need to engage in intensive mothering from media and societal depictions of motherhood (Dow, 2016). It is likely that fathers' wellbeing and role have also been overlooked because of the gendered expectations of the roles of men and women in parenting. Thus, we need to challenge the socio-cultural perspective that partners play a secondary role in the care of the infant (DeGroot & Vik, 2020). Policies that increase fathers' and partners' participation in infant

⁴² In 2016, the government of the United Kingdom implemented a strategic plan with an investment of > £290 million into perinatal mental health services for women in pregnancy to the end of the first postpartum year.

and childcare, such as paid parental/paternity leave policies, could make equitable parenting possible. Inclusive parental leave policies have been associated with promoting relationship equity and satisfaction (Petts & Knoester, 2018), better child developmental outcomes (Cools, Fiva, & Kirkeboen, 2015) and parental mental health (Saxbe, Rossin-Slater, Goldenber, 2018).

6.4.3 Education Implications

The previously discussed practice and policy implications require that clinicians are educated around perinatal sleep and mood problems so that they can screen for maternal anger and maternal-infant sleep problems as well as provide support for managing those challenges. Some parents approach health care providers about mood and sleep problems only to have their concerns not taken seriously or normalized as part of the parenting experience (Abrams, Dornig, & Curran, 2009; Cook, Appleton, & Wiggs, 2020; Su, Wu, Tung, Thomas, & Tsai, 2017). With regards to infant sleep problems, mothers have reported that health care providers did not have adequate knowledge or training to provide useful advice (Cook et al., 2020). At other times, mothers were given conflicting information about sleep from different health care providers (Cook et al., 2020). Specific training and education on infant sleep and evidence-based strategies can help clinicians to be more confident and effective when working with families struggling with sleep problems (Hall, Biletschi, Hunter, LeMay, Ou, & Rempel, 2019; Skuladottir, Siguradottir, & Svavarsdottir, 2020). With regards to mood disturbances, health care providers themselves can lack empathy and understanding, have insufficient education and training in perinatal mental health, or lack knowledge of the mental health resources available for women (Viveiros & Darling, 2019). Contributing to the problem is a paucity of specialists in perinatal mental health (Grisette et al., 2018; Viveiros & Darling, 2019). Thus, it is imperative that clinicians who work with perinatal clients receive adequate education and training around

perinatal anger and sleep and health care professionals learn about sleep and perinatal mood disorders in their basic training programs.

6.4.4 Future Research Directions

Building on this research, there are several important directions for future quantitative and qualitative research related to maternal sleep and anger in the postpartum timeframe.

Because maternal anger about infant sleep is a significant component of overall maternal anger, it would be important to test the effect of family sleep interventions (e.g., education and support around family sleep by nurses and other clinicians or anticipatory prenatal education about sleep) on parental-infant sleep outcomes. We also need to explore other interventions that could reduce mothers' anger by improving maternal-infant sleep through increasing partner/paternal involvement in nighttime infant care and examining family members' outcomes related to sleep, mood, relationship satisfaction and child development.

In relation to future empirical research on anger as a PMD, it would be important to determine if norms for anger differ between childbearing and non-childbearing persons using quantitative methods. Moreover, determining the prevalence of perinatal anger in a population-based sample would be helpful to indicate the extent of perinatal anger as a mood problem. Those findings would be informative for clinicians, policy-makers, and childbearing couples. Women in the qualitative study frequently described self-anger when women were not able to live up to the expectations that they had for themselves. Currently, literature about self-blame and anger is relatively sparse. More research about the characteristics, causes, and effects of self-anger as compared to anger at others is merited within and outside of the perinatal timeframe. It is also important to continue to investigate other correlates of postpartum anger, with special attention to possible protective factors that are associated with lower levels of maternal anger

(e.g., partner dyadic support, relationship satisfaction, and resilience). Moreover, future longitudinal research should investigate the effects of maternal anger on families. The empirical literature has a paucity of data about the effects of maternal anger over time on women, infants/children, and their partners in relation to sleep, mental health, relationship satisfaction and conflict, parental-child attachment, and child development. Furthermore, because anger has been linked with suicidality (Hunt et al., 2018) and perinatal suicide has been cited as the leading cause of maternal mortality (Gressier et al., 2017), it would be important to investigate if maternal anger contributes to ideation about self-harm and suicide.

Testing interventions that could help to reduce maternal anger would contribute to empirical work. Community parenting programs (e.g., Triple P and Nobody's Perfect) that increase parenting efficacy could reduce maternal anger directed at children and at mothers themselves. Prenatal or postpartum education programs that teach childbearing couples effective communication and co-parenting may help to improve support for mothers and increase childcare equity, thereby reducing maternal anger. These interventions needed to be studied and evaluated for the purpose of reducing maternal anger. In the qualitative study, mothers who talked about being able to exercise self-compassion and forgive themselves were able to resolve their anger more fully. Interventions that teach women self-compassion may be helpful for preventing as well as managing self-anger. Ascenzo and Collard (2018) have indicated that the capacity to forgive yourself and others is an important construct for the management of anger and depression in the postpartum period. Studying how mothers learn to forgive themselves and others may indicate whether those actions ameliorate feelings of anger and despair in the postpartum period.

Qualitatively, it would be important to explore women's decision-making process around expressing or suppressing their anger to others like partners, family members, and clinicians, because this has implications for being able to address the causes of their anger. Moreover, it would also be illuminating to interview partners in order to understand how maternal anger is received by partners and the perceived effects of anger on relationships. Partners' and fathers' experiences of anger in the first two postpartum years have been largely ignored. It would be important to understand the similarities and differences in the nature (e.g., types of violated expectations) and process of managing anger (e.g., expression or suppressing) between mothers and partners. Finally, in order to create interventions that promote partner/paternal engagement in infant and childcare (as women in this study have expressed desiring in order to lessen their feelings of anger and resentment about the inequity of childcare responsibilities), an examination of the facilitators and barriers to fathers'/partners' increased engagement may be helpful.

6.5 Knowledge Mobilization

Knowledge mobilization is the term used by Social Sciences and Humanities Research Council (SSHRC) to describe the reciprocal flow and uptake of research knowledge between researchers, knowledge users, and brokers within and outside of academia in a way that has positive impact on people (Levin, 2008). Knowledge mobilization involves efforts to bridge the gap between research, policy, and practice (Graham et al., 2006). As family health and healthy child development is a cornerstone of public health and imperative for the wellbeing of society (Morris et al., 2017; Weiss-Laxer, Crandall, Hughes, & Riley, 2020), it is vital that knowledge generated from research about maternal mental health and sleep is made available to the public, clinicians, and policy-makers, and that policy-makers are encouraged to act on this information to ensure public benefit. As such, I have engaged in a set of knowledge mobilization activities as

part of this dissertation so that research knowledge is made increasingly accessible to the public. I have accomplished this through my dissertation work as a UBC Public Scholar. UBC Public Scholars are tasked with making purposeful contributions to public good through collaborative and action-oriented scholarship (<https://www.grad.ubc.ca/psi>). I have undertaken efforts to mobilize knowledge to families, health care providers, and policymakers as a Public Scholar through my partnership with Pacific Post Partum Support Society (PPSS). I elaborate on my knowledge mobilization work in this section.

PPSS is a non-profit organization that provides peer support to mothers with infants across Canada via telephone and text communication, and in-person support groups in the Greater Vancouver area. As part of their services, PPSS also offers phone support for partners and in-person couples' sessions as well as partners'/fathers' sessions. The recent switch to online Zoom groups as part of the COVID-19 pandemic protocol has made participation possible for parents who reside outside of Greater Vancouver. PPSS recognizes that the mental health of family members is integrally connected and that a family-oriented approach is necessary for managing PMD.

Since 2018, I have worked with PPSS as a volunteer in several capacities. I started by undergoing training workshops for providing telephone support and facilitating postpartum groups, and then providing telephone support at the PPSS office. During the COVID-19 pandemic, I developed and delivered an evidence-based workshop using findings from my dissertation about parental sleep and ways to improve infant and parental sleep to parents by collaborating with Ms. Sheila Duffy, the director of PPSS, Dr. Wendy Hall, my supervisor, and Dr. Bei Bei, a clinical psychologist and sleep researcher from Monash University. The parental sleep workshop was comprised of two components. The first component was about promoting

infant sleep through employing consistent day and nighttime routines, promoting positive sleep associations, and increasing partner involvement, as well as managing infant sleep problems in a developmentally appropriate manner. The second component offered management strategies for nighttime anxiety that interferes with mothers' ability to fall asleep and stay asleep. We piloted this workshop in June 2020 to a group of 10 mothers and 5 partners over Zoom and received feedback from parents that the information presented and ensuing discussion was helpful for providing a variety of strategies to manage maternal-infant sleep problems. PPPSS is planning to offer this workshop again in early 2021. Inviting partners and having them attend was a novel and important aspect of this workshop; fathers'/partners' role in promoting family sleep was emphasized. I have also recorded a podcast with staff member Heather Allyn (PPPSS podcast series director) as another component of mobilizing knowledge on maternal-infant sleep. The podcast is being edited and will be available from <http://postpartum.org/podcast/> in February 2021. The podcasts have an average of 600-700 downloads per month with growing listenership (Personal Communication, Heather Allyn, Dec. 30, 2020).

I have also secured funding from the UBC Center for Community Engaged Learning and the Public Scholar Initiative for a PPPSS pilot project to offer a new support group to mothers in the second postpartum year, based on the qualitative dissertation findings that participants (n = 13) reported ongoing challenges in the second year. Currently, there is a paucity of programming in Greater Vancouver that supports mothers who experience PMADs after their first postpartum year and at PPPSS because of funding shortages. In the second postpartum year, some mothers who have previously experienced PMADs can be at risk for relapse and, for other mothers, PMADs can continue to persist into the second postpartum year (Putnick et al., 2020). Moreover, many mothers are returning to paid employment after taking maternity leave during the first

postpartum year. The return to work can create a stressful time for mothers as they try to balance work schedules, home demands, and childcare, even if mothers value their work (Nichols & Roux, 2004). Mothers have reported stress related to the continuation of breastfeeding during return to work, as well as struggling with securing safe and acceptable childcare and communicating with their partners to establish equitable work sharing at home (Klein, Hyde, Essex, & Clark, 1998). To offer support for alumni mothers (those who have previously attended PPPSS support groups in the first postpartum year) and new attendees with PMADs in the second postpartum year, Georgie Hutchison, a PPPSS staff member, proposed a “Second Stage” support group. By developing a grant application, I was able to secure funding for two Second Stage groups which offered 12 weekly support groups for women between September and December of 2020. We are currently collecting evaluation data and as a condition of the funding, the Second Stage program will be integrated into PPPSS’s annual budget contingent on its evaluation success. Using the results from my dissertation, I participated in the Second Stage groups as a guest facilitator for the topics of maternal-infant sleep and postpartum anger.

Another important aspect of knowledge mobilization is sharing new research with health care providers who care for families with infants and young children and related stakeholders. I presented my qualitative research findings about how mothers report infant sleep problems as a significant source of maternal distress at a continuing medical education (CME) event for Niagara Public Health with Dr. Hall in January of 2020. Dr. Hall, the Niagara team, and I also published a peer-reviewed paper of the program we created and evaluated to support parents with infant sleep problems (Hall et al, 2019). Sheila Duffy, Georgie Hutchison, and I presented our work on parental-sleep promotion as a way to manage PMADs at Perinatal Services BC’s Healthy Mothers Healthy Babies conference in Vancouver in February 2020, which included a

significant number of health care providers in the audience. I will also be presenting my qualitative and quantitative findings at the International Pediatric Sleep Association conference February of 2021, an annual conference that is attended by clinicians and researchers.

6.6 Limitations and Strengths

The studies in this dissertation have a number of limitations that warrant caution with the interpretation of study results. First, a convenience sampling frame was used for the quantitative study with the resulting sample being highly educated, financially secure, and minimally ethnically diverse. Second, the eligibility criteria specified that women who had a diagnosed history of depression were excluded; however, it is possible that the study sample included women with a past history of undiagnosed depression. Third, because the study was framed around maternal-infant sleep and both studies were designed to capture participants who had high levels of anger, the number of women with mood disturbances may be overrepresented relative to the general population because participants with sleep problems may have been more likely to complete the survey. Fourth, contrary to our expectations and theoretical and other empirical support for the role of social support in reducing mental health problems, we were not able to replicate this relationship quantitatively. This may have been because the support measure that was used was not explicitly about partner and family support around childrearing. Fifth, we also did not explore other potentially protective factors that could explain why some mothers reported low levels of maternal anger, such as trait anger, resilience, and maternal-infant attachment. Other potential confounders that were not examined in this study included relationship quality with partner, adverse childhood experiences, birth trauma, and associated posttraumatic stress disorder. Sixth, this study was cross-sectional and only examined anger at one time-point; as such, it was not possible to know whether the anger captured was episodic or

chronic in nature. Chronic experiences of anger would be more concerning from an individual and family health perspective. Future longitudinal studies of anger would be necessary to differentiate between episodic and chronic anger and their associated outcomes. Finally, the qualitative study might have benefited from interview participants with low and lower levels of anger to enhance participant variability and determine whether participants were less likely to react with anger in situations where there were violated expectations. There may also have been benefits to video or in-person interviews instead of telephone interviews in establishing and maintaining rapport.

While attending to the limitations, it is also important to note strengths of this work. Anger as a mood disturbance has been unjustifiably neglected in research on perinatal mental health; both elements of the multi-method dissertation study contribute to building on the small body of studies that explicitly examine maternal anger. Moreover, this is the first study to link maternal-infant sleep problems with maternal anger. This mixed methods study provides some data and a theory from which future hypotheses about the factors associated with anger can be generated and further explored. Furthermore, the use of telephone interviews allowed women from across Canada to participate in the qualitative study.

6.7 Chapter Summary

In this chapter, the quantitative and qualitative findings are discussed in relation to the current empirical literature. Research about anger after childbirth remains in its infancy and this dissertation study extends maternal anger as a distinct PMD in the context of postnatal sleep. Meta-inferences from the qualitative and quantitative studies were made. Nursing implications for practice, policy, and education were discussed and future research directions were outlined.

6.8 Conclusion

The findings from this multi-method research dissertation point to anger and sleep problems being commonplace in the latter half of the first year after childbirth. Maternal and infant sleep problems were associated with maternal mood disturbances in the survey study and grounded theory study. However, distinct from other studies, this dissertation examined anger outside the context of postpartum depressive symptoms. Anger was slightly more prevalent than depressive symptoms, suggesting that postpartum anger requires more attention than has been given in the empirical research. Higher numbers of children, maternal anger about infant sleep, and depressive symptoms were significant correlates of maternal anger. Over half of the women interviewed linked anger and distress about infant sleep problems. Taken together, it is critical to assess for the presence of mood and sleep problems in the first postpartum year. Although social support was not significantly associated with maternal anger in the quantitative study, all participants in the qualitative study spoke about how inadequate or inappropriate social and structural supports contributed to their anger and distress. Knowledge mobilization on multiple levels is necessary to improve policymakers', clinicians', and families' understanding and provision of support and management for sleep and mental health problems in the perinatal time frame.

References

- Abrams, L. S., Dornig, K., & Curran, L. (2009). Barriers to service use for postpartum depression symptoms among low-income ethnic minority mothers in the United States. *Qualitative health research, 19*(4), 535-551.
- American Academy of Pediatrics (2012). Policy Statement: Breastfeeding and the use of human milk. *Pediatrics, 129*(3), e827-e841.
- American Academy of Sleep Medicine. (2005). *International Classification of Sleep Disorders, 2nd ed.: Diagnostic and coding manual*. Westchester, IL: Author.
- American College of Obstetrics & Gynecologists. (2016). ACOG Committee Opinion no. 630. Screening for perinatal depression. *Obstetrics and Gynecology, 125*(5), 1268-1271.
- Affonso, D. D., Lovett, S., Paul, S., Sheptak, S., Nussbaum, R., Newman, L., & Johnson, B. (1992). Dysphoric distress in childbearing women. *Journal of Perinatology, 12*(4), 325.
- Allison, P. D. (1999). *Multiple Regression: A Primer*. Pine Forge Press.
- Alvaro, P. K., Roberts, R. M., & Harris, J. K. (2013). A systematic review assessing bidirectionality between sleep disturbances, anxiety, and depression. *Sleep, 36*(7), 1059-1068. doi:10.5665/sleep.2810
- Alves, S., Martins, A., Fonseca, A., Canavarro, M. C., & Pereira, M. (2018). Preventing and treating women's postpartum depression: A qualitative systematic review on partner-inclusive interventions. *Journal of Child and Family Studies, 27*(1), 1-25.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Anders, T. F. (1994). Infant sleep, nighttime relationships, and attachment. *Psychiatry, 57*(1), 11-21. doi:10.1080/00332747.1994.11024664

- Anders, T. F., Halpern, L. F., & Hua, J. (1992). Sleeping through the night: A developmental perspective. *Pediatrics*, 90(4), 554.
- Anderson, J. M. (2004). Lessons from a postcolonial-feminist perspective: Suffering and a path to healing. *Nursing Inquiry*, 11(4), 238-246.
- Anderson, J., Perry, J., Blue, C., Browne, A., Henderson, A., Khan, K. B., ... & Smye, V. (2003). "Rewriting" cultural safety within the postcolonial and postnational feminist project: Toward new epistemologies of healing. *Advances in Nursing Science*, 26(3), 196-214.
- Anderson, C., & Platten, C. R. (2011). Sleep deprivation lowers inhibition and enhances impulsivity to negative stimuli. *Behavioural brain research*, 217(2), 463-466.
- Arendell, T. (2000). Conceiving and investigating motherhood: The decade's scholarship. *Journal of Marriage and Family*, 62(4), 1192-1207. doi:10.1111/j.1741-3737.2000.01192.x
- Ascenzo, N., & Collard, J. J. (2018). Anger, Forgiveness, And Depression in the Postnatal Experience. *Ment Health*, 14, 689-698.
- Astivia, O. L. O., & Zumbo, B. D. (2019). A note on the solution multiplicity of the Vale–Maurelli intermediate correlation equation. *Journal of Educational and Behavioral Statistics*, 44(2), 127-143. doi:10.3102/1076998618803381
- Atkins, K. (2006). Autonomy and autonomy competencies: A practical and relational approach. *Nursing Philosophy*, 7(4), 205-215. doi:10.1111/j.1466-769X.2006.00266.x
- Austin M.P., Highet, N., & Expert Working Group (2017) Mental Health Care in the Perinatal Period: Australian Clinical Practice Guideline. Melbourne: Centre of Perinatal Excellence.
- Averill, J. R. (1982). Studies on anger and aggression: Implications for theories of emotion. *American Psychologist*, 38(11), 1145-1160. doi:10.1037//0003-066X.38.11.1145

- Attanasio, J. (2018). *Politics and capital: Auctioning the American dream*. New York, NY, United States of America: Oxford University Press.
- Aydemir, S., & Onan, N. (2020). The relationship between maternal self-confidence and postpartum depression in primipara mothers: a follow-up study. *Community mental health journal*, 1-8.
- Baglioni, C., Battagliese, G., Feige, B., Spiegelhalder, K., Nissen, C., Voderholzer, U., . . . Riemann, D. (2011). Insomnia as a predictor of depression: A meta-analytic evaluation of longitudinal epidemiological studies. *Journal of Affective Disorders*, 135(1), 10-19.
doi:10.1016/j.jad.2011.01.011
- Baglioni, C., Tang, N. K., Johann, A. F., Altena, E., Bramante, A., Riemann, D., & Palagini, L. (2020). Insomnia and poor sleep quality during peripartum: a family issue with potential long term consequences on mental health. *The Journal of Maternal-Fetal & Neonatal Medicine*, 1-9.
- Ball, H. L. (2003). Breastfeeding, bed-sharing, and infant sleep. *Birth*, 30(3), 181-188.
doi:10.1046/j.1523-536X.2003.00243.x
- Ball, H. L., Tomori, C., & McKenna, J. J. (2019). Toward an integrated anthropology of infant sleep. *American Anthropologist*, 121(3), 595-612.
- Barata, P. C., Holtzman, S., Cunningham, S., O'Connor, B.P., & Stewart, D. E. (2015). Building a definition of irritability from academic definitions and lay descriptions. *Emotion Review*, 8(2), 164-172. doi:10.1177/1754073915576228
- Barclay, L., Everitt, L., Rogan, F., Schmied, V., & Wyllie, A. (1997). Becoming a mother--an analysis of women's experience of early motherhood. *Journal of Advanced Nursing*, 25(4), 719-728. doi:10.1046/j.1365-2648.1997.t01-1-1997025719.x

- Barkin, J. L., & Wisner, K. L. (2013). The role of maternal self-care in new motherhood. *Midwifery*, 29(9), 1050-1055.
- Barnes, M. W. (2015). Gender differentiation in paid and unpaid work during the transition to parenthood. *Sociology Compass*, 9(5), 348-364.
- Bathory, E., & Tomopoulos, S. (2016;2017;). Sleep regulation, physiology and development, sleep duration and patterns, and sleep hygiene in infants, toddlers, and preschool-age children. *Current Problems in Pediatric and Adolescent Health Care*, 47(2), 29-42. doi:10.1016/j.cppeds.2016.12.001
- Bayer, J. K., Hiscock, H., Hampton, A., & Wake, M. (2007). Sleep problems in young infants and maternal mental and physical health. *Journal of Paediatrics and Child Health*, 43(1-2), 66. doi:10.1111/j.1440-1754.2007.01005.x
- Baylis, F., Kenny, N. P., & Sherwin, S. (2008). A relational account of public health ethics. *Public Health Ethics*, 1(3), 196-209. doi:10.1093/phe/phn025
- Beck, C. T. (1996). A meta-analysis of predictors of postpartum depression. *Nursing Research*, 45(5), 297-303. doi:10.1097/00006199-199609000-00008
- Beck, C. T. (2002). Postpartum depression: A metasynthesis. *Qualitative Health Research*, 12(4), 453-472. doi:10.1177/104973202129120016
- Beck, C. T. (2006). Postpartum depression: It isn't just the blues. *The American Journal of Nursing*, 106(5), 40.
- Beck, C. T., & Indman, P. (2005). The many faces of postpartum depression. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 34(5), 569-576. doi:10.1177/0884217505279995

- Bei, B., Coe, S., & Trinder, J. (2015). Sleep and mood during pregnancy and the postpartum period. *Sleep Medicine Clinics*, 10(1), 25-33. doi:10.1016/j.jsmc.2014.11.011
- Bei, B., Milgrom, J., Ericksen, J., & Trinder, J. (2010). Subjective perception of sleep, but not its objective quality, is associated with immediate postpartum mood disturbances in healthy women. *Sleep (New York, N.Y.)*, 33(4), 531-538. doi:10.1093/sleep/33.4.531
- Bell, J. F., & Zimmerman, F. J. (2010). Shortened nighttime sleep duration in early life and subsequent childhood obesity. *Archives of Pediatrics & Adolescent Medicine*, 164(9), 840-845. doi:10.1001/archpediatrics.2010.143
- Belza, B. (1994). The impact of fatigue on exercise performance. *Arthritis & Rheumatism: Official Journal of the American College of Rheumatology*, 7(4), 176-180.
- Belza, B. L., Henke, C. J., Yelin, E. H., Epstein, W. V., & Gilliss, C. L. (1993). Correlates of fatigue in older adults with rheumatoid arthritis. *Nursing Research*, 42(2), 93-99. doi:10.1097/00006199-199303000-00006
- Bergum, V. (1989). *Woman to mother: A transformation*. Granby, Mass: Bergin & Garvey Publishers.
- Bergum, V. (1997). *A child on her mind: The experience of becoming a mother*. Westport, Conn: Bergin & Garvey.
- Bernier, A., Tétreault, É., Bélanger, M. È., & Carrier, J. (2017). Paternal involvement and child sleep: A look beyond infancy. *International Journal of Behavioral Development*, 41(6), 714-722.
- Bhati, S., & Richards, K. (2015). A systematic review of the relationship between postpartum sleep disturbance and postpartum depression. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 44(3), 350-357.

- Balis, C. (2020). Sometimes, sleep-training your bay is the most responsible thing a mom can do. *Today's Parent*. Retrieved from: https://www.todayparent.com/baby/baby-sleep/choosing-to-sleep-train-your-baby-is-a-feminist-issue/?utm_medium=Social&utm_source=Facebook#Echobox=1608666366
- Bianchi, S. M. (2011). Family change and time allocation in American families. *The ANNALS of the American Academy of Political and Social Science*, 638(1), 21-44.
- Bioulac, S., Franchi, J. A. M., Arnaud, M., Sagaspe, P., Moore, N., Salvo, F., & Philip, P. (2017). Risk of motor vehicle accidents related to sleepiness at the wheel: a systematic review and meta-analysis. *Sleep*, 40(10).
- Biggs, L. J., McLachlan, H. L., Shafiei, T., Liamputtong, P., & Forster, D. A. (2019). 'I need help': Reasons new and re-engaging callers contact the PANDA—Perinatal Anxiety and Depression Australia National Helpline. *Health & social care in the community*, 27(3), 717-728.
- Binda, V., Figueroa-Leigh, F., & Olhaberry, M. (2019). Antenatal and postnatal depressive symptoms: Association with quality of mother–infant interaction. *Infant Behavior and Development*, 57, 101386.
- Blunden, S., Lushington, K., Lorenzen, B., Ooi, T., Fung, F., & Kennedy, D. (2004). Are sleep problems under-recognised in general practice?. *Archives of disease in childhood*, 89(8), 708-712.
- Boden, Z. V., Gibson, S., Owen, G. J., & Benson, O. (2016). Feelings and intersubjectivity in qualitative suicide research. *Qualitative health research*, 26(8), 1078-1090.

- Boerner, K. E., Coulombe, J. A., & Corkum, P. (2015). Core competencies for health professionals' training in pediatric behavioral sleep care: A delphi study. *Behavioral Sleep Medicine, 13*(4), 265-284. doi:10.1080/15402002.2013.874348
- Bonnet, M. H. (1986). Performance and sleepiness as a function of frequency and placement of sleep disruption. *Psychophysiology, 23*(3), 263-271. doi:10.1111/j.1469-8986.1986.tb00630.x
- Bonnet, M. H., & Arand, D. L. (2003). *Clinical effects of sleep fragmentation versus sleep deprivation*. LONDON: Elsevier Ltd. doi:10.1053/smr.2001.0245
- Born, L., & Steiner, M. (1999). Irritability: The forgotten dimension of female-specific mood disorders. *Archives of Women's Mental Health, 2*(4), 153-167. doi:10.1007/s007370050044
- Bowlby, J. (1961). Childhood mourning and its implications for psychiatry. *The American Journal of Psychiatry, 118*, 481.
- Boyd, R. C., Le, H. N., & Somberg, R. (2005). Review of screening instruments for postpartum depression. *Archives of Women's Mental Health, 8*(3), 141-153. doi:10.1007/s00737-005-0096-6
- Boyd, S. B. (2010). Autonomy for mothers? relational theory and parenting apart. *Feminist Legal Studies, 18*(2), 137-158. doi:10.1007/s10691-0boyle10-9152-3
- British Columbia Ministry of Health. (2007). *Working with the client who is suicidal*. Retrieved from:
www.health.gov.bc.ca/library/publications/year/2007/MHA_WorkingWithSuicidalClient.pdf
- British Columbia Reproductive Mental Health. (2011). Coping with depression during pregnancy and following the birth: A cognitive behavior therapy-based self-management guide for

women. Retrieved from:

https://reproductivementalhealth.ca/sites/default/files/uploads/resources/files/coping_with_depression.pdf

Brossoit, R. M., Crain, T. L., Leslie, J. J., Hammer, L. B., Truxillo, D. M., & Bodner, T. E.

(2019). The effects of sleep on workplace cognitive failure and safety. *Journal of Occupational Health Psychology*, 24(4), 411.

Bruno, A., Laganà, A. S., Leonardi, V., Greco, D., Merlino, M., Vitale, S. G., ... & Muscatello,

M. R. A. (2017). Inside-out: the role of anger experience and expression in the development of postpartum mood disorders. *The Journal of Maternal-Fetal & Neonatal Medicine*, 1-6.

Bryden, P., Davis, S., & Russell, J. (1994). *Protecting rights and freedoms: Essays on the*

charter's place in Cbrodyanada's political, legal, and intellectual life. Toronto, Buffalo; University of Toronto Press. doi:10.3138/j.ctt2tv59n

Bryman, A. (2006). Integrating quantitative and qualitative research: How is it done? *Qualitative*

Research, 6(1), 97-113. doi:10.1177/1468794106058877

Buchanan, E. M., & Scofield, J. E. (2018). Methods to detect low quality data and its implication

for psychological research. *Behavior Research Methods*, 50(6), 2586-2596.

doi:10.3758/s13428-018-1035-6

Burnham, M. M., Goodlin-Jones, B. L., Gaylor, E. E., & Anders, T. F. (2002). Nighttime sleep-

wake patterns and self-soothing from birth to one year of age: A longitudinal intervention study. *Journal of Child Psychology and Psychiatry*, 43(6), 713-725.butl

- Butler, M. H., Meloy-Miller, K. C., Seedall, R. B., & Dicus, J. L. (2018). Anger can help: A transactional model and three pathways of the experience and expression of anger. *Family Process*, 57(3), 817-835. doi:10.1111/famp.12311
- Buyse, D.J. (2014). Sleep health: Can we define it? Does it matter? *Sleep*, 37(1), 9. doi:10.5665/sleep.3298
- Buyse, D., Angst, J., Gamma, A., Ajdacic, V., Eich, D., & Rossler, W. (2008). Prevalence, course, and comorbidity of insomnia and depression in young adults. *Sleep*, 31(4), 473-473. doi:10.1093/sleep/31.4.473
- Buyse, D. J., Reynolds, C. F., Monk, T. H., Berman, S. R., & Kupfer, D. J. (1989). The Pittsburgh sleep quality index: A new instrument for psychiatric practice and research. *Psychiatry Research*, 28(2), 193-213. doi:10.1016/0165-1781(89)90047-4
- Caponecchia, C., & Williamson, A. (2018). Drowsiness and driving performance on commuter trips. *Journal of safety research*, 66, 179-186.
- Cassello-Robbins, C., & Barlow, D. H. (2016). Anger: The unrecognized emotion in emotional disorders. *Clinical Psychology: Science and Practice*, 23(1), 66-85. doi:10.1111/cpsp.12139
- Chan, S. W., Williamson, V., & McCutcheon, H. (2009). A comparative study of the experiences of a group of Hong Kong Chinese and Australian women diagnosed with postnatal depression. *Perspectives in Psychiatric Care*, 45(2), 108-118. doi:10.1111/j.1744-6163.2009.00211.x
- Charmaz, K. (2005). *Grounded theory for the 21st century: Applications for advancing social justice studies*, In N.K. Denzin & Y. S. Lincoln (Eds.), *The Sage Handbook of Qualitative Research* (3rd ed), pp. 507-535. California: Sage Thousand Oaks.

- Chemaly, S. (2018). *Rage Becomes Her*. Simon and Schuster.
- Choi, P., Henshaw, C., Baker, S., & Tree, J. (2005). Supermum, superwife, supereverything: performing femininity in the transition to motherhood. *Journal of reproductive and infant psychology*, 23(2), 167-180.
- Coates, R., Ayers, S., & de Visser, R. (2017;2016;). Factor structure of the edinburgh postnatal depression scale in a population-based sample. *Psychological Assessment*, 29(8), 1016-1027. doi:10.1037/pas0000397
- Coates, D., Saleeba, C., & Howe, D. (2018). Profile of consumers and their partners of a perinatal and infant mental health (PIMH) service in Australia. *Health & social care in the community*, 26(1), e154-e163.
- Coble, P. A., Reynolds, C. F., Kupfer, D. J., Houck, P. R., Day, N. L., & Giles, D. E. (1994). Childbearing in women with and without a history of affective disorder. II. electroencephalographic sleep. *Comprehensive Psychiatry*, 35(3), 215-224. doi:10.1016/0010-440X(94)90194-5
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, 112(1), 155-159. doi:10.1037/0033-2909.112.1.155
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). Applied multiple correlation/regression analysis for the behavioral sciences. UK: Taylor & Francis.
- Coo, S., Milgrom, J., Kuppens, P., Cox, P., & Trinder, J. (2014). Exploring the association between maternal mood and self-reports of sleep during the perinatal period. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 43(4), 465-477. doi:10.1111/1552-6909.12464

- Cook, F., Conway, L., Gartland, D., Giallo, R., Keys, E., & Brown, S. (2020). Profiles and predictors of infant sleep problems across the first year. *Journal of Developmental and Behavioral Pediatrics, 41*(2), 104-116. doi:10.1097/DBP.0000000000000733
- Cools, S., Fiva, J. H., & Kirkebøen, L. J. (2015). Causal effects of paternity leave on children and parents. *The Scandinavian Journal of Economics, 117*(3), 801-828.
- Cornell, D. G., Peterson, C. S., & Richards, H. (1999). Anger as a predictor of aggression among incarcerated adolescents. *Journal of Consulting and Clinical Psychology, 67*(1), 108-115. doi:10.1037//0022-006X.67.1.108
- Corkum, P., Weiss, S., Hall, W., Brown, C., Chambers, C., Constantin, E., ... & Witmans, M. (2019). Assessment and treatment of pediatric behavioral sleep disorders in Canada. *Sleep medicine, 56*, 29-37.
- Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression. *British Journal of Psychiatry, 150*(6), 782-786. doi:10.1192/bjp.150.6.782
- Coyne, I. T. (1997). Sampling in qualitative research. Purposeful and theoretical sampling; merging or clear boundaries?. *Journal of Advanced Nursing, 26*(3), 623-630.
- Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research* (2nd ed.). Los Angeles: Sage Publications.
- Creswell, J. W., Plano Clark, V. L., Gutmann, M. L. & Hanson, W. E. (2003). Advanced mixed methods research designs. In A. Tashakkori and C. Teddlie (Eds), *Handbook on mixed methods in the behavioral and social sciences* (pp. 209-240). Thousand Oaks, CA: Sage Publications

- Da Costa, D., Danieli, C., Abrahamowicz, M., Dasgupta, K., Sewitch, M., Lowensteyn, I., & Zelkowitz, P. (2019). A prospective study of postnatal depressive symptoms and associated risk factors in first-time fathers. *Journal of affective disorders*, 249, 371-377.
- Darvill, R., Skirton, H., & Farrand, P. (2010). Psychological factors that impact on women's experiences of first-time motherhood: A qualitative study of the transition. *Midwifery*, 26(3), 357-366. doi:10.1016/j.midw.2008.07.006
- Davies, P. T., & Cummings, E. M. (1994). Marital conflict and child adjustment: An emotional security hypothesis. *Psychological Bulletin*, 116(3), 387-411. doi:10.1037/0033-2909.116.3.387
- De Choudhury, M., Counts, S., Horvitz, E., & Hoff, A. (2014). Characterizing and predicting postpartum depression from shared facebook data. Paper presented at the 626-638. doi:10.1145/2531602.2531675
- Deffenbacher, J. L., Oetting, E. R., Thwaites, G. A., Lynch, R. S., Baker, D. A., Stark, R. S., . . . Eiswerth-Cox, L. (1996). State-trait anger theory and the utility of the trait anger scale. *Journal of Counseling Psychology*, 43(2), 131-148. doi:10.1037/0022-0167.43.2.131
- DeGroot, J. M., & Vik, T. A. (2020). “The Weight of Our Household Rests on My Shoulders”: Inequity in Family Work. *Journal of Family Issues*, 41(8), 1258-1281.
- Delaney, A. M., Dalmida, S., & Gaydos, L. (2015). When it is not postpartum depression: Understanding the postpartum mental health needs of mothers and how they are being met. *Issues in Mental Health Nursing*, 36(6), 416-423. doi:10.3109/01612840.2014.1002645
- DeMaris, A., & Mahoney, A. (2017). Equity dynamics in the perceived fairness of infant care. *Journal of Marriage and Family*, 79(1), 261-276.

- Dennis, C., & Lee, C.L. (2006). Postpartum depression help-seeking barriers and maternal treatment preferences: A qualitative systematic review. *Birth*, 33(4), 323-331.
doi:10.1111/j.1523-536X.2006.00130.x
- Dennis, C., Merry, L., & Gagnon, A. J. (2017). Postpartum depression risk factors among recent refugee, asylum-seeking, non-refugee immigrant, and canadian-born women: Results from a prospective cohort study. *Social Psychiatry and Psychiatric Epidemiology*, 52(4), 411-422. doi:10.1007/s00127-017-1353-5
- Dennis, C., & Ross, L. (2006). Women's perceptions of partner support and conflict in the development of postpartum depressive symptoms. *Journal of Advanced Nursing*, 56(6), 588-599. doi:10.1111/j.1365-2648.2006.04059.x
- Dennis, C., Brown, H. K., & Brennenstuhl, S. (2017). The postpartum partner support scale: Development, psychometric assessment, and predictive validity in a canadian prospective cohort. *Midwifery*, 54, 18-24. doi:10.1016/j.midw.2017.07.018
- Dennis, C., Brown, H. K., Wanigaratne, S., Fung, K., Vigod, S. N., Grigoriadis, S., . . . Brennenstuhl, S. (2018;2017;). Prevalence, incidence, and persistence of postpartum depression, anxiety, and comorbidity among chinese immigrant and nonimmigrant women: A longitudinal cohort study. *Canadian Journal of Psychiatry*, 63(1), 44-53.
doi:10.1177/0706743717720689
- Denzin, N. K. (2010). Moments, mixed methods, and paradigm dialogs. *Qualitative Inquiry*, 16(6), 419-427. doi:10.1177/1077800410364608
- DiGiuseppe, R., & Tafrate, R.C. (2007). *Understanding anger disorders*. New York: Oxford University Press. doi:10.1093/med:psych/9780195170795.001.0001

- Dorheim, S., Bondevik, G., Eberhard-Gran, M., & Bjorvatn, B. (2009a). Sleep and depression in postpartum women: A population-based study. *Sleep*, 32(7), 847-855.
doi:10.1093/sleep/32.7.847
- Dorheim, S. K., Bondevik, G. T., Eberhard-Gran, M., & Bjorvatn, B. (2009b). Subjective and objective sleep among depressed and non-depressed postnatal women. *Acta Psychiatrica Scandinavica*, 119(2), 128-136. doi:10.1111/j.1600-0447.2008.01272.x
- Douglas, S. J., & Michaels, M. W. (2004). *The mommy myth: The idealization of motherhood and how it has undermined women*. New York: Free Press.
- Dove, E. S., Kelly, S. E., Lucivero, F., Machirori, M., Dheensa, S., & Prainsack, B. (2017). Beyond individualism: Is there a place for relational autonomy in clinical practice and research? *Clinical Ethics*, 12(3), 150-165. doi:10.1177/1477750917704156
- Dow, D. M. (2016). Integrated motherhood: Beyond hegemonic ideologies of motherhood. *Journal of Marriage and Family*, 78(1), 180-196.
- Driver, H. S., & Shapiro, C. M. (1992). A longitudinal study of sleep stages in young women during pregnancy and postpartum. *Sleep*, 15(5), 449. doi:10.1093/sleep/15.5.449
- Dunst, C. J., Jenkins, V., & Trivette, C. M. (1984). Family Support Scale: Reliability and validity. *Journal of Individual, Family, and Community Wellness*, 1, 45-52.
- Dunst, C. J., & Trivette, C. M. (1988). Toward experimental evaluation of the Family, Infant and Preschool Program.
- Dunst, C. J., Trivette, C. M., & Deal, A. G. (1994). *Supporting and strengthening families, Vol. I: Methods, strategies, and practices*. Cambridge, MA: Brookline Books.

- Dunst, C.J., Trivette, C., & Jenkins, V. (2007). *Family support scale: Reliability & validity*, Winterberry Assessment Scales and Instruments. Retrieved from:
<https://www.wbpress.com/shop/family-support-scale-reliability-and-validity/>
- Dunst, C. J., C. M. Trivette, & Jodry, W. (1997). Influences of social support on children with disabilities and their families. In M. Guralnick (Ed.), *The effectiveness of early intervention* (pp. 499-522). Baltimore: Brookes.
- Dutton, D.G. (2010). Anger in intimate relationships. In M. Potegal, G. Stemmler, & C. Spielberger (Eds.), *International Handbook of Anger: Constituent and Concomitant Biological, Psychological, and Social Processes* (pp. 535-544). New York, Springer.
- Eckhardt, C., Norlander, B., Deffenbacher, J. (2004). The assessment of anger and hostility: A critical review. *Aggression and Violent Behavior*, 9, 17-43. doi: [doi:10.1016/S1359-1789\(02\)00116-7](https://doi.org/10.1016/S1359-1789(02)00116-7)
- Ellsworth, P. C., & Tong, E. M. (2006). What does it mean to be angry at yourself? Categories, appraisals, and the problem of language. *Emotion*, 6(4), 572.
- Emamian, F., Khazaie, H., Okun, M. L., Tahmasian, M., & Sepehry, A. A. (2019). Link between insomnia and perinatal depressive symptoms: A meta-analysis. *Journal of sleep research*, 28(6), e12858.
- Emerson, S. D., & Carbert, N. S. (2019). An apple a day: Protective associations between nutrition and the mental health of immigrants in Canada. *Social psychiatry and psychiatric epidemiology*, 54(5), 567-578.
- Erceg-Hurn, D. M., & Mirosevich, V. M. (2008). Modern robust statistical methods: An easy way to maximize the accuracy and power of your research. *American Psychologist*, 63(7), 591–601. <https://doi.org/10.1037/0003-066X.63.7.591>

- Evers, C., Fischer, A. H., Rodriguez Mosquera, P. M., & Manstead, A. S. (2005). Anger and social appraisal: A "spicy" sex difference?. *Emotion*, 5(3), 258.
- Fairbrother, N., Hutton, E. K., Stoll, K., Hall, W., & Kluka, S. (2008). Psychometric evaluation of the multidimensional assessment of fatigue scale for use with pregnant and postpartum women. *Psychological Assessment*, 20(2), 150-158. doi:10.1037/1040-3590.20.2.150
- Falah-Hassani, K., Shiri, R., & Dennis, C. (2017). Prevalence of antenatal and postnatal anxiety: Systematic review and meta-analysis. *British Journal of Psychiatry*, 210(5), 315-323. doi:10.1192/bjp.bp.116.187179
- Farabaugh, A., Sonawalla, S., Johnson, D. P., Witte, J., Papakostas, G. I., Goodness, T., . . . Harley, R. (2010). Early improvements in anxiety, depression, and anger/hostility symptoms and response to antidepressant treatment. *Annals of Clinical Psychiatry : Official Journal of the American Academy of Clinical Psychiatrists*, 22(3), 166.
- Faul, F., Erdfelder, E., Buchner, A., & Lang, A.G. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, 41, 1149-1160.
- Fava, M., Anderson, K., & Rosenbaum, J. F. (1990). "Anger attacks": Possible variants of panic and major depressive disorders. *The American journal of psychiatry*, 147(7), 867.
- Fava, M., Davidson, K., Alpert, J. E., Nierenberg, A. A., Worthington, J., O'Sullivan, R., & Rosenbaum, J. F. (1996). Hostility changes following antidepressant treatment: Relationship to stress and negative thinking. *Journal of Psychiatric Research*, 30(6), 459-467. doi:10.1016/S0022-3956(96)00034-9
- Fava, M., & Rosenbaum, J. F. (1999). Anger attacks in patients with depression. *The Journal of Clinical Psychiatry*, 60 Suppl 15, 21.

- Fernandez, E., Day, A., & Boyle, G.J. (2014). Measures of anger and hostility in adults. In: G.J. Boyle, D.H. Saklofske & G. Matthews (eds.) *Measures of Personality and Social Psychological Constructs*. Oxford: Academic Press, 2014, pp. 74-100.
- Fetters, M. D., Curry, L. A., & Creswell, J. W. (2013). Achieving integration in mixed methods designs—principles and practices. *Health services research*, 48(6pt2), 2134-2156.
- Field, T., Hernandez-Reif, M., Vera, Y., Gil, K., Diego, M., Bendell, D., & Yando, R. (2005). Anxiety and anger effects on depressed mother–infant spontaneous and imitative interactions. *Infant Behavior and Development*, 28(1), 1-9.
- Field, A. P., Miles, J., & Field, Z. (2012). *Discovering statistics using R*. London;Thousand Oaks, Calif;: Sage.
- Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behavior and Development*, 33(1), 1-6.
doi:10.1016/j.infbeh.2009.10.005
- Field, T. (2017). Infant sleep problems and interventions: A review. *Infant Behavior and Development*, 47, 40-53. doi:10.1016/j.infbeh.2017.02.002
- Finkel, E. J., Hui, C. M., Carswell, K. L., & Larson, G. M. (2014). The suffocation of marriage: Climbing mount maslow without enough oxygen. *Psychological Inquiry*, 25(1), 1-41.
doi:10.1080/1047840x.2014.863723
- Fischer, A.H., & Evers, C. (2011). The social costs and benefits of anger as a function of gender and relationship context. *Sex Roles*, 65(1-2), 23-34.
- Fischer, A.H., & Roseman, I. J. (2007). Beat them or ban them: The characteristics and social functions of anger and contempt. *Journal of Personality and Social Psychology*, 93(1), 103-115. doi:10.1037/0022-3514.93.1.103

- Flick, U. (2017). Mantras and myths: The disenchantment of mixed-methods research and revisiting triangulation as a perspective. *Qualitative Inquiry*, 23(1), 46-57.
doi:10.1177/1077800416655827
- Flynn, H. A., Sexton, M., Ratliff, S., Porter, K., & Zivin, K. (2010;2011;). Comparative performance of the edinburgh postnatal depression scale and the patient health questionnaire-9 in pregnant and postpartum women seeking psychiatric services. *Psychiatry Research*, 187(1), 130-134. doi:10.1016/j.psychres.2010.10.022
- Forgays, D.K., Spielberger, C.D., Ottaway, S.A., & Forgays, D.G. (1998). Factor structure of the state-trait anger expression inventory for middle-aged men and women. *Assessment*, 5, 141-155. doi: 10.1177/107319119800500205
- França, U. L., & McManus, M. L. (2018). Frequency, trends, and antecedents of severe maternal depression after three million U.S. births. *PLoS One*, 13(2), e0192854.
doi:10.1371/journal.pone.0192854
- Friedman, M. (2000). Autonomy, social disruption, and women. In C. Mackenzie & N. Stoljar (Eds.), *Relational autonomy: Feminist perspectives on autonomy, agency, and the social self* (pp. 35-51). Oxford: Oxford University Press.
- Friedman, M. (1986). Autonomy and the split-level self. *The Southern Journal of Philosophy*, 24(1), 19-35. doi:10.1111/j.2041-6962.1986.tb00434.x
- Galbally, M., Watson, S. J., Teti, D., & Lewis, A. J. (2018). Perinatal maternal depression, antidepressant use and infant sleep outcomes: Exploring cross-lagged associations in a pregnancy cohort study. *Journal of affective disorders*, 238, 218-225.

- Galland, B. C., Taylor, B. J., Elder, D. E., & Herbison, P. (2011;2012;). Normal sleep patterns in infants and children: A systematic review of observational studies. *Sleep Medicine Reviews, 16*(3), 213-222. doi:10.1016/j.smrv.2011.06.001
- Garrett, B. (2013). *Science and modern thought in nursing: Pragmatism & praxis for evidence-based practice*. Victoria, Canada: Northern Lights Media.
- Gavin, N. I., Gaynes, B. N., Lohr, K. N., Meltzer-Brody, S., Gartlehner, G., & Swinson, T. (2005). Perinatal depression: A systematic review of prevalence and incidence. *Obstetrics and Gynecology, 106*(5 Pt 1), 1071-1083. doi:10.1097/01.AOG.0000183597.31630.db
- Gay, C. L., Lee, K. A., & Lee, S. (2004). Sleep patterns and fatigue in new mothers and fathers. *Biological Research for Nursing, 5*(4), 311-318. doi:10.1177/1099800403262142
- Giallo, R., Gartland, D., Woolhouse, H., & Brown, S. (2016). "I didn't know it was possible to feel that tired": Exploring the complex bidirectional associations between maternal depressive symptoms and fatigue in a prospective pregnancy cohort study. *Archives of Women's Mental Health, 19*(1), 25-34. doi:10.1007/s00737-014-0494-8
- Giallo, R., Rose, N., Cooklin, A., & McCormack, D. (2013). In survival mode: Mothers and fathers' experiences of fatigue in the early parenting period. *Journal of Reproductive and Infant Psychology, 31*(1), 31-45. doi:10.1080/02646838.2012.751584
- Giallo, R., Wade, C., Cooklin, A., & Rose, N. (2011). Assessment of maternal fatigue and depression in the postpartum period: support for two separate constructs. *Journal of Reproductive and Infant Psychology, 29*(1), 69-80.
- Gibson, J., McKenzie-McHarg, K., Shakespeare, J., Price, J., & Gray, R. (2009). A systematic review of studies validating the Edinburgh postnatal depression scale in antepartum and

- postpartum women. *Acta Psychiatrica Scandinavica*, 119(5), 350-364. doi:10.1111/j.1600-0447.2009.01363.x
- Glaser, B. G. (1992). *Basics of grounded theory analysis: Emergence vs forcing*. Mill Valley, CA: Sociology Press.
- Glaser, B. G., & Strauss, A. L. (1999;2017;). *The discovery of grounded theory: Strategies for qualitative research*. New Brunswick: Aldine Transaction. doi:10.4324/9780203793206
- Goering, S. (2009). Postnatal reproductive autonomy: Promoting relational autonomy and self-trust in new parents. *Bioethics*, 23(1), 9-19. doi:10.1111/j.1467-8519.2008.00678.x
- Goering, S. (2017). Mothers and others: Relational autonomy in parenting. In L. Francis (ed.) *Oxford Handbook of Reproductive Ethics*. Oxford University Press.
- Goldberg, W. A., Lucas-Thompson, R. G., Germo, G. R., Keller, M. A., Davis, E. P., & Sandman, C. A. (2013). Eye of the beholder? maternal mental health and the quality of infant sleep. *Social Science & Medicine*, 79(1), 101-108. doi:10.1016/j.socscimed.2012.07.006
- Goldman, L., & Haaga, D. A. (1995). Depression and the experience and expression of anger in marital and other relationships. *Journal of Nervous and Mental Disease*.
- Goodlin-Jones, B. L., Burnham, M. M., Gaylor, E. E., & Anders, T. F. (2001). Night waking, sleep-wake organization, and self-soothing in the first year of life. *Journal of developmental and behavioral pediatrics: JDBP*, 22(4), 226.
- Goodman, J. H. (2008). Influences of maternal postpartum depression on fathers and on father–infant interaction. *Infant Mental Health Journal*, 29(6), 624-643. doi:10.1002/imhj.20199
- Goodman, J. H. (2009). Womens attitudes, preferences, and perceived barriers to treatment for perinatal depression. *Birth*, 36(1), 60-69. doi:10.1111/j.1523-536X.2008.00296.x

- Godderis, R., Adair, C. E., & Brager, N. (2009). Applying new techniques to an old ally: A qualitative validation study of the edinburgh postnatal depression scale. *Women and Birth*, 22(1), 17-23. doi:10.1016/j.wombi.2008.10.002
- Guerrero, L. K., La Valley, A. G., & Farinelli, L. (2008). The experience and expression of anger, guilt, and sadness in marriage: An equity theory explanation. *Journal of Social and Personal Relationships*, 25(5), 699-724.
- Graham, J. W. (2009). Missing data analysis: Making it work in the real world. *Annual Review of Psychology*, 60(1), 549-576. doi:10.1146/annurev.psych.58.110405.085530
- Graham, J. E., Lobel, M., & DeLuca, R. S. (2002). Anger after childbirth: An overlooked reaction to postpartum stressors. *Psychology of Women Quarterly*, 26(3), 222-233. doi:10.1111/1471-6402.00061
- Grandner, M.A. (2017). Sleep, health, and society. *Sleep Medicine Clinics*, 12(1), 1-22. doi:10.1016/j.jsmc.2016.10.012
- Grant, R. W., & Sugarman, J. (2004, January). Ethics in human subjects research: do incentives matter?. In *The Journal of Medicine and Philosophy: A Forum for Bioethics and Philosophy of Medicine* (Vol. 29, No. 6, pp. 717-738). Oxford University Press.
- Greene, J. C. (2007). *Mixed methods in social inquiry* (1st ed.). San Francisco, CA: Jossey-Bass.
- Greene, J. C., Caracelli, V. J., & Graham, W. F. (1989). Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis*, 11(3), 255-274. doi:10.3102/01623737011003255
- Gressier, F., Guillard, V., Cazas, O., Falissard, B., Glangeaud-Freudenthal, N. M., & Sutter-Dallay, A. L. (2017). Risk factors for suicide attempt in pregnancy and the post-partum

- period in women with serious mental illnesses. *Journal of psychiatric research*, 84, 284-291.
- Grissette, B. G., Spratling, R., & Aycock, D. M. (2018). Barriers to Help-Seeking Behavior Among Women With Postpartum Depression. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 47(6), 812-819.
- Groth, S. W. (2010). Honorarium or coercion: use of incentives for participants in clinical research. *The Journal of the New York State Nurses' Association*, 41(1), 11.
- Gruzd, A., Jacobson, J., Mai, P., & Dubois, E. (2018). The state of social media in Canada 2017. [Version: 1.0] Ryerson University Social Media Lab. doi:10.5683/SP/AL8Z6R
- Hagen, E. H. (1999). The functions of postpartum depression. *Evolution and Human Behavior*, 20(5), 325-359.
- Hahn-Holbrook, J., Cornwell-Hinrichs, T., & Anaya, I. (2017;2018;). Economic and health predictors of national postpartum depression prevalence: A systematic review, meta-analysis, and meta-regression of 291 studies from 56 countries. *Frontiers in Psychiatry*, 8, 248-248. doi:10.3389/fpsyt.2017.00248
- Hahn-Holbrook, J., & Haselton, M. (2014). Is postpartum depression a disease of modern civilization? *Current Directions in Psychological Science*, 23(6), 395-400.
- Halal, C. S., Bassani, D. G., Santos, I. S., Tovo-Rodrigues, L., Del-Ponte, B., Silveira, M. F., . . . Nunes, M. L. (2020). Maternal perinatal depression and infant sleep problems at 1 year of age: Subjective and actigraphy data from a population-based birth cohort study. *Journal of Sleep Research*, , e13047-e13047. doi:10.1111/jsr.13047

- Hall, W. A., Biletschi, J., Hunter, D. L., Lemay, S., Ou, C., & Rempel, L. (2019). Dissemination of evidence based interventions for pediatric sleep disorders–The Niagara project: process and outcomes. *Sleep Medicine: X*, 1, 100001.
- Hall, W. A., Hutton, E., Brant, R. F., Collet, J. P., Gregg, K., Saunders, R., . . . Wooldridge, J. (2015). A randomized controlled trial of an intervention for infants' behavioral sleep problems. *BMC Pediatrics*, 15(1), 1-12. doi:10.1186/s12887-015-0492-7
- Hall, W.A., Moynihan, M., Bhagat, R., & Wooldridge, J. (2017). Relationships between parental sleep quality, fatigue, cognitions about infant sleep, and parental depression pre and post-intervention for infant behavioral sleep problems. doi:10.1186/s12884-017-1284-x
- Hamel, C., Lang, E., Morissette, K., Beck, A., Stevens, A., Skidmore, B., ... & Moher, D. (2019). Screening for depression in women during pregnancy or the first year postpartum and in the general adult population: a protocol for two systematic reviews to update a guideline of the Canadian Task Force on Preventive Health Care. *Systematic reviews*, 8(1), 27.
- Hanley, B., Tasse, M. J., Aman, M. G., & Pace, P. (1998). Psychometric properties of the family support scale with head start families. *Journal of Child and Family Studies*, 7(1), 69-77.
- Hardré, P. L., Crowson, H. M., & Xie, K. (2012). Examining contexts-of-use for web-based and paper-based questionnaires. *Educational and Psychological Measurement*, 72(6), 1015-1038. doi:10.1177/0013164412451977
- Harwood, K., McLean, N., & Durkin, K. (2007). First-time mothers' expectations of parenthood: What happens when optimistic expectations are not matched by later experiences?. *Developmental psychology*, 43(1), 1.
- Hawkins, K. A., & Cougle, J. R. (2011). Anger problems across the anxiety disorders: findings from a population-based study. *Depression and anxiety*, 28(2), 145-152.

- Hawkins, K. A., Hames, J. L., Ribeiro, J. D., Silva, C., Joiner, T. E., & Coughle, J. R. (2013;2014;). An examination of the relationship between anger and suicide risk through the lens of the interpersonal theory of suicide. *Journal of Psychiatric Research*, 50, 59-65. doi:10.1016/j.jpsychires.2013.12.005
- Henderson, A., Harmon, S., & Newman, H. (2016). The price mothers pay, even when they are not buying it: Mental health consequences of idealized motherhood. *Sex Roles*, 74(11-12), 512-526.
- Henderson, J. M. T., France, K. G., & Blampied, N. M. (2011). The consolidation of infants' nocturnal sleep across the first year of life. *Sleep Medicine Reviews*, 15(4), 211-220. doi:10.1016/j.smr.2010.08.003
- Henderson, J. M. T., France, K. G., Owens, J. L., & Blampied, N. M. (2010). Sleeping through the night: The consolidation of self-regulated sleep across the first year of life. *Pediatrics*, 126(5), e1081-e1087. doi:10.1542/peds.2010-0976
- Highet, N. J., Gemmill, A. W., & Milgrom, J. (2011). Depression in the perinatal period: Awareness, attitudes and knowledge in the Australian population. *Australian and New Zealand Journal of Psychiatry*, 45(3), 223-231. doi:10.3109/00048674.2010.547842
- Highet, N., Stevenson, A. L., Purtell, C., & Coe, S. (2014;2015). Qualitative insights into women's personal experiences of perinatal depression and anxiety. *Women and Birth*, 27(3), 179-184. doi:10.1016/j.wombi.2014.05.003
- Hirani, S. A. A., & Olson, J. (2016). Concept analysis of maternal autonomy in the context of breastfeeding: Maternal autonomy. *Journal of Nursing Scholarship*, 48(3), 276-284. doi:10.1111/jnu.12211

- Hiscock, H., & Wake, M. (2001). Infant sleep problems and postnatal depression: A community-based study. *Pediatrics*, 107(6), 1317-1322. doi:10.1542/peds.107.6.1317
- Hisler, G., & Krizan, Z. (2017). Anger tendencies and sleep: Poor anger control is associated with objectively measured sleep disruption. *Journal of Research in Personality*, 71, 17-26.
- Hjälmhult, E., & Lomborg, K. (2012). Managing the first period at home with a newborn: a grounded theory study of mothers' experiences. *Scandinavian journal of caring sciences*, 26(4), 654-662.
- Honaker, S. M., & Meltzer, L. J. (2015;2016). Sleep in pediatric primary care: A review of the literature. *Sleep Medicine Reviews*, 25, 31-39. doi:10.1016/j.smr.2015.01.004
- Horowitz, J.A., Chang, S.S., Das, S., & Hayes, B. (2001). Women's perceptions of postpartum depressive symptoms from an international perspective. *International Nursing Perspectives* 1, 5-14.
- Howard, L. M., Flach, C., Mehay, A., Sharp, D., & Tylee, A. (2011). The prevalence of suicidal ideation identified by the Edinburgh postnatal depression scale in postpartum women in primary care: Findings from the RESPOND trial. *BMC Pregnancy and Childbirth*, 11(1), 57-57. doi:10.1186/1471-2393-11-57
- Howard, L. M., & Khalifeh, H. (2020). Perinatal mental health: a review of progress and challenges. *World Psychiatry*, 19(3), 313-327.
- Huang, R., Yan, C., Tian, Y., Lei, B., Yang, D., Liu, D., & Lei, J. (2020). Effectiveness of peer support intervention on perinatal depression: A systematic review and meta-analysis. *Journal of Affective Disorders*.

- Hunt, T., Wilson, C., Caputi, P., Wilson, I., & Woodward, A. (2018). Patterns of signs that Telephone Crisis Support Workers associate with suicide risk in telephone crisis line callers. *International journal of environmental research and public health*, 15(2), 235.
- Hunter, A. (2016). Monetizing the mommy: mommy blogs and the audience commodity. *Information, Communication & Society*, 19(9), 1306-1320.
- Hunter, L. P., Rychnovsky, J. D., & Yount, S. M. (2009). A selective review of maternal sleep characteristics in the postpartum period. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 38(1), 60-68. doi:10.1111/j.1552-6909.2008.00309.x
- Huss, B., & Pollmann-Schult, M. (2020). Relationship Satisfaction Across the Transition to Parenthood: The Impact of Conflict Behavior. *Journal of Family Issues*, 41(3), 383-411.
- Hutcheson, G., Sofroniou, N.(1999). *The multivariate social scientist: Introductory statistics using generalized linear models*. London;Thousand Oaks, Calif;: Sage Publications.
- Hyde, J. S., Klein, M. H., Essex, M. J., & Clark, R. (1995). Maternity leave and women's mental health. *Psychology of Women Quarterly*, 19(2), 257-285. doi:10.1111/j.1471-6402.1995.tb00291.x
- Hysing, M., Sivertsen, B., Garthus-Niegel, S., & Eberhard-Gran, M. (2016). Pediatric sleep problems and social-emotional problems. A population-based study. *Infant Behavior and Development*, 42, 111-118. doi:10.1016/j.infbeh.2015.12.005
- Insana, S. P., & Montgomery-Downs, H. E. (2013). Sleep and sleepiness among first-time postpartum parents: A field- and laboratory-based multimethod assessment. *Developmental Psychobiology*, 55(4), 361-372. doi:10.1002/dev.21040
- Jack, D. C. (2001). Understanding women's anger: A description of relational patterns. *Health Care for Women International*, 22(4), 385-400. doi:10.1080/07399330152398918

- Jenni, O. G., & O'Connor, B. B. (2005). Children's sleep: An interplay between culture and biology. *Pediatrics*, 115(1 Suppl), 204-216. doi:10.1542/peds.2004-0815B
- Jennings, B. (2016). Reconceptualizing autonomy: A relational turn in bioethics. *Hastings Center Report*, 46(3), 11-16. doi:10.1002/hast.544
- Jeon, Y. (2004). The application of grounded theory and symbolic interactionism. *Scandinavian Journal of Caring Sciences*, 18(3), 249-256. doi:10.1111/j.1471-6712.2004.00287.x
- Ji, S., Long, Q., Newport, D. J., Na, H., Knight, B., Zach, E. B., ... & Stowe, Z. N. (2011). Validity of depression rating scales during pregnancy and the postpartum period: impact of trimester and parity. *Journal of Psychiatric Research*, 45(2), 213-219.
- Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of mixed methods research*, 1(2), 112-133.
- Johnston, D. D., & Swanson, D. H. (2003). Invisible mothers: A content analysis of motherhood ideologies and myths in magazines. *Sex Roles*, 49(1-2), 21-33.
- Kantrowitz-Gordon, I. (2013). Internet confessions of postpartum depression. *Issues in Mental Health Nursing*, 34(12), 874-882. doi:10.3109/01612840.2013.806618
- Karraker, K. (2008). The role of intrinsic and extrinsic factors in infant night waking. *Journal of Early and Intensive Behavior Intervention*, 5(3), 108-121.
- Kassinove, H., & Sukhodolsky, D. G. (1995). Anger disorders: Basic science and practice issues. *Issues in Comprehensive Pediatric Nursing*, 18(3), 173-205.
doi:10.3109/01460869509087270
- Kathree, T., Selohilwe, O. M., Bhana, A., & Petersen, I. (2014). Perceptions of postnatal depression and health care needs in a south african sample: The "mental" in maternal health care. *BMC Women's Health*, 14(1), 140-140. doi:10.1186/s12905-014-0140-7

- Kempler, L., Sharpe, L., Miller, C. B., & Bartlett, D. J. (2015;2016;). Do psychosocial sleep interventions improve infant sleep or maternal mood in the postnatal period? A systematic review and meta-analysis of randomised controlled trials. *Sleep Medicine Reviews*, 29, 15-22. doi:10.1016/j.smr.2015.08.002
- Kerig, P. K. (1998). Moderators and mediators of the effects of interparental conflict on children's adjustment. *Journal of Abnormal Child Psychology*, 26(3), 199-212. doi:10.1023/A:1022672201957
- Kettunen, P., Koistinen, E., & Hintikka, J. (2014). Is postpartum depression a homogenous disorder: Time of onset, severity, symptoms and hopelessness in relation to the course of depression. *BMC Pregnancy and Childbirth*, 14(1), 402. doi:10.1186/PREACCEPT-1301881224127235
- Kiviruusu, O., Pietikäinen, J. T., Kylliäinen, A., Pölkki, P., Saarenpää-Heikkilä, O., Marttunen, M., ... & Paavonen, E. J. (2020). Trajectories of mothers' and fathers' depressive symptoms from pregnancy to 24 months postpartum. *Journal of affective disorders*, 260, 629-637.
- Kruper, A., & Wichman, C. (2017). Integrated perinatal mental health care. *Psychiatric Annals*, 47(7), 368-373.
- Klein, M. H., Hyde, J. S., Essex, M. J., & Clark, R. (1998). Maternity leave, role quality, work involvement, and mental health one year after delivery. *Psychology of Women Quarterly*, 22(2), 239-266.
- Ko, C., Fang, Y., Tsai, L., & Hsieh, S. (2015). The effect of experimental sleep fragmentation on error monitoring. *Biological Psychology*, 104, 163-172. doi:10.1016/j.biopsycho.2014.12.008

- Knudson-Martin, C., & Silverstein, R. (2009). Suffering in silence: A qualitative meta-data-analysis of postpartum depression. *Journal of Marital and Family Therapy*, 35(2), 145-158. doi:10.1111/j.1752-0606.2009.00112.x
- Kopper, B. A., & Epperson, D. L. (1996). The experience and expression of anger: Relationships with gender, gender role socialization, depression, and mental health functioning. *Journal of Counseling Psychology*, 43(2), 158-165. doi:10.1037/0022-0167.43.2.158
- Koukopoulos, A. E., Angeletti, G., Sani, G., Janiri, D., Manfredi, G., Kotzalidis, G. D., & De Chiara, L. (2020). Perinatal Mixed Affective State: Wherefore Art Thou?. *Psychiatric Clinics*, 43(1), 113-126.
- Krizan, Z., & Hisler, G. (2019). Sleepy anger: Restricted sleep amplifies angry feelings. *Journal of experimental psychology*, 148(7), 1239.
- Kruger, L., Straaten, K. v., Taylor, L., & Lourens, M. (2014). The melancholy of murderous mothers: Depression and the medicalization of women's anger. *Feminism & Psychology*, 24(4), 461.
- Kruse, J. A., Williams, R. A., & Seng, J. S. (2014). Considering a relational model for depression in women with postpartum depression. *International Journal of Childbirth*, 4(3), 151.
- Kuhn, B.R. (2014). Practical strategies for managing behavioral sleep problems in young children. *Sleep Medicine Clinics*, 9(2), 181-197. doi:10.1016/j.jsmc.2014.03.004
- Kukla, R. (2005). Conscientious autonomy: Displacing decisions in health care. *The Hastings Center Report*, 35(2), 34. doi:10.2307/3527761
- Lafferty, N. T., & Manca, A. (2015). Perspectives on social media in and as research: A synthetic review. *International Review of Psychiatry*, 27(2), 85-96.
doi:10.3109/09540261.2015.1009419

- Lagerberg, D., & Magnusson, M. (2013). Utilization of child health services, stress, social support and child characteristics in primiparous and multiparous mothers of 18-month-old children. *Scandinavian journal of public health*, 41(4), 374-383.
- Lambermon, F., Vandenbussche, F., Dedding, C., & van Duijnhoven, N. (2020). Maternal self-care in the early postpartum period: An integrative review. *Midwifery*, 102799.
- Lanes, A., Kuk, J. L., & Tamim, H. (2011). Prevalence and characteristics of postpartum depression symptomatology among canadian women: A cross-sectional study. *BMC Public Health*, 11(1), 302-302. doi:10.1186/1471-2458-11-302
- Lauer-Williams, J. (2002). Postpartum depression: A phenomenological exploration of the woman's experience.
- Lawson, A., Murphy, K. E., Sloan, E., Uleryk, E., & Dalfen, A. (2015). The relationship between sleep and postpartum mental disorders: A systematic review. *Journal of Affective Disorders*, 176, 65-77. doi:10.1016/j.jad.2015.01.017
- Lazarus, K., & Rossouw, P. J. (2015). Mother's expectations of parenthood: the impact of prenatal expectations on self-esteem, depression, anxiety, and stress post birth. *International Journal of Neuropsychotherapy*, 3(2), 102-123.
- Leddy, M. A., Farrow, V. A., Joseph Jr, G. F., & Schulkin, J. (2012). Obstetrician/gynecologists and postpartum mental health: Differences between CME course takers and nontakers. *The Journal of Continuing Education in the Health Professions*, 32(1), 39-47. doi:10.1002/chp.21121
- Lee, K. A., & Zaffke, M. (1999). Longitudinal changes in fatigue and energy during pregnancy and the postpartum period. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 28(2), 183-191. doi:10.1111/j.1552-6909.1999.tb01983.x

- Lee, K. A., Zaffke, M.E., & McEnany, G. (2000). Parity and sleep patterns during and after pregnancy. *Obstetrics & Gynecology*, 95(1), 14-18. doi:10.1097/00006250-200001000-00003
- Leech, N. L., & Onwuegbuzie, A. J. (2009). A typology of mixed methods research designs. *Quality & quantity*, 43(2), 265-275.
- Legere, L. E., Wallace, K., Bowen, A., McQueen, K., Montgomery, P., & Evans, M. (2017). Approaches to health-care provider education and professional development in perinatal depression: A systematic review. *BMC Pregnancy and Childbirth*, 17 doi:10.1186/s12884-017-1431-4
- Leung, B. M., Letourneau, N. L., Giesbrecht, G. F., Ntanda, H., & Hart, M. (2017). Predictors of postpartum depression in partnered mothers and fathers from a longitudinal cohort. *Community mental health journal*, 53(4), 420-431.
- Letourneau, N. L., Dennis, C. L., Cosic, N., & Linder, J. (2017). The effect of perinatal depression treatment for mothers on parenting and child development: A systematic review. *Depression and anxiety*, 34(10), 928-966.
- Levin, B. (2008, May). Thinking about knowledge mobilization. In *an invitational symposium sponsored by the Canadian Council on Learning and the Social Sciences and Humanities Research Council of Canada* (pp. 15-18).
- Levine, B., Roehrs, T., Stepanski, E., Zorick, F., & Roth, T. (1987). Fragmenting sleep diminishes its recuperative value. *Sleep*, 10(6), 590. doi:10.1093/sleep/10.6.590
- Lewis, B. A., Gjerdingen, D., Schuver, K., Avery, M., & Marcus, B. H. (2018). The effect of sleep pattern changes on postpartum depressive symptoms. *BMC women's health*, 18(1), 1-7.

- Li, Z., Liu, Y., Wang, J., Liu, J., Zhang, C., & Liu, Y. (2020). Effectiveness of cognitive behavioural therapy for perinatal depression: A systematic review and meta-analysis. *Journal of Clinical Nursing*, 29(17-18), 3170-3182. doi:10.1111/jocn.15378
- Li, S., Marquart, J. M., & Zercher, C. (2000). Conceptual issues and analytic strategies in mixed-method studies of preschool inclusion. *Journal of Early Intervention*, 23(2), 116-132. doi:10.1177/105381510002300206
- Lievaart, M., Franken, I. H. A., & Hovens, J. E. (2016). Anger assessment in clinical and nonclinical populations: Further validation of the state-trait anger expression inventory-2: Further validation of the STAXI-2. *Journal of Clinical Psychology*, 72(3), 263-278. doi:10.1002/jclp.22253
- Lim, J., & Dinges, D. F. (2010). A meta-analysis of the impact of short-term sleep deprivation on cognitive variables. *Psychological Bulletin*, 136(3), 375-389. doi:10.1037/a0018883
- Lindahl, V., Pearson, J. L., & Colpe, L. (2005). Prevalence of suicidality during pregnancy and the postpartum. *Archives of Women's Mental Health*, 8(2), 77-87. doi:10.1007/s00737-005-0080-1
- Little, T. D., Little, T. D., Widaman, K. F., & Levy, R. (2017). Error, Error in My Model, Who's the Fairest Error of Them All? *Research in Human Development: Three's a Crowd: Developmental Research, Social Justice, and Null Hypothesis Significance Testing*, 14(4), 271-286. <https://doi.org/10.1080/15427609.2017.1370965>
- Logsdon, M. C., Usui, W., Birkimer, J. C., & McBride, A. B. (1996). The postpartum support questionnaire: Reliability and validity. *Journal of Nursing Measurement*, 4(2), 129-142.

- Loutzenhiser, L., McAuslan, P., & Sharpe, D. P. (2015). The trajectory of maternal and paternal fatigue and factors associated with fatigue across the transition to parenthood. *Clinical Psychologist, 19*(1), 15-27. doi:10.1111/cp.12048
- Luo, Z. -, & Fetal and Infant Health Study Group of the Canadian Perinatal Surveillance System. (2006). Effect of neighbourhood income and maternal education on birth outcomes: A population-based study. *Canadian Medical Association Journal (CMAJ), 174*(10), 1415-1420. doi:10.1503/cmaj.051096
- Luutonen, S. (2007). Anger and depression-theoretical and clinical considerations. *Nordic Journal of Psychiatry, 61*(4), 246-251. doi:10.1080/08039480701414890
- Mackenzie, C., & Stoljar, N. (2000). *Relational autonomy: Feminist perspectives on autonomy, agency, and the social self*. New York: Oxford University Press.
- Mackenzie, C. (2014). Three dimensions of autonomy: A relational analysis. In A. Veltman & M. Piper (Eds.) *Autonomy, Oppression, & Gender* (pp. 15-41). New York, NY: Oxford University Press.
- McLeod, & Sherwin, S. (2000). Relational autonomy, self-trust, and health care for patients who are oppressed. In C. Mackenzie & N. Stoljar (Eds.), *Relational autonomy: Feminist perspectives on autonomy, agency, and the social self* (pp. 259-279). Oxford: Oxford University Press.
- Mammen, O. K., Pilkonis, P. A., & Kolko, D. J. (2000). Anger and parent-to-child aggression in mood and anxiety disorders. *Comprehensive Psychiatry, 41*(6), 461-468. doi:10.1053/comp.2000.16567

- Mammen, O. K., Shear, M. K., Pilkonis, P. A., Kolko, D. J., Thase, M. E., & Greeno, C. G. (1999). Anger attacks: correlates and significance of an underrecognized symptom. *The Journal of clinical psychiatry*.
- Martin, J., Hiscock, H., Hardy, P., Davey, B., & Wake, M. (2007). Adverse associations of infant and child sleep problems and parent health: an Australian population study. *Pediatrics*, *119*(5), 947-955.
- Martin, C. R., & Redshaw, M. (2018). Establishing a coherent and replicable measurement model of the Edinburgh postnatal depression scale. *Psychiatry Research*, *264*, 182-191. doi:10.1016/j.psychres.2018.03.062
- Matthey, S. (2008). Using the Edinburgh Postnatal Depression Scale to screen for anxiety disorders. *Depression and anxiety*, *25*(11), 926-931.
- Matthey, S., & Agostini, F. (2017). Using the edinburgh postnatal depression scale for women and men—some cautionary thoughts. *Archives of Women's Mental Health*, *20*(2), 345-354. doi:10.1007/s00737-016-0710-9
- Matthey, S., Fisher, J., & Rowe, H. (2013). Using the edinburgh postnatal depression scale to screen for anxiety disorders: Conceptual and methodological considerations. *Journal of Affective Disorders*, *146*(2), 224-230. doi:10.1016/j.jad.2012.09.009
- Matthey, S., Henshaw, C., Elliott, S., & Barnett, B. (2006). Variability in use of cut-off scores and formats on the edinburgh postnatal depression scale – implications for clinical and research practice. *Archives of Women's Mental Health*, *9*(6), 309-315. doi:10.1007/s00737-006-0152-x
- Matsumoto, K., Shinkoda, H., Kang, M. J., & Seo, Y. J. (2003). Longitudinal study of mothers' sleep-wake behaviors and circadian time patterns from late pregnancy to postpartum -

- monitoring of wrist actigraphy and sleep logs. *Biological Rhythm Research*, 34(3), 265-278. doi:10.1076/brhm.34.3.265.18812
- Mauthner, N. S. (1999). " Feeling low and feeling really bad about feeling low": Women's experiences of motherhood and postpartum depression. *Canadian Psychology/Psychologie Canadienne*, 40(2), 143
- Maxwell, J. P., Sukhodolsky, D. G., & Sit, C. H. P. (2009). Preliminary validation of a chinese version of the state-trait anger expression inventory-2. *Asian Journal of Social Psychology*, 12(1), 1-11. doi:10.1111/j.1467-839X.2008.01264.x
- Meijer, A. M., & van den Wittenboer, G. L. (2007). Contribution of infants' sleep and crying to marital relationship of first-time parent couples in the 1st year after childbirth. *Journal of Family Psychology*, 21(1), 49.
- Meltzer, L. J. (2010). Clinical management of behavioral insomnia of childhood: treatment of bedtime problems and night wakings in young children. *Behavioral Sleep Medicine*, 8(3), 172-189.
- Meltzer, L. J., & Mindell, J. A. (2007). Relationship between child sleep disturbances and maternal sleep, mood, and parenting stress: A pilot study. *Journal of Family Psychology*, 21(1), 67-73. doi:10.1037/0893-3200.21.1.67
- Meltzer, L. J., & Montgomery-Downs, H. E. (2011). Sleep in the family. *Pediatric Clinics of North America*, 58(3), 765-774. doi:10.1016/j.pcl.2011.03.010
- Meyers, D.T. (2000). Intersectional identity and the authentic self?: Opposites attract! In C. Mackenzie & N. Stoljar (Eds.), *Relational autonomy: Feminist perspectives on autonomy, agency, and the social self*, pp. 151-180. Oxford: Oxford University Press.

- Meyers, D.T. (2005). Decentralizing autonomy: Five faces of selfhood. In J. Christman & J. Anderson (Eds.), *Autonomy and the challenges to liberalism*, (pp. 27-55). Cambridge: Cambridge University Press.
- Miceli, M., & Castelfranchi, C. (2019). Anger and its cousins. *Emotion Review*, 11(1), 13-26.
- Milgrom, J., & Gemmill, A. (2014). Feasibility and efficacy of an internet treatment for postnatal depression utilising a behavioural activation approach. *Evidence-Based Nursing*, 17(4), 102-102. doi:10.1136/eb-2013-101636
- Mill, J. S., & The Harvard Classics. (1909). *John Stuart Mill: On liberty* New York : P.F. Collier & Son.
- Mindell, J. A., Kuhn, B., Lewin, D. S., Meltzer, L. J., & Sadeh, A. (2006). Behavioral treatment of bedtime problems and night wakings in infants and young children. *Sleep*, 29(10), 1263. doi:10.1093/sleep/29.10.1263
- Mindell, J. A., Sadeh, A., Kohyama, J., & How, T. H. (2010). Parental behaviors and sleep outcomes in infants and toddlers: A cross-cultural comparison. *Sleep Medicine*, 11(4), 393-399. doi:10.1016/j.sleep.2009.11.011
- Minkel, J. D., Banks, S., Htaik, O., Moreta, M. C., Jones, C. W., McGlinchey, E. L., Simpson, N. S., & Dinges, D. F. (2012). Sleep deprivation and stressors: Evidence for elevated negative affect in response to mild stressors when sleep deprived. *Emotion*, 12(5), 1015–1020. <https://doi.org/10.1037/a0026871>
- Mollaveva, T., Thurairajah, P., Burton, K., Mollaveva, S., Shapiro, C. M., & Colantonio, A. (2015;2016;). The pittsburgh sleep quality index as a screening tool for sleep dysfunction in clinical and non-clinical samples: A systematic review and meta-analysis. *Sleep Medicine Reviews*, 25, 52-73. doi:10.1016/j.smr.2015.01.009

- Monteiro, F., Fonseca, A., Pereira, M., Alves, S., & Canavarro, M. C. (2019). What protects at-risk postpartum women from developing depressive and anxiety symptoms? The role of acceptance-focused processes and self-compassion. *Journal of Affective Disorders*, 246, 522-529.
- Montgomery-Downs, H. E., PhD, Insana, S. P., PhD, Clegg-Kraynok, M. M., MS, & Mancini, L. M., BS. (2010). Normative longitudinal maternal sleep: The first 4 postpartum months. *American Journal of Obstetrics and Gynecology*, 203(5), 465.e1-465.e7.
doi:10.1016/j.ajog.2010.06.057
- Montgomery-Downs, H., Stremler, R., & Insana, S. (2013). Postpartum sleep in new mothers and fathers. *The Open Sleep Journal*, 6(1), 87-97. doi:10.2174/1874620901306010087
- Morikawa, K., Kim, J. K., & Kano, Y. (2017). Semiparametric maximum likelihood estimation with data missing not at random. *Canadian Journal of Statistics*, 45(4), 393-409.
doi:10.1002/cjs.11340
- Morrell, J. (1999). The role of maternal cognitions in infant sleep problems as assessed by a new instrument, the maternal cognitions about infant sleep questionnaire. *The Journal of Child Psychology and Psychiatry and Allied Disciplines*, 40(2), 247-258.
doi:10.1017/S0021963098003497
- Morrell, J., & Steele, H. (2003). The role of attachment security, temperament, maternal perception, and care-giving behavior in persistent infant sleeping problems. *Infant Mental Health Journal*, 24(5), 447-468. doi:10.1002/imhj.10072
- Morris, A. S., Robinson, L. R., Hays-Grudo, J., Claussen, A. H., Hartwig, S. A., & Treat, A. E. (2017). Targeting parenting in early childhood: A public health approach to improve

outcomes for children living in poverty. *Child Development*, 88(2), 388-397.

doi:10.1111/cdev.12743

Morse, J. M. (1991). Approaches to qualitative-quantitative methodological triangulation.

Nursing Research, 40(2), 120-123. doi:10.1097/00006199-199103000-00014

Morse, J. M., & Niehaus, L. (2009). *Mixed method design: Principles and procedures*. Walnut Creek, Calif: Left Coast Press.

Muscat, T., Obst, P., Cockshaw, W., & Thorpe, K. (2014). Beliefs about infant regulation, early infant behaviors and maternal postnatal depressive symptoms. *Birth*, 41(2), 206-213.

doi:10.1111/birt.12107

Nairn, S. (2014). Nursing and the new biology: Towards a realist, anti-reductionist approach to nursing knowledge: Nursing and the new biology. *Nursing Philosophy*, 15(4), 261-273.

doi:10.1111/nup.12067

Nedelsky, J. (2011). *Law's relations: A relational theory of self, autonomy, and law*. New York: Oxford University Press.

Nedelsky, J. (1999). Dilemmas of passion, privilege and isolation: Reflections on mothering in a white, middle class nuclear family. In *Mother troubles: Rethinking contemporary maternal dilemmas*, ed. J. Hanigsberg and S. Ruddick, 304–334. Boston: Beacon Press.

Newman, C. F. (2011). When clients' morbid avoidance and chronic anger impede their response to cognitive-behavioral therapy for depression. *Cognitive and Behavioral Practice*, 18(3), 350-361.

Ng, R., Ang, R. P., & Ho, M. H. R. (2012). Coping with anxiety, depression, anger and aggression: The mediational role of resilience in adolescents. In *Child & Youth Care Forum* (Vol. 41, No. 6, pp. 529-546). Springer US.

- Nichols, M. R., & Roux, G. M. (2004). Maternal perspectives on postpartum return to the workplace. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, 33(4), 463-471.
- Nishihara, K., & Horiuchi, S. (1998). Changes in sleep patterns of young women from late pregnancy to postpartum: relationships to their infants' movements. *Perceptual and motor skills*, 87(3), 1043-1056.
- Novaco, R.W. (2010). Anger and Psychopathology. In M. Potegal, G. Stemmler, & C. Spielberger (Eds.), *International Handbook of Anger: Constituent and Concomitant Biological, Psychological, and Social Processes* (pp. 465-498). New York, Springer.
- Oates, M. (2003). Perinatal psychiatric disorders: a leading cause of maternal morbidity and mortality. *British medical bulletin*, 67(1), 219-229.
- O'Connor, A., Jackson, L., Goldsmith, L., & Skirton, H. (2014). Can I get a retweet please? health research recruitment and the twittersphere. *Journal of Advanced Nursing*, 70(3), 599-609. doi:10.1111/jan.12222
- O'Hara, M. W., Stuart, S., Watson, D., Dietz, P. M., Farr, S. L., & D'Angelo, D. (2012). Brief scales to detect postpartum depression and anxiety symptoms. *Journal of Women's Health*, 21(12), 1237-1243. doi:10.1089/jwh.2012.3612
- O'Hara, M.W., & Wisner, K.L., (2014). Perinatal mental illness: Definition, description and aetiology. *Best Practice & Research: Clinical Obstetrics & Gynaecology*, 28(1), 3-12. doi:10.1016/j.bpobgyn.2013.09.002
- O'Hara, M.W., & McCabe, J. E. (2013). Postpartum depression: Current status and future directions. *Annual Review of Clinical Psychology*, 9(1), 379-407. doi:10.1146/annurev-clinpsy-050212-185612

- O'Keane, V., Lightman, S., Patrick, K., Marsh, M., Papadopoulos, A. S., Pawlby, S., . . . Moore, R. (2011). Changes in the maternal Hypothalamic-Pituitary-Adrenal axis during the early puerperium may be related to the postpartum 'Blues'. *Journal of Neuroendocrinology*, 23(11), 1149-1155. doi:10.1111/j.1365-2826.2011.02139.x
- Okun, M. L., Luther, J., Prather, A. A., Perel, J. M., Wisniewski, S., & Wisner, K. L. (2010;2011;). Changes in sleep quality, but not hormones predict time to postpartum depression recurrence. *Journal of Affective Disorders*, 130(3), 378-384. doi:10.1016/j.jad.2010.07.015
- Okun, M. L., Mancuso, R. A., Hobel, C. J., Schetter, C. D., & Coussons-Read, M. (2018). Poor sleep quality increases symptoms of depression and anxiety in postpartum women. *Journal of behavioral medicine*, 41(5), 703-710.
- Olshansky, E., & Sereika, S. (2005). The transition from pregnancy to postpartum in previously infertile women: A focus on depression. *Archives of Psychiatric Nursing*, 19(6), 273-280. doi:10.1016/j.apnu.2005.08.003
- Onwuegbuzie, A. J., Slate, J. R., Leech, N. L., & Collins, K. M. (2009). Mixed data analysis: Advanced integration techniques. *International Journal of Multiple Research Approaches*, 3(1), 13-33. doi:10.5172/mra.455.3.1.13
- Ou, C. H., & Hall, W. A. (2018). Anger in the context of postnatal depression: An integrative review. *Birth*. Advanced Online Publication. doi.org/10.1111/birt.12356
- Paavonen, E. J., Saarenpää-Heikkilä, O., Pölkki, P., Kylliäinen, A., Porkka-Heiskanen, T., & Paunio, T. (2017). Maternal and paternal sleep during pregnancy in the Child-sleep birth cohort. *Sleep Medicine*, 29, 47-56.

- Painuly, N. P., Grover, S., Gupta, N., & Mattoo, S. K. (2011). Prevalence of anger attacks in depressive and anxiety disorders: implications for their construct? *Psychiatry and Clinical Neurosciences*, 65(2), 165-174.
- Painuly, N., Sharan, P., & Mattoo, S. K. (2007). Antecedents, concomitants and consequences of anger attacks in depression. *Psychiatry Research*, 153(1), 39-45.
doi:10.1016/j.psychres.2006.03.001
- Parfitt, Y., & Ayers, S. (2012). Postnatal mental health and parenting: The importance of parental anger. *Infant Mental Health Journal*, 33(4), 400-410. doi:10.1002/imhj.21318
- Parfitt, Y., & Ayers, S. (2014). Transition to parenthood and mental health in first-time parents. *Infant Mental Health Journal*, 35(3), 263-273. doi:10.1002/imhj.21443
- Park, E. M., Meltzer-Brody, S., & Stickgold, R. (2013). Poor sleep maintenance and subjective sleep quality are associated with postpartum maternal depression symptom severity. *Archives of Women's Mental Health*, 16(6), 539-547. doi:10.1007/s00737-013-0356-9
- Partonen, T. (2015). Chronotype and health outcomes. *Current Sleep Medicine Reports*, 1(4), 205-211.
- Paruthi, S., Brooks, L. J., D'Ambrosio, C., Hall, W. A., Kotagal, S., Lloyd, R. M., . . . Wise, M. S. (2016). Recommended amount of sleep for pediatric populations: A consensus statement of the american academy of sleep medicine. *Journal of Clinical Sleep Medicine : JCSM : Official Publication of the American Academy of Sleep Medicine*, 12(6), 785-786.
doi:10.5664/jcsm.5866
- Parvin, A., Jones, C. E., & Hull, S.A. (2004). Experiences and understandings of social and emotional distress in the postnatal period among bangladeshi women living in tower hamlets. *Family Practice*, 21(3), 254-260. doi:10.1093/fampra/cmh307

- Paulson, J. F., Bazemore, S. D., Goodman, J. H., & Leiferman, J. A. (2016). The course and interrelationship of maternal and paternal perinatal depression. *Archives of Women's Mental Health, 19*(4), 655-663. doi:10.1007/s00737-016-0598-4
- Pereira, A. I., & Barros, L. (2019). Parental cognitions and motivation to engage in psychological interventions: A systematic review. *Child Psychiatry and Human Development, 50*(3), 347-361. doi:10.1007/s10578-018-0852-2
- Perry-Jenkins, M., & Gerstel, N. (2020). Work and family in the second decade of the 21st century. *Journal of Marriage and Family, 82*(1), 420-453.
- Petts, R. J., & Knoester, C. (2018). Paternity leave-taking and father engagement. *Journal of Marriage and Family, 80*(5), 1144-1162.
- Phillips, R. (2013). *Exploring the salience of anger for new mothers, their partners, and their young offspring* (Doctoral dissertation, Cardiff University).
- Pinquart, M. (2017). Associations of parenting dimensions and styles with externalizing problems of children and adolescents: An updated meta-analysis. *Developmental psychology, 53*(5), 873.
- Polit, D.F., & Beck, C.T. (2008). Nursing research: Generating and assessing evidence for nursing practice (8th ed). Philadelphia: Lippincott, Williams, & Wilkins.
- Posmontier, B. (2008). Sleep quality in women with and without postpartum depression. *Journal of Obstetric, Gynecologic & Neonatal Nursing, 37*(6), 722-737. doi:10.1111/j.1552-6909.2008.00298.x
- Potegal, M., & Novaco, R.W. (2010). A brief history of anger. In M. Potegal, G. Stemmler, & C. Spielberger (Eds.), *International Handbook of Anger: Constituent and Concomitant Biological, Psychological, and Social Processes* (pp. 9-26). New York, Springer.

- Popp, L., Fuths, S., & Schneider, S. (2019). The Relevance of Infant Outcome Measures: A Pilot-RCT Comparing Baby Triple P Positive Parenting Program With Care as Usual. *Frontiers in psychology, 10*, 2425.
- Powell, D. N., & Karraker, K. (2019). Expectations, experiences, and desires: Mothers' perceptions of the division of caregiving and their postnatal adaptation. *Journal of Family Psychology, 33*(4), 401.
- Prail, N., González-Prendes, A. A., & Kernsmith, P. (2015). An exploration of the relationships between attitudes towards anger expression and personal style of anger expression in women in the USA and Canada. *Issues in Mental Health Nursing, 36*(6), 397-406. doi:10.3109/01612840.2014.992082
- Priel, B., & Besser, A. (2000). Dependency and self-criticism among first-time mothers: The roles of global and specific support. *Journal of Social and Clinical Psychology, 19*(4), 437-450.
- Putnam, K., Robertson-Blackmore, E., Sharkey, K., Payne, J., Bergink, V., Munk-Olsen, T., . . . Postpartum Depression: Action Towards Causes and Treatment (PACT) Consortium. (2015). Heterogeneity of postpartum depression: A latent class analysis. *The Lancet. Psychiatry, 2*(1), 59-67. doi:10.1016/S2215-0366(14)00055-8
- Putnick, D. L., Sundaram, R., Bell, E. M., Ghassabian, A., Goldstein, R. B., Robinson, S. L., ... & Yeung, E. (2020). Trajectories of maternal postpartum depressive symptoms. *Pediatrics, 146*(5).
- Richter, D., Krämer, M. D., Tang, N. K., Montgomery-Downs, H. E., & Lemola, S. (2019). Long-term effects of pregnancy and childbirth on sleep satisfaction and duration of first-time and experienced mothers and fathers. *Sleep, 42*(4), zsz015.

- Rizzo, I., & Watsford, C. (2020). The relationship between disconfirmed expectations of motherhood, depression, and mother–infant attachment in the postnatal period. *Australian Psychologist*, 55(6), 686-699.
- Rodney, P., Burgess, M.M., Pauly, B., & Phillips, J.C. (2013). Our theoretical landscape: Complementary approaches to health care ethics. In J. Storch, P. Rodney, & R. Starzomski (Eds.), *Ethical leadership for practice: An advanced sourcebook for nurses and colleagues in health care* (2nd ed.). Upper Saddle River, NJ: Prentice Hall Health.
- Quelopana, A. M. (2012). Violence against women and postpartum depression: The experience of chilean women. *Women & Health*, 52(5), 437-453. doi:10.1080/03630242.2012.687443
- Quillin, I. M. (1997). Infant and mother sleep patterns during 4th postpartum week. *Issues in Comprehensive Pediatric Nursing*, 20(2), 115-123. doi:10.3109/01460869709026882
- Quillin, I. M., & Glenn, L. L. (2004). Interaction between feeding method and Co-Sleeping on Maternal-Newborn sleep. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 33(5), 580-588. doi:10.1177/0884217504269013
- Reid, K. M., & Taylor, M. G. (2015). Social support, stress, and maternal postpartum depression: A comparison of supportive relationships. *Social Science Research*, 54, 246-262.
- Reddy, R., Palmer, C. A., Jackson, C., Farris, S. G., & Alfano, C. A. (2017). Impact of sleep restriction versus idealized sleep on emotional experience, reactivity and regulation in healthy adolescents. *Journal of Sleep Research*, 26(4), 516-525. doi:10.1111/jsr.1248
- Registered Nurses Association of Ontario (RNAO). (2018). *Assessment and Interventions for Perinatal Depression Best Practice Guideline* (2nd ed.). Retrieved from: <https://rnao.ca/bpg/guidelines/assessment-and-interventions-perinatal-depression>

- Reichman, N. E., Corman, H., & Noonan, K. (2015;2014;). Effects of maternal depression on couple relationship status. *Review of Economics of the Household*, 13(4), 929-973.
doi:10.1007/s11150-013-9237-2
- Reynolds, A. C., & Banks, S. (2010). Total sleep deprivation, chronic sleep restriction and sleep disruption. In *Progress in brain research* (Vol. 185, pp. 91-103). Elsevier.
- Rodrigues, M., Patel, V., Jaswal, S., & de Souza, N. (2003). Listening to mothers: Qualitative studies on motherhood and depression from goa, india. *Social Science & Medicine*, 57(10), 1797-1806. doi:10.1016/S0277-9536(03)00062-5
- Rogge, R. D., Bradbury, T. N., Hahlweg, K., Engl, J., & Thurmaier, F. (2006). Predicting marital distress and dissolution: Refining the two-factor hypothesis. *Journal of Family Psychology*, 20(1), 156.
- Roos, L., & Tomfohr-Madsen, L. (2020). Family mental health crisis: Parental depression, anxiety during Covid-19 will affect kids too. Retrieved from:
<https://theconversation.com/family-mental-health-crisis-parental-depression-anxiety-during-covid-19-will-affect-kids-too-144050>
- Rosenblum, O., Mazet, P., & Bénony, H. (1997). Mother and infant affective involvement states and maternal depression. *Infant Mental Health Journal: Official Publication of The World Association for Infant Mental Health*, 18(4), 350-363.
- Ross, C.E., & Van Willigen, M. (1996). Gender, parenthood, and anger. *Journal of Marriage and the Family*, 572-584.
- Ross, L.E., & McLean, L. M. (2006). Anxiety disorders during pregnancy and the postpartum period: A systematic review. *The Journal of Clinical Psychiatry*, 67(8), 1285-1298.
doi:10.4088/JCP.v67n0818

- Rude, S. S., Chrisman, J. G., Burton Denmark, A., & Maestas, K. L. (2012). Expression of direct anger and hostility predict depression symptoms in formerly depressed women. *Canadian Journal of Behavioural Science, 44*(3), 200-209. doi:10.1037/a0027496
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*(1), 68-78. doi:10.1037//0003-066X.55.1.68
- Rychnovsky, J., & Hunter, L. P. (2009). The relationship between sleep characteristics and fatigue in healthy postpartum women. *Women's Health Issues, 19*(1), 38-44. doi:10.1016/j.whi.2008.07.015
- Sadeh, A. (2004). A brief screening questionnaire for infant sleep problems: Validation and findings for an internet sample. *Pediatrics, 113*(6), e570-e577. doi:10.1542/peds.113.6.e570
- Sadeh, A. (2015). Sleep assessment methods: Sleep assessment. *Monographs of the Society for Research in Child Development, 80*(1), 33-48. doi:10.1111/mono.12143
- Sadeh, A., & Anders, T. F. (1993). Infant sleep problems: Origins, assessment, interventions. *Infant Mental Health Journal, 14*(1), 17-34. doi:10.1002/1097-0355(199321)14:1<17::AID-IMHJ2280140103>3.0.CO;2-Q
- Sadeh, A., De Marcas, G., Guri, Y., Berger, A., Tikotzky, L., & Bar-Haim, Y. (2015). Infant sleep predicts attention regulation and behavior problems at 3–4 years of age. *Developmental Neuropsychology, 40*(3), 122-137.
- Sadeh, A., Flint-Ofir, E., Tirosh, T., & Tikotzky, L. (2007). Infant sleep and parental sleep-related cognitions. *Journal of Family Psychology, 21*(1), 74-87. doi:10.1037/0893-3200.21.1.74

- Sadeh, A., Juda-Hanael, M., Livne-Karp, E., Kahn, M., Tikotzky, L., Anders, T. F., ... & Sivan, Y. (2016). Low parental tolerance for infant crying: an underlying factor in infant sleep problems? *Journal of Sleep Research*, 25(5), 501-507.
- Sadeh, A., Mindell, J., & Rivera, L. (2011). "My child has a sleep problem": A cross-cultural comparison of parental definitions. *Sleep Medicine*, 12(5), 478-482.
doi:10.1016/j.sleep.2010.10.008
- Sadeh, A., Mindell, J. A., Luedtke, K., & Wiegand, B. (2009). Sleep and sleep ecology in the first 3 years: A web-based study. *Journal of Sleep Research*, 18(1), 60-73.
doi:10.1111/j.1365-2869.2008.00699.x
- Sadeh, A., Tikotzky, L., & Scher, A. (2010). Parenting and infant sleep. *Sleep Medicine Reviews*, 14(2), 89-96. doi:10.1016/j.smr.2009.05.003
- Sadler, G. R., Lee, H., Lim, R. S., & Fullerton, J. (2010). Recruitment of hard-to-reach population subgroups via adaptations of the snowball sampling strategy. *Nursing & Health Sciences*, 12(3), 369. doi:10.1111/j.1442-2018.2010.00541.x
- Saha, S., Lim, C. C., Cannon, D. L., Burton, L., Bremner, M., Cosgrove, P., ... & McGrath, J. (2020). Co-morbidity between mood and anxiety disorders: A systematic review and meta-analysis. *Depression and anxiety*
- Saxbe, D., Rossin-Slater, M., & Goldenberg, D. (2018). The transition to parenthood as a critical window for adult health. *American Psychologist*, 73(9), 1190.
- Saxbe, D. E., Schetter, C. D., Guardino, C. M., Ramey, S. L., Shalowitz, M. U., Thorp, J., . . . Eunice Kennedy Shriver National Institute for Child Health and Human Development Community Child Health Network. (2016). Sleep quality predicts persistence of parental

- postpartum depressive symptoms and transmission of depressive symptoms from mothers to fathers. *Annals of Behavioral Medicine*, 50(6), 862-875. doi:10.1007/s12160-016-9815-
- Schamborg, S., Tully, R. J., & Browne, K. D. (2016). The use of the State–Trait anger expression Inventory–II with forensic populations: A psychometric critique. *International Journal of Offender Therapy and Comparative Criminology*, 60(11), 1239-1256. doi:10.1177/0306624X15577932
- Schatten, H. T., Gaudiano, B. A., Primack, J. M., Arias, S. A., Arney, M. F., Miller, I. W., ... & Weinstock, L. M. (2020). Monitoring, assessing, and responding to suicide risk in clinical research. *Journal of abnormal psychology*, 129(1), 64.
- Schiller, C. E., Meltzer-Brody, S., & Rubinow, D. R. (2015). The role of reproductive hormones in postpartum depression. *CNS spectrums*, 20(1), 48.
- Seah, C. K. F., & Morawska, A. (2016). When mum is stressed, is dad just as stressed? Predictors of paternal stress in the first six months of having a baby. *Infant Mental Health Journal*, 37(1), 45-55. doi:10.1002/imhj.21546
- Sedov, I. D., Cameron, E. E., Madigan, S., & Tomfohr-Madsen, L. M. (2018). Sleep quality during pregnancy: A meta-analysis. *Sleep Medicine Reviews*. <https://doi.org/10.1016/j.smr.2017.06.005>
- Seimyr, L., Welles-Nyström, B., & Nissen, E. (2013). A history of mental health problems may predict maternal distress in women postpartum. *Midwifery*, 29(2), 122-131. doi:10.1016/j.midw.2011.11.013
- Sevón, E. (2012). ‘My life has changed, but his life hasn’t’: Making sense of the gendering of parenthood during the transition to motherhood. *Feminism & Psychology*, 22(1), 60-80.

Sexton, M. B., Flynn, H. A., Lancaster, C., Marcus, S. M., McDonough, S. C., Volling, B. L., . . .

Vazquez, D. M. (2012). Predictors of recovery from prenatal depressive symptoms from pregnancy through postpartum. *Journal of Women's Health, 21*(1), 43-49.

doi:10.1089/jwh.2010.2266

Shapiro, A. F., & Gottman, J. M. (2005). Effects on marriage of a psycho-communicative-educational intervention with couples undergoing the transition to parenthood, evaluation at 1-year post intervention. *Journal of Family Communication, 5*(1), 1-24.

doi:10.1207/s15327698jfc0501_1

Sharkin, B. S. (1993). Anger and gender: Theory, research, and implications. *Journal of Counseling & Development, 71*(4), 386-389. doi:10.1002/j.1556-6676.1993.tb02653.x

Shay, N. L., & Knutson, J. F. (2008). Maternal depression and trait anger as risk factors for escalated physical discipline. *Child Maltreatment, 13*(1), 39-49.

doi:10.1177/1077559507310611

Sherwin, S. (1992). *No longer patient: Feminist ethics and health care*. Philadelphia: Temple University Press.

Sherwin, S., & Stockdale, K. (2017). Whither bioethics now?: The promise of relational theory. *International Journal of Feminist Approaches to Bioethics, 10*(1), 7-29.

doi:10.3138/ijfab.10.1.7

Siegel, J. M. (2001). The REM sleep-memory consolidation hypothesis. *Science, 294*(5544), 1058-1063. doi:10.1126/science.1063049

Silber, M. H., Krahn, L. E., & Morgenthaler, T. I. (2010). *Sleep medicine in clinical practice* (2nd ed.). New York: Informa Healthcare

- Sinai, D., & Tikotzky, L. (2012). Infant sleep, parental sleep and parenting stress in families of mothers on maternity leave and in families of working mothers. *Infant Behavior and Development*, 35(2), 179-186. doi:10.1016/j.infbeh.2012.01.006
- Singer, E., & Bossarte, R. M. (2006). Incentives for survey participation: when are they “coercive”? *American Journal of Preventive Medicine*, 31(5), 411-418.
- Singer, E., & Couper, M. P. (2008). Do incentives exert undue influence on survey participation? Experimental evidence. *Journal of Empirical Research on Human Research Ethics*, 3(3), 49-56.
- Sivertsen, B., Hysing, M., Dørheim, S. K., & Eberhard-Gran, M. (2015). Trajectories of maternal sleep problems before and after childbirth: a longitudinal population-based study. *BMC Pregnancy and Childbirth*, 15(1), 129.
- Skuladottir, A., Sigurdardottir, A. O., & Svavarsdottir, E. K. (2020). The better sleep better well-being programme: Educating and training community healthcare nurses in developing interventions for families of infants with moderate sleep problems: a pilot study. *Scandinavian Journal of Caring Sciences*.
- Smith, E. K., Gopalan, P., Glance, J. B., & Azzam, P. N. (2016). Postpartum depression screening: A review for psychiatrists. *Harvard Review of Psychiatry*, 24(3), 173-187. doi:10.1097/HRP.0000000000000103
- Sockol, L. E. (2015). A systematic review of the efficacy of cognitive behavioral therapy for treating and preventing perinatal depression. *Journal of Affective Disorders*, 177, 7-21.
- Sockol, L. E. (2018). A systematic review and meta-analysis of interpersonal psychotherapy for perinatal women. *Journal of affective disorders*, 232, 316-328.

- Sperlich, M., Seng, J. S., Li, Y., Taylor, J., & Bradbury-Jones, C. (2017). Integrating trauma-informed care into maternity care practice: conceptual and practical issues. *Journal of midwifery & women's health*, 62(6), 661-672.
- Spielberger, C. D. (1999). Manual for the State-Trait Anger Expression Inventory–2. Odessa, FL: Psychological Assessment Resources.
- Spielberger, C., & Reheiser, E.C., (2010). The nature and measurement of anger. In M. Potegal, G. Stemmler, & C. Spielberger (Eds.), *International Handbook of Anger: Constituent and Concomitant Biological, Psychological, and Social Processes* (pp. 403-412). New York, Springer.
- Staneva, A., & Wittkowski, A. (2013). Exploring beliefs and expectations about motherhood in Bulgarian mothers: a qualitative study. *Midwifery*, 29(3), 260-267.
- Starcevic, V. (2007). Dysphoric about dysphoria: Towards a greater conceptual clarity of the term. *Australasian Psychiatry*, 15(1), 9-13. doi:10.1080/10398560601083035
- Statistics Canada. (2017). *Education in Canada: Key results from the 2016 census*. Retrieved from: <https://www150.statcan.gc.ca/n1/daily-quotidien/171129/dq171129a-eng.htm>
- Statistics Canada. (2017). *Immigration and ethnocultural diversity: Key results from the 2016 census*. Retrieved from: <https://www150.statcan.gc.ca/n1/daily-quotidien/171025/dq171025b-eng.htm?indid=14428-3&indgeo=0>
- Statistics Canada. (2018). *Canadian income survey, 2018*. Retrieved from: <https://www150.statcan.gc.ca/n1/daily-quotidien/200224/dq200224a-eng.htm>
- Statistics Canada. (2019). *Canadian internet use survey*. Retrieved from: <https://www150.statcan.gc.ca/n1/daily-quotidien/191029/dq191029a-eng.htm>
- Statistics Canada. (2019). *Maternal mental health in Canada, 2018/2019*. Retrieved from:

<https://www150.statcan.gc.ca/n1/daily-quotidien/190624/dq190624b-eng.htm>

Statistics Canada. (2020). *Canadian income survey 2018*. Retrieved from:

<https://www150.statcan.gc.ca/n1/daily-quotidien/200224/dq200224a-eng.htm>

Statistics Canada. (2020). *Education in Canada: Key results from the 2016 census*.

Retrieved from: <https://www150.statcan.gc.ca/n1/daily-quotidien/171129/dq171129a-eng.htm>

Stepanski, E. (2002). The effect of sleep fragmentation on daytime function. *Sleep*, 25(3), 268-276. doi:10.1093/sleep/25.3.268

Stewart, D. E., & Vigod, S. N. (2019). Postpartum depression: pathophysiology, treatment, and emerging therapeutics. *Annual Review of Medicine*, 70, 183-196.

Sterne, J. A. C., White, I. R., Carlin, J. B., Spratt, M., Royston, P., Kenward, M. G., . . .

Carpenter, J. R. (2009). Multiple imputation for missing data in epidemiological and clinical research: Potential and pitfalls. *Bmj*, 338 doi:10.1136/bmj.b2393

Stoppard, J.M. (2000). *Understanding depression: feminist social constructionist approaches*. London: Routledge.

Storbeck, J., & Clore, G. L. (2007). On the interdependence of cognition and emotion. *Cognition & Emotion*, 21(6), 1212-1237. doi:10.1080/02699930701438020

Stremmler, R., McMurray, J., & Brennenstuhl, S. (2019). Self-reported sleep quality and actigraphic measures of sleep in new mothers and the relationship to postpartum depressive symptoms. *Behavioral Sleep Medicine*, 18(3), 396-405.
doi:10.1080/15402002.2019.1601629

- Stremler, R., Wolfson, A., Sharkey, K. (2016). Postpartum period and early motherhood. In M. Kryger, T. Roth, & W.C. Dement (Eds.), *Principles and Practice of Sleep Medicine* (6th ed., pp.1548-1552). Philadelphia: Elsevier Saunders.
- Sullivan, L., & Niker, F. (2018). Relational autonomy, paternalism, and maternalism. *Ethical Theory and Moral Practice*, , 1-19. doi:10.1007/s10677-018-9900-z
- Stephens, S., Ford, E., Paudyal, P., & Smith, H. (2016). Effectiveness of psychological interventions for postnatal depression in primary care: a meta-analysis. *The Annals of Family Medicine*, 14(5), 463-472.
- Swain, A. M., O'Hara, M. W., Starr, K. R., & Gorman, L. L. (1997). A prospective study of sleep, mood, and cognitive function in postpartum and nonpostpartum women. *Obstetrics & Gynecology*, 90(3), 381-386. doi:10.1016/S0029-7844(97)89252-6
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Boston: Pearson Education.
- Tan, M. T., & Hall, W. (2007). Beyond theoretical and methodological pluralism in interpretive is research: the example of symbolic interactionist ethnography. *Communications of the Association for Information Systems*, 19(1), 26.
- Tashakkori, A., & Creswell, J. W. (2007). Editorial: The new era of mixed methods. *Journal of Mixed Methods Research*, 1(1), 3-7. doi:10.1177/2345678906293042
- Tashakkori, A., & Teddlie, C. (2008). Quality of inferences in mixed methods research: Calling for an integrative framework. In M. Bergman *Advances in Mixed Methods Research: Theories and Application*, pp. 101-119. London, UK: Sage.
- Tashakkori, A., & Teddlie, C. (2010). *Sage handbook of mixed methods in social & behavioral research* (2nd ed.). Los Angeles: Sage.

- Tavris, C. (1989). *Anger: The misunderstood emotion* (Rev. ed.). New York: Simon & Schuster.
- Taylor, B., Cavanagh, K., & Strauss, C. (2016). The effectiveness of mindfulness-based interventions in the perinatal period: a systematic review and meta-analysis. *PloS one*, *11*(5), e0155720.
- Teti, D. M., & Crosby, B. (2012). Maternal depressive symptoms, dysfunctional cognitions, and infant night waking: The role of maternal nighttime behavior. *Child Development*, *83*(3), 939-953. doi:10.1111/j.1467-8624.2012.01760.x
- Teti, D. M., Gelfand, D. M., Messinger, D. S., & Isabella, R. (1995). Maternal depression and the quality of early attachment: An examination of infants, preschoolers, and their mothers. *Developmental Psychology*, *31*(3), 364-376. doi:10.1037//0012-1649.31.3.364
- Teti, D. M., Kim, B. R., Mayer, G., & Countermine, M. (2010). Maternal emotional availability at bedtime predicts infant sleep quality. *Journal of Family Psychology*, *24*(3), 307.
- Thomas, K. A., & Burr, R. L. (2006). Melatonin level and pattern in postpartum versus nonpregnant nulliparous women. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, *35*(5), 608-615. doi:10.1111/j.1552-6909.2006.00082.x
- Thomas, K. A., & Foreman, S. W. (2005). Infant sleep and feeding pattern: Effects on maternal sleep. *Journal of Midwifery and Women's Health*, *50*(5), 399-404. doi:10.1016/j.jmwh.2005.04.010
- Thomas, K. A., & Spieker, S. (2016). Sleep, depression, and fatigue in late postpartum. *MCN, the American Journal of Maternal/Child Nursing*, *41*(2), 104-109. doi:10.1097/NMC.0000000000000213

- Thomas, S. A., & Gonzalez-Prendes, A. A. (2009). Powerlessness, anger, and stress in African American women: Implications for physical and emotional health. *Health care for women international*, 30(1-2), 93-113.
- Thomas, S. P. (2005). Women's anger, aggression, and violence. *Health Care for Women International*, 26(6), 504-522. doi:10.1080/07399330590962636
- Tietz, A., Zietlow, A., & Reck, C. (2014). Maternal bonding in mothers with postpartum anxiety disorder: The crucial role of subclinical depressive symptoms and maternal avoidance behaviour. *Archives of Women's Mental Health*, 17(5), 433-442. doi:10.1007/s00737-014-0423-x
- Tikotzky, L. (2017). Parenting and sleep in early childhood. *Current Opinion in psychology*, 15, 118-124.
- Tikotzky, L., & Sadeh, A. (2009). Maternal sleep-related cognitions and infant sleep: A longitudinal study from pregnancy through the 1st Year. *Child development*, 80(3), 860-874.
- Tikotzky, L., Sadeh, A., Volkovich, E., Manber, R., Meiri, G., & Shahar, G. (2015). VII. Infant sleep development from 3 to 6 months postpartum: Links with maternal sleep and paternal involvement. *Monographs of the Society for Research in Child Development*, 80(1), 107-124.
- Tobe, H., Kita, S., Hayashi, M., Umeshita, K., & Kamibeppu, K. (2020). Mediating effect of resilience during pregnancy on the association between maternal trait anger and postnatal depression. *Comprehensive Psychiatry*, 102, 152190-152190. doi:10.1016/j.comppsy.2020.152190

- Topolovec-Vranic, J., & Natarajan, K. (2016). The use of social media in recruitment for medical research studies: A scoping review. *Journal of Medical Internet Research*, 18(11), e286. doi:10.2196/jmir.5698
- Tri-Council: CIHR, NSERC, & SSHRC. (2018). Tri-Council policy statement: Ethical conduct for research involving humans. Retrieved from: <https://ethics.gc.ca/eng/documents/tcps2-2018-en-interactive-final.pdf>
- Tronick, E. Z., Beeghly, M., Weinberg, M. K., & Olson, K. L. (1997). Postpartum exuberance: Not all women in a highly positive emotional state in the postpartum period are denying depression and distress. *Infant Mental Health Journal*, 18(4), 406-423. doi:10.1002/(SICI)1097-0355(199724)18:4<406::AID-IMHJ7>3.0.CO;2-I
- Turcotte-Seabury, C. A. (2010). Anger management and the process mediating the link between witnessing violence between parents and partner violence. *Violence and Victims*, 25(3), 306-318. doi:10.1891/0886-6708.25.3.306
- UBC Behavioral Research Ethics Board. (2012). Guidelines for Research using Social Networking Sites. Retrieved from: https://ethics.research.ubc.ca/sites/ore.ubc.ca/files/documents/social_networking_sites-GN-June_2012.pdf
- UBC Behavioral Research Ethics Board. (2019). Suicide Risk Guidance. Retrieved from: <https://ethics.research.ubc.ca/sites/ore.ubc.ca/files/documents/Suicidal%20Risk%20Guidance.Jan-2019.pdf>
- Ugariza, D. N. (2002). Postpartum depressed women's explanation of depression. *Journal of Nursing Scholarship*, 34(3), 227-233. doi:10.1111/j.1547-5069.2002.00227.x

- Urindwanayo, D. (2018). Immigrant women's mental health in Canada in the antenatal and postpartum period. *Canadian Journal of Nursing Research*, 50(3), 155-162.
doi:10.1177/0844562118784811
- Veltman, A., & Piper, M. (Eds.). (2014). *Autonomy, Oppression, and Gender*. New York, Oxford University Press.
- Venkatesh, V., Brown, S. A., & Bala, H. (2013). Bridging the qualitative-quantitative divide: Guidelines for conducting mixed methods research in information systems. *MIS Quarterly*, 37(1), 21-54. doi:10.25300/MISQ/2013/37.1.02
- Viveiros, C. J., & Darling, E. K. (2019). Perceptions of barriers to accessing perinatal mental health care in midwifery: A scoping review. *Midwifery*, 70, 106-118.
- Vliegen, N., Casalin, S., Luyten, P., Docx, R., Lenaerts, M., Tang, E., & Kempke, S. (2013). Hospitalization-based treatment for postpartum depressed mothers and their babies: rationale, principles, and preliminary follow-up data. *Psychiatry: Interpersonal & Biological Processes*, 76(2), 150-168.
- Vliegen, N., & Luyten, P. (2008). The role of dependency and self-criticism in the relationship between postpartum depression and anger. *Personality and Individual Differences*, 45(1), 34-40. doi:10.1016/j.paid.2008.02.015
- Watanabe, M., Wada, K., Sakata, Y., Aratake, Y., Kato, N., Ohta, H., & Tanaka, K. (2008). Maternity blues as predictor of postpartum depression: a prospective cohort study among Japanese women. *Journal of Psychosomatic Obstetrics & Gynecology*, 29(3), 211-217.
- Watson, N. F., Badr, M. S., Belenky, G., Bliwise, D. L., Buxton, O. M., Buysse, D., . . . Tasali, E. (2015). Recommended amount of sleep for a healthy adult: A joint consensus statement

- of the american academy of sleep medicine and sleep research society. *Sleep*, 38(6), 843.
doi:10.5665/sleep.4716
- Weinberg, M. K., Noble, J. M., & Hammond, T. G. (2016). Sleep well feel well: An investigation into the protective value of sleep quality on subjective well-being. *Australian Journal of Psychology*, 68(2), 91-97. doi:10.1111/ajpy.12098
- Weinberg, M. K., Tronick, E. Z., Beeghly, M., Olson, K. L., Kernan, H., & Riley, J. M. (2001). Subsyndromal depressive symptoms and major depression in postpartum women. *American Journal of Orthopsychiatry*, 71(1), 87-97. doi:10.1037/0002-9432.71.1.87
- Weinraub, M., Bender, R. H., Friedman, S. L., Susman, E. J., Knoke, B., Bradley, R., . . . Williams, J. (2012). Patterns of developmental change in infants' nighttime sleep awakenings from 6 through 36 months of age. *Developmental Psychology*, 48(6), 1511-1528. doi:10.1037/a0027680
- Weiss-Laxer, N. S., Crandall, A., Hughes, M. E., & Riley, A. W. (2020). Families as a Cornerstone in 21st Century Public Health: Recommendations for Research, Education, Policy, and Practice. *Frontiers in Public Health*, 8.
- Wells, J. D., Hobfoll, S. E., & Lavin, J. (1999). When it rains, it pours: The greater impact of resource loss compared to gain on psychological distress. *Personality and Social Psychology Bulletin*, 25(9), 1172-1182. doi:10.1177/01461672992512010
- Wesensten, N. J., Balkin, T. J., & Belenky, G. (1999). Does sleep fragmentation impact recuperation? A review and reanalysis. *Journal of Sleep Research*, 8(4), 237-245. doi:10.1046/j.1365-2869.1999.00161.x

- Wichmann, S.S. (2011). Self-determination theory: The importance of autonomy to well-being across cultures. *The Journal of Humanistic Counseling*, 50(1), 16-26. doi:10.1002/j.2161-1939.2011.tb00103.x
- Wilcox, R. R., & Keselman, H. J. (2004). Robust Regression Methods: Achieving Small Standard Errors When There Is Heteroscedasticity. *Understanding Statistics*, 3(4), 349–364. https://doi.org/10.1207/s15328031us0304_8
- Wilson, N., Lee, J. J., & Bei, B. (2019). Postpartum fatigue and depression: a systematic review and meta-analysis. *Journal of Affective Disorders*, 246, 224-233.
- Williamson, J. A., O'Hara, M. W., Stuart, S., Hart, K. J., & Watson, D. (2015). Assessment of postpartum depressive symptoms: The importance of somatic symptoms and irritability. *Assessment*, 22(3), 309-318. doi:10.1177/1073191114544357
- Wisner, K. L., Sit, D. K., McShea, M. C., Rizzo, D. M., Zoretich, R. A., Hughes, C. L., ... & Hanusa, B. H. (2013). Onset timing, thoughts of self-harm, and diagnoses in postpartum women with screen-positive depression findings. *JAMA psychiatry*, 70(5), 490-498.
- Wisner, K. L., Sit, D. K., McShea, M. C., Rizzo, D. M., Zoretich, R. A., Hughes, C. L., ... & Hanusa, B. H. (2013). Onset timing, thoughts of self-harm, and diagnoses in postpartum women with screen-positive depression findings. *JAMA psychiatry*, 70(5), 490-498.
- Wood, A. F., Thomas, S. P., Droppleman, P. G., & Meighan, M. M. (1997). The downward spiral of postpartum depression. *MCN: The American Journal of Maternal/Child Nursing*, 22(6), 308-316.
- World Health Organization. (2010). WHO technical consultation on postpartum and postnatal care. Retrieved from: https://apps.who.int/iris/bitstream/handle/10665/70432/WHO_MPS_10.03_eng.pdf

- Wynter, K., Francis, L., Fletcher, R., McBride, N., Dowse, E., Wilson, N., ... & Australian Fatherhood Research Consortium. (2020). Sleep, mental health and wellbeing among fathers of infants up to one year postpartum: A scoping review. *Midwifery*, 102738.
- Yawn, B. P., Dietrich, A. J., Wollan, P., Bertram, S., Graham, D., Huff, J., ... & TRIPPD practices. (2012). TRIPPD: a practice-based network effectiveness study of postpartum depression screening and management. *The Annals of Family Medicine*, 10(4), 320-329. doi:10.1370/afm.141
- Yim, I. S., Tanner Stapleton, L. R., Guardino, C. M., Hahn-Holbrook, J., & Dunkel Schetter, C. (2015). Biological and psychosocial predictors of postpartum depression: Systematic review and call for integration. *Annual Review of Clinical Psychology*, 11(1), 99-137. doi:10.1146/annurev-clinpsy-101414-020426\
- York, R., Volpicelli, J., Brooten, D., Charche, D., & Speicher, M. (1992). Mood disturbances during pregnancy and postpartum. *The Journal of Perinatal Education*, 1, 13-20.
- Zaidman-Zait, A., & Hall, W. A. (2015). Children's night waking among toddlers: Relationships with mothers' and fathers' parenting approaches and children's behavioural difficulties. *Journal of Advanced Nursing*, 71(7), 1639-1649. doi:10.1111/jan.12636
- Zelkowitz, P., & Milet, T. H. (1996). Postpartum psychiatric disorders: Their relationship to psychological adjustment and marital satisfaction in the spouses. *Journal of Abnormal Psychology*, 105(2), 281-285. doi:10.1037/0021-843X.10

Appendices

Appendix A

MBS Screening Info and Questions

Start of Block: MBS Study Info

Q1 Parent Cover Letter for Screening Questions: Examining Maternal and Infant Sleep Quality and Maternal Emotions

Dear Parent, We want to know about your sleep and your baby's sleep and how your quality of sleep affects you. We invite you to participate in an online survey study.

Who is conducting the study?

Principal Investigator: Wendy A. Hall, RN, PhD, Professor Emeritus, University of British Columbia School of Nursing. Phone: 604-822-7447 Email: wendy.hall@nursing.ubc.ca

Co-Investigator(s): Christine Ou, RN, MSN, Doctoral student, University of British Columbia School of Nursing. Phone: 236-999-5700 Email: christine.ou@alumni.ubc.ca

What will I be asked to do? Before you can fill out the online survey, we will first ask you a set of screening questions that will take less than 5 minutes. If you meet the study requirements, you will be sent a link to the actual survey, which would take about 30 minutes to complete. You do not have to complete the entire survey at one time and you will have up to one week to complete the survey.

How will my privacy be maintained? All of your answers to the screening questions will remain private and anonymous. We will not keep or use the answers from the screening questions. We will tell you more about how we will protect your confidentiality for the online survey later if you meet the study requirements.

Can I tell other people about the study? We would appreciate if you would be willing to tell friends or acquaintances that may be eligible and interested in participating in this study. Please be aware that liking,

sharing, or following this page via social media (Facebook, Twitter) may result in your profile being publicly linked to this study, depending on your privacy settings.

What are the risks and benefits? There are no expected harms or benefits to answering the screening questions. We will tell you more about the online survey benefits and risks if you meet the study requirements and would like to complete the online survey.

Do I have to participate? We want you to know that you do not have to take part and you can decide to stop at anytime in the process.

Compensation There is no compensation for completing the screening questions. However, if you meet the study requirements, choose to continue on to the online survey, and provide your email address, you will be entered into a draw to win a \$50.00 Amazon gift certificate (10 prizes available).

How will I be informed of study results? A summary of the study results will be posted on the Mom and Baby Sleep Facebook page.

Who can I contact if you have questions about the study? If you have any questions or want more information about this study, you may contact the investigators listed above.

What are my research rights? If you are interested in participating, please click the 'I agree' button. In no way does this waive your legal rights or release the investigators, sponsors, or those involved from their legal and professional responsibilities. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Q2 By clicking on the box below, you acknowledge you have read the above and want to proceed to the screening questions.

- ☐ Yes, I would like to proceed to the screening questions (1)
- ☐ No, I do not want to proceed to the screening questions (2)

Skip To: End of Survey If By clicking on the box below, you acknowledge you have read the above and want to proceed to the... = No, I do not want to proceed to the screening questions

End of Block: MBS Study Info

Start of Block: Block 3

Q18 Please enter your email so that you can be sent the survey if you meet the study requirements.

End of Block: Block 3

Start of Block: Screening Questions

Q3 Do you live in Canada?

☐ Yes (1)

☐ No (2)

Q4 Are you 18 years of age or over?

☐ Yes (1)

☐ No (2)

Q5 Is your baby between 6 to 12 months of age?

☐ Yes (1)

☐ No (2)

Q6 Are you the biological parent of your baby?

☐ Yes (1)

☐ No (2)

Q7

Do you have a diagnosed sleep problems or chronic health conditions that affect your sleep?

☐ Yes (1)

☐ No (2)

Q8 Do you currently take prescribed medications for sleep?

☐ Yes (1)

☐ No (2)

Q9 Was your baby born full-term?

☐ Yes (1)

☐ No (2)

Q10 Is your baby free from serious health problems? (e.g., cardiac or neurological problems)

☐ Yes (1)

☐ No (2)

Q11 Do you consider your child's sleep as a problem?

- ☐ A very serious problem (1)
 - ☐ A small to moderate problem (2)
 - ☐ Not a problem at all (3)
-

Q13 **Before** your pregnancy with this baby, have you ever been diagnosed with depression or prescribed antidepressants?

- ☐ Yes (1)
 - ☐ No (2)
-

Q14 **During** your pregnancy with this baby, have you ever been diagnosed with depression or prescribed antidepressants?

- ☐ Yes (1)
 - ☐ No (2)
-

Q15 Do you currently work night shifts?

- ☐ Yes (1)
- ☐ No (2)

End of Block: Screening Questions

Start of Block: Block 4

Display This Question:

If Do you live in Canada? = Yes

And Are you 18 years of age or over? = Yes

And Is your baby between 6 to 12 months of age? = Yes

And Are you the biological parent of your baby? = Yes

And Do you have a diagnosed sleep problems or chronic health conditions that affect your sleep? = No

And Do you currently take prescribed medications for sleep? = No

And Was your baby born full-term? = Yes

And Is your baby free from serious health problems? (e.g., cardiac or neurological problems) = Yes

And Before your pregnancy with this baby, have you ever been diagnosed with depression or prescribed... = No

And During your pregnancy with this baby, have you ever been diagnosed with depression or prescribed... = No

And Do you currently work night shifts? = No

Q18 You meet the requirements for taking part in the study. The link to the full survey will be sent to your email shortly. Thank you for answering the screening questions!

End of Block: Block 4

Start of Block: Email

Appendix B

Study Advertisement

Mom & Baby Sleep

We want to know about your sleep and your baby's sleep and how your quality of sleep affects you.

What is the goal of the study?

We are looking at how mothers' and infants' sleep quality affect maternal mood and wellbeing.

You are eligible to participate if you:

- ☐ Are over 18 years of age
- ☐ Gave birth to a baby who is now 6-12 months of age
- ☐ Speak English

What is involved in the study?

The study involves completing an online survey that will take about 30 minutes of your time. Your privacy and confidentiality will be protected.



You can be entered into a draw for a \$50.00 Amazon gift card: 10 available!

There is a second and *optional* part of the study that you may be eligible to be invited for. The second part of the study involves a 30-60 minute phone interview that explores your feelings after the birth of your baby. For participating, you can receive a \$25 gift card to Amazon, Starbucks, or Tim Horton's.

If you know any other mothers of infants between 6-12 months of age who might be interested in participating in this study, please feel welcome to tell them about this study.

Find us on Facebook – “Mom and Baby Sleep Study”

For more information, please contact:

Doctoral student: Christine Ou, (236) 999-5700 or christine.ou@alumni.ubc.ca

Principal Investigator: Dr. Wendy A. Hall, RN, PhD (604) 822-7447 wendy.hall@nursing.ubc.ca

Appendix C

MBS Survey

Start of Block: Information Letter

Q1 Parent Study Cover Letter: Examining Maternal and Infant Sleep Quality and Maternal Emotions

Dear Parent, Thank you for completing the screening questions. We want to know about your sleep and your baby's sleep and how your quality of sleep affects you. We invite you to complete this survey. If you are interested, you may also be invited to participate in a telephone interview about mood after childbirth.

Who is conducting the study?

Principal Investigator: Wendy A. Hall, RN, PhD, Professor Emeritus, University of British Columbia School of Nursing. Phone: 604-822-7447 Email: wendy.hall@nursing.ubc.ca

Co-Investigator(s): Christine Ou, RN, MSN, Doctoral student, University of British Columbia School of Nursing. Phone: 236-999-5700 Email: christine.ou@alumni.ubc.ca

Why are we doing this study? You are being invited to take part in this research study because we want to understand how maternal well-being is influenced by sleep and the results may give us ideas about how we might improve maternal and infant well-being through attention to sleep.

What will I be asked to do? We are asking that you complete this survey, which will take about 30 minutes of your time. You can do this survey on a computer or smartphone when it is convenient for you. On the same device, you may start the survey and complete it at another time (within a week) if you get interrupted.

At the end of the survey, you will also be asked if you are interested in being invited to a second part of this study. The second part of the study would involve a 30-60 minute phone interview about your mood following the birth of your baby. This part of the study is completely optional. If you are interested, Christine Ou will contact you to explain the study and provide you with a consent form.

Q2 How will my privacy be maintained? Information shared while participating in this study will be kept private. Your answers will be linked to a study ID and will not be linked to your name or email. Only study team members will have access to study data. All efforts to maintain confidentiality will be taken. No individual results will be reported. The online survey results are maintained on a secure Canadian server that complies with Freedom of Information and Privacy Policy Act (FIPPA). The data from this study will be kept for a minimum of five years. All paper documents and electronic materials containing any contact information (e.g., email) will be destroyed after five years. At the time of publication, we may be required to make all of the raw data publicly available. The raw data will not have any information that will identify you or any other individual. Once the data is publicly available, you will not be able to withdraw the data.

Can I tell other people about the study? We would appreciate if you would be willing to tell friends or acquaintances that may be eligible and interested in participating in this study. You are under no obligation to share this information and whether or not you share this information will not affect your participation in this study or your relationship with the researchers. Please be aware that liking, sharing, or following this page via social media

(Facebook, Twitter) may result in your profile being publicly linked to this study, depending on your privacy settings.

How will the results of the study be used? A summary of the study results will be posted on the Mom and Baby Sleep Facebook page. The results of this study will be published in academic journals and presented at conferences.

What are the benefits of participating in this study? A potential benefit to participating in this study is the opportunity for you to reflect on your quality of sleep, your infant's quality of sleep, your thoughts about your child's sleep, and your mood. The results of this study may also help to improve awareness about the importance of supporting parents and infants to achieve good quality sleep.

What are the risks of participating in this study? We do not think there is anything in this study that could harm you. However, some of the questions we ask may seem sensitive or personal. For example, some of the questions are about your mental health state. This study does not allow us to link an individual participant with their responses so we cannot identify whether you might require some assistance. If you would like to talk to someone about how you are feeling, please call the local resources on the list of Canadian resources we are providing *at the end of the survey*. If you feel distressed by any of these questions, we encourage you to seek support from your health care provider and family and friends. You do not have to answer any question you do not want to and you may withdraw from the study at anytime.

Q3 Compensation There is no compensation. However, if you provide your email contact, you will be entered into a draw to win a \$50.00 Amazon gift certificate (10 prizes available).

Who can you contact if you have questions about the study? If you have any questions or desire further information about this study, you may contact the investigators listed above.

What are my research rights? If you are interested in participating, please click the 'I agree' button. Completion of the survey indicates that you have agreed to take part in this research and for your responses to be used. In no way does this waive your legal rights or release the investigators, sponsors, or those involved from their legal and professional responsibilities. If you have any concerns or complaints about your rights as a research participant and/or your experiences while participating in this study, contact the Research Participant Complaint Line in the UBC Office of Research Ethics at 604-822-8598 or if long distance e-mail RSIL@ors.ubc.ca or call toll free 1-877-822-8598.

Consent Your participation in this study is completely voluntary. You have the right to refuse to participate in this study. Completion of the survey indicates that you give your consent to participate. You may choose to pull out of the study at **anytime** without giving a reason by exiting the survey. Your partially completed survey data may still be used.

Q4 I have read the information above and I agree to start the survey

☐ Yes (1)

☐ No (2)

Skip To: End of Survey If I have read the information above and I agree to start the survey = No

End of Block: Information Letter

Start of Block: Demographics

Q6 What is your age?

Age (1)

▼ 18 (1) ... 75 (58)

Q8

How old is your baby?

Select number of months old (14)

▼ 6 months (1) ... 12 months (7)

Q10 What is the sex of your baby?

☐ Female (1)

☐ Male (2)

Q14

How many children do you have living in your household?

Please select number of children.

▼ 1 (5) ... 6 or more (10)

Q16 Where does your baby fit in the birth order?

☐ 1st (1)

☐ 2nd (2)

☐ 3rd (3)

☐ 4th (4)

☐ 5th (5)

☐ Other (8) _____

Q12 Please select the province or territory you live in.

- ☐ Alberta (1)
 - ☐ British Columbia (2)
 - ☐ Manitoba (3)
 - ☐ New Brunswick (11)
 - ☐ Newfoundland and Labrador (12)
 - ☐ Northwest Territories (8)
 - ☐ Nova Scotia (13)
 - ☐ Nunavut (9)
 - ☐ Ontario (4)
 - ☐ Prince Edward Island (5)
 - ☐ Quebec (6)
 - ☐ Saskatchewan (7)
 - ☐ Yukon (10)
-

Q19 What is your highest level of education? Select one answer below.

- ☐ Elementary school (K-7) completed (1)
 - ☐ Some high school (8-11) (2)
 - ☐ High school completed (3)
 - ☐ Some college (4)
 - ☐ College completed (5)
 - ☐ University courses (6)
 - ☐ University degree (7)
 - ☐ Post-graduate degree (8)
-

Q22 What is your approximate household income per year ?

- ☐ \$ 10,000 – 29,999 (1)
 - ☐ \$ 30,000 – 59,999 (2)
 - ☐ \$ 60,000 – 89,999 (3)
 - ☐ \$90,000- 109,999 (4)
 - ☐ more than \$110,000 (5)
-

Q20 Is your combined household income enough to pay for everything you *need*—food, housing, clothing, power and heat, transportation, childcare, etc.?

- ☐ 1 Never (1)
- ☐ 2 Seldomly (2)
- ☐ 3 Sometimes (3)
- ☐ 4 Mostly (4)
- ☐ 5 Always (5)
-

Q17 Were you born in Canada?

- ☐ Yes (1)
- ☐ No (2)
-

Display This Question:

If Were you born in Canada? = No



Q18 In what country were you born?

▼ Afghanistan (1) ... Zimbabwe (1357)

Display This Question:

If Were you born in Canada? = No

Q16 How old were you when you came to Canada to live?
years of age (1)

▼ (1) ... 50 (51)

Q19 Do you live with a partner?

☐ Yes (1)

☐ No (2)

Q21 Are you currently doing paid work?

☐ Yes (1)

☐ No (2)

Display This Question:

If Are you currently doing paid work? = Yes

Q23 Are you working full time?

☐ Yes (1)

☐ No (2)

Q58 What is your ethnicity and/or cultural identity? Choose all that apply.

☐ Aborginal (1)

☐ African (2)

☐ American (3)

☐ Arab (4)

☐ Canadian (6)

☐ Carribbean (7)

☐ East Asian (14)

☐ European (9)

☐ Latin American (10)

☐ South Asian (13)

☐ South East Asian (15)

☐ West Asian (16)

☐ Other, please describe (12) _____

Q24 How did you find out about the Mom and Baby Sleep study?

- ☐ Poster/Flyer/Advertisement (1)
- ☐ Facebook (2)
- ☐ Twitter (3)
- ☐ Email list (4)
- ☐ From a friend or another person (5)
- ☐ Craigslist (6)
- ☐ Kijiji (7)
- ☐ Other, please specify (8) _____

End of Block: Demographics

Start of Block: PSQI

Q102 The following questions relate to your usual sleep habits during the past month *only*. Your answers should indicate the most accurate reply for the *majority* of days and nights in the past month. Please answer all questions.

Q105

During the past month, what time did you usually go to bed at night?

Bedtime:

Hour (1)

Minute (2)

AM/PM (4)

▼ 0 (1) ... 12 ~ 59 ~ am (2353)

Q106

During the past month, how long (in minutes) did it usually take you to fall asleep each night?

Number of minutes:

Minutes (1)

▼ 0 (1) ... 150 ~ 150 (302)

Q117

During the past month, what time did you usually get up in the morning?

Getting up time:

Hour (1)

Minute (2)

▼ 0 (1) ... 12 ~ 59 ~ am (2353)

Q110 During the past month, how many hours of actual sleep did you get at night? (*This may be different than the number of hours you spent in bed.*)

Hours of sleep per night:

Hours (1)

Minutes (2)

▼ 0 (1) ... 12 ~ 59 (793)

Q107 For each of the remaining questions, check the one best response. Please answer *all* questions.

Q109 During the past **month**, how often have you had trouble sleeping because you...

	Not during the past month (1)	Less than once a week (2)	Once or twice a week (3)	Three or more times a week (4)
Could not get to sleep within 30 minutes (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Woke up in the middle of the night or early morning (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had to get up to use the washroom (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Could not breathe comfortably (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coughed or snored loudly (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Felt too cold (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Felt too hot (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Had bad dreams (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Have pain (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other reason(s), please describe (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How often have you had trouble sleeping because of the reason you described above? (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q111 During the past month, how would you rate your sleep quality overall?

- ☐ Very good (1)
 - ☐ Fairly good (2)
 - ☐ Fairly bad (3)
 - ☐ Very bad (4)
-

Q112 During the past month, how often did you take medicine to help you sleep (prescribed or “over the counter”)?

- ☐ Not during the past month (1)
 - ☐ Less than once a week (2)
 - ☐ Once or twice a week (3)
 - ☐ Three or more times a week (4)
-

Q113 During the past month, how often did you have trouble staying awake while driving, eating meals, or engaging in social activity?

- ☐ Not during the past month (1)
 - ☐ Less than once a week (2)
 - ☐ Once or twice a week (3)
 - ☐ Three or more times a week (4)
-

Q114 During the past month, how much of a problem was it for you to keep up enough enthusiasm to get things done?

- ☐ No problem at all (1)
- ☐ Only a very slight problem (2)
- ☐ A moderate problem (3)
- ☐ A very big problem (4)

End of Block: PSQI

Start of Block: Fatigue March 7 Version

Q84

Multidimensional Assessment of Fatigue (MAF) Scale

MAF © Basia Belza, 1993. All Rights Reserved.

Belza BL, Henke CJ, Yelin EH, Epstein WV, Gilliss CL. Correlates of fatigue in older adults with rheumatoid arthritis. Nurs Res. 1993 Mar-Apr;42(2):93-90

For contact information and permission to use: Mapi Research Trust, Lyon, France – Internet: <https://eprovide.mapi-trust.org/>

Instructions: These questions are about fatigue and the effect of fatigue on your activities. For each of the following questions, select the number that most closely indicates how you have been feeling during the past week.

For example, suppose you really like to sleep late in the mornings. You would probably select the number closer to the "a great deal" end of the line. This is where I put it:

Example: To what degree do you usually like to sleep late in the mornings?

Q85

Q86

Now please complete the following items based on the past week.

To what degree have you experienced fatigue?
(1 = not at all, 10 = a great deal)

- ☐ 1 (1)
- ☐ 2 (4)
- ☐ 3 (5)
- ☐ 4 (6)
- ☐ 5 (7)
- ☐ 6 (8)
- ☐ 7 (9)
- ☐ 8 (10)
- ☐ 9 (11)
- ☐ 10 (12)

Skip To: End of Block If Now please complete the following items based on the past week. To what degree have you experienc... = 1

Q87

How severe is the fatigue which you have been experiencing?

(1 = mild, 10 = severe)

☐ 1 (2)

☐ 2 (3)

☐ 3 (4)

☐ 4 (5)

☐ 5 (6)

☐ 6 (7)

☐ 7 (8)

☐ 8 (9)

☐ 9 (10)

☐ 10 (12)

Q88

To what degree has fatigue caused you distress?
(1 = no distress, 10 = a great deal of distress)

- ☐ 1 (12)
- ☐ 2 (13)
- ☐ 3 (14)
- ☐ 4 (15)
- ☐ 5 (16)
- ☐ 6 (17)
- ☐ 7 (18)
- ☐ 8 (19)
- ☐ 9 (20)
- ☐ 10 (21)
-

Q89

Select the number that most closely indicates to what degree fatigue has interfered with your ability to do the following activities in the past week. Please select N/A if you do not do the activity.

In the past week, to what degree has fatigue interfered with your ability to:

	Select if Not Applicable										1 = not at all, 10 = a great deal	
	N/A (1)	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	10 (10)	

Do household chores (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cook (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bathe or wash (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dress (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Work (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Visit or socialize with friends or family (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engage in sexual activity (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Engage in leisure and recreational activities (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shop and do errands (11)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walk (12)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exercise, other than walking (13)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q90 Over the past week, how often have you been fatigued?

- ☐ [4] Every day (1)
- ☐ [3] Most, but not all days (2)
- ☐ [2] Occasionally, but not most days (3)
- ☐ [1] Hardly any days (4)
-

Q91 To what degree has your fatigue changed during the past week?

- ☐ [4] Increased (1)
- ☐ [3] Fatigue has gone up and down (3)
- ☐ [2] Stayed the same (4)
- ☐ [1] Decreased (5)
-

Q92

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Belza BL, Henke CJ, Yelin EH, Epstein WV, Gilliss CL. Correlates of fatigue in older adults with rheumatoid arthritis. Nurs Res. 1993 Mar-Apr;42(2):93-90

For contact information and permission to use: Mapi Research Trust, Lyon, France – Internet: <https://eprovide.mapi-trust.org/>

End of Block: Fatigue March 7 Version

Start of Block: Infant Sleep

Q23 Please mark only one (most appropriate) choice, when you respond to items with a few options.

Q25 Where does your baby sleep?

- ☐ Infant crib in a separate room (1)
- ☐ Infant crib in parents' room (2)
- ☐ In parent's bed (3)
- ☐ Infant crib in room with sibling (4)
- ☐ Other, please specify (5) _____
-

Q27 In what position does your baby sleep most of the time?

- ☐ On his/her belly (1)
- ☐ On his/her side (2)
- ☐ On his/her back (3)
-

Q29 How much time does your child spend in sleep during the **NIGHT** (between 7 in the evening and 7 in the morning)?

Hours (1)

Minutes (2)

▼ 0 (1) ... 12 ~ 59 (793)

Q31 How much time does your child spend in sleep during the **DAY** (between 7 in the morning and 7 in the evening)?

Hours (1)

Minutes (2)

▼ 0 (1) ... 12 ~ 59 (793)

Q33 Average number of night wakings per night

▼ 0 (1) ... 12 (12)

Q35 How much time during the night does your child spend in wakefulness (from 10 in the evening to 6 in the morning)?

Hours (1)

Minutes (2)

▼ 0 (1) ... 12 ~ 59 (793)

Q37 How long does it take to put your baby to sleep in the evening?

Hours (1)

Minutes (2)

▼ 0 (1) ... 12 ~ 59 (793)

Q39 How does your baby fall asleep? Select **one** answer that best reflects how your baby usually falls asleep.

- ☐ While feeding (1)
 - ☐ Being rocked (2)
 - ☐ Being held (3)
 - ☐ In bed alone (4)
 - ☐ In bed near parent (5)
-

Q41 When does your baby usually fall asleep for the night? *Example: 8:30 PM*

Hour (1)

Minute (2)

AM/PM (4)

▼ 0 (1) ... 12 ~ 59 ~ am (2353)

Q43 Do you consider your child's sleep as a problem?

- ☐ A very serious problem (1)
- ☐ A small to moderate problem (2)
- ☐ Not a problem at all (3)

End of Block: Infant Sleep

Start of Block: MCISQ Feb 26

Q1 Here are a series of statements about thoughts and feelings parents may have when faced with an infant that won't sleep. After reading each statement select the response that most closely represents how you yourself would feel with your infant. Don't take too long thinking about your answer and don't hesitate to use the extreme responses if appropriate.



Q2 When my child cries at night, I think something awful might have happened to him/ her

- ☐ Strongly Agree (5)
- ☐ Moderately Agree (4)
- ☐ Mildly Agree (3)
- ☐ Mildly Disagree (2)
- ☐ Moderately Disagree (1)
- ☐ Strongly Disagree (0)



Q3 When my child wakes at night, I think I might not have fed him / her enough during the day

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q4
My child might die unexpectedly in his/her sleep

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q5
My child will feel abandoned if I don't respond immediately to his / her cries at night

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q6
My child might go hungry if I don't give him / her a feed at night

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q7
It is all right to allow my child to cry at night

- ☐ Strongly Agree (0)
 - ☐ Moderately Agree (1)
 - ☐ Mildly Agree (2)
 - ☐ Mildly Disagree (3)
 - ☐ Moderately Disagree (4)
 - ☐ Strongly Disagree (5)
-



Q8

When my child cries at night, I think I might lose control and harm him / her

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q9

When my child wakes at night, I think I might not have given him / her enough attention during the day

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q10

I should be getting up during the night to check that my child is still all right

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q11

If I try to resist my child's demands at night, then I think I might get very angry

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q12
When my child wakes crying, I always know what he / she needs

- ☐ Strongly Agree (0)
 - ☐ Moderately Agree (1)
 - ☐ Mildly Agree (2)
 - ☐ Mildly Disagree (3)
 - ☐ Moderately Disagree (4)
 - ☐ Strongly Disagree (5)
-



Q13 When my child cries at night and needs me, I wish he / she wasn't so demanding

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q14 If I try to resist my child's demands at night, then he / she will get even more upset

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q15

When my child doesn't sleep at night, I doubt my competence as a parent

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q16

If I say no to my child's demands at night, then that means I'm a bad parent

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q17

I am able to let my child sleep on his / her own

- ☐ Strongly Agree (0)
 - ☐ Moderately Agree (1)
 - ☐ Mildly Agree (2)
 - ☐ Mildly Disagree (3)
 - ☐ Moderately Disagree (4)
 - ☐ Strongly Disagree (5)
-



Q18

When my child cries at night, I can find myself thinking I wish I had never had a child

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q19 I should respond straightaway when my child wakes crying at night

- ☐ Strongly Agree (5)
 - ☐ Moderately Agree (4)
 - ☐ Mildly Agree (3)
 - ☐ Mildly Disagree (2)
 - ☐ Moderately Disagree (1)
 - ☐ Strongly Disagree (0)
-



Q20 I am able to resist my child's demands when he / she wakes up at night

- ☐ Strongly Agree (0)
 - ☐ Moderately Agree (1)
 - ☐ Mildly Agree (2)
 - ☐ Mildly Disagree (3)
 - ☐ Moderately Disagree (4)
 - ☐ Strongly Disagree (5)
-



Q21 If I give up feeding at night, then he / she will never sleep

- ☐ Strongly Agree (5)
- ☐ Moderately Agree (4)
- ☐ Mildly Agree (3)
- ☐ Mildly Disagree (2)
- ☐ Moderately Disagree (1)
- ☐ Strongly Disagree (0)

End of Block: MCISQ Feb 26

Start of Block: Family Support Scale

Q63 Listed below are people and groups that oftentimes are helpful to members of a family raising a young child. This questionnaire asks you to indicate how helpful each source is to your family. Please select the response that best describes how helpful the people and groups have been to your family during the past 3 to 6 months. If a source of help has not been available to your family during this period of time, select the NA (Not Available) response.

Q64 How helpful has each of the following been to you in terms of raising your child(ren)?

	Not Available (1)	Not at All Helpful (2)	Sometimes Helpful (3)	Generally Helpful (4)	Very Helpful (5)	Extremely Helpful (6)
My parents (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My spouse or partner's parents (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My relatives/kin (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My spouse or partner's relatives/kin (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My spouse or partner (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My older child(ren) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighbours (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other parents (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Co-workers (9)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parent group members (10)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q65 How helpful has each of the following been to you in terms of raising your child(ren)?

	Not Available (1)	Not at All Helpful (2)	Sometimes Helpful (3)	Generally Helpful (4)	Very Helpful (5)	Extremely Helpful (6)
Social groups/clubs (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Church members/minister (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My family or child's physician (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Early childhood intervention program (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
School/daycare center (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional helpers (douglas, therapists, teachers,etc.) (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional agencies (public health, social services etc.,) (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q131 If you selected "Other", please specify who:

End of Block: Family Support Scale

Start of Block: Mood - Anger

Q67 A number of statements that people use to describe themselves are given below. Read each statement and then select the answer that indicates how you feel right now (or have felt in the past week). There are no right or wrong answers. Do not spend too much time on any one statement. Select the answer that best describes your feelings.

Q68 I am furious

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q69 I feel irritated

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q70 I feel angry

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q71 I feel like yelling at somebody

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q72 I feel like breaking things

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q73 I am mad

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q74 I feel like banging on the table

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q75 I feel like hitting someone

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q76 I feel like swearing

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q77 I feel annoyed

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q78 I feel like kicking somebody

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q79 I feel like cursing out loud

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q80 I feel like screaming

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q81 I feel like pounding somebody

- ☐ Not at all (1)
 - ☐ Somewhat (2)
 - ☐ Moderately so (3)
 - ☐ Very much so (4)
-

Q82 I feel like shouting out loud

- ☐ Not at all (1)
- ☐ Somewhat (2)
- ☐ Moderately so (3)
- ☐ Very much so (4)

End of Block: Mood - Anger

Start of Block: Mood - Anger Expression & Control

Q86 A number of statements are listed below which people use to describe their reactions when they feel *angry* or *furious*.

Read each statement and then select the **answer that indicates how often you generally react or behave in the manner described when you are feeling angry or furious.**

There are no right or wrong answers. Do not spend too much time on any one statement.

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I control my temper (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I express my anger (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take a deep breath and relax (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep things in (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am patient with others (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If someone annoys me, I'm apt to tell him or her how I feel (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to calm myself as soon as possible (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pout or sulk (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q88 Read each statement then select the answer that indicates how often you generally react or behave in the manner described **when you are feeling angry or furious.**

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I control my urge to express my angry feelings (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I lose my temper (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to simmer down (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I withdraw from people (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep my cool (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make sarcastic remarks to others (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to soothe my angry feelings (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I boil inside, but I don't show it (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q89 Read each statement then select the answer that indicates how often you generally react or behave in the manner described **when you are feeling angry or furious.**

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I control my behavior (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do things like slam doors (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I endeavor to be calm again (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to harbor grudges that I don't tell anyone about (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can stop myself from losing my temper (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I argue with others (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I reduce my anger as soon as possible (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am secretly quite critical of others (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q90 Read each statement then select the answer that indicates how often you generally react or behave in the manner described **when you are feeling angry or furious**.

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I try to be tolerant and understanding (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I strike out at whatever infuriates me (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do something relaxing to calm down (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am angrier than I am willing to admit (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I control my angry feelings (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I say nasty things (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to relax (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm irritated a great deal more than people are aware of (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Mood - Anger Expression & Control

Start of Block: Anger Expression & Control

Q142 A number of statements are listed below which people use to describe their reactions when they feel *angry* or *furious*.

Read each statement and then select the **answer that indicates how often you generally react or behave in the manner described when you are feeling angry or furious**.

There are no right or wrong answers. Do not spend too much time on any one statement.

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I control my temper (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I express my anger (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I take a deep breath and relax (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep things in (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am patient with others (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If someone annoys me, I'm apt to tell him or her how I feel (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to calm myself as soon as possible (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I pout or sulk (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q143 Read each statement then select the answer that indicates how often you generally react or behave in the manner described **when you are feeling angry or furious.**

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I control my urge to express my angry feelings (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I lose my temper (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to simmer down (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I withdraw from people (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I keep my cool (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I make sarcastic remarks to others (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to soothe my angry feelings (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I boil inside, but I don't show it (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q144 Read each statement then select the answer that indicates how often you generally react or behave in the manner described **when you are feeling angry or furious.**

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I control my behavior (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do things like slam doors (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I endeavor to be calm again (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I tend to harbor grudges that I don't tell anyone about (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can stop myself from losing my temper (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I argue with others (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I reduce my anger as soon as possible (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am secretly quite critical of others (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q145 Read each statement then select the answer that indicates how often you generally react or behave in the manner described **when you are feeling angry or furious.**

	Almost never (1)	Sometimes (2)	Often (3)	Almost Always (4)
I try to be tolerant and understanding (1)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I strike out at whatever infuriates me (2)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I do something relaxing to calm down (3)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am angrier than I am willing to admit (4)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I control my angry feelings (5)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I say nasty things (6)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I try to relax (7)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm irritated a great deal more than people are aware of (8)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

End of Block: Anger Expression & Control

Start of Block: Depression Scale

Q91

Please select the answer which comes closest to how you have felt in the past 7 days – not just how you feel today.

In the past 7 days:

Q92 I have been able to laugh and see the funny side of things

- ☐ As much as I always could (1)
 - ☐ Not quite so much now (2)
 - ☐ Definitely not so much now (3)
 - ☐ Not at all (4)
-

Q93 I have looked forward with enjoyment to things

- ☐ As much as I ever did (1)
 - ☐ Rather less than I used to (2)
 - ☐ Definitely less than I used to (3)
 - ☐ Hardly at all (4)
-

Q94 I have blamed myself unnecessarily when things went wrong

- ☐ Yes, most of the time (1)
 - ☐ Yes, some of the time (2)
 - ☐ Not very often (3)
 - ☐ No, never (4)
-

Q95 I have been anxious or worried for no good reason

- ☐ No, not at all (1)
 - ☐ Hardly ever (2)
 - ☐ Yes, sometimes (3)
 - ☐ Yes, very often (4)
-

Q96 I have felt scared or panicky for no very good reason

- ☐ Yes, quite a lot (1)
 - ☐ Yes, sometimes (2)
 - ☐ No, not much (3)
 - ☐ No, not at all (4)
-

Q97 Things have been getting on top of me

- ☐ Yes, most of the time I haven't been able to cope at all (1)
 - ☐ Yes, sometimes I haven't been coping as well as usual (2)
 - ☐ No, most of the time I have coped quite well (3)
 - ☐ No, I have been coping as well as ever (4)
-

Q98 I have been so unhappy that I have had difficulty sleeping

- ☐ Yes, most of the time (1)
 - ☐ Yes, sometimes (2)
 - ☐ Not very often (3)
 - ☐ No, not at all (4)
-

Q99 I have felt sad or miserable

- ☐ Yes, most of the time (1)
 - ☐ Yes, quite often (2)
 - ☐ Not very often (3)
 - ☐ No, not at all (4)
-

Q100 I have been so unhappy that I have been crying

- ☐ Yes, most of the time (1)
 - ☐ Yes, quite often (2)
 - ☐ Only occasionally (3)
 - ☐ No, never (4)
-

Q101 The thought of harming myself has occurred to me

- ☐ Yes, quite often (1)
- ☐ Sometimes (2)
- ☐ Hardly ever (3)
- ☐ Never (4)

End of Block: Depression Scale

Start of Block: Honorarium

Q116 To thank you for your participation in this survey, would you like to enter a draw for a \$50 Amazon gift card? (10 available, 1 in 15 chances to win).

- ☐ Yes (1)
- ☐ No (2)

Display This Question:

If To thank you for your participation in this survey, would you like to enter a draw for a \$50 Amaz... = Yes

Q131 If you would like to receive an electronic gift card, please provide your email. *Your email will not be linked to your responses.*

Q123 Would you be interested in participating in a phone interview (less than 1 hour) about mood after having a baby?

- ☐ Yes (1)
- ☐ No (2)
-

Display This Question:

If Would you be interested in participating in a phone interview (less than 1 hour) about mood after... = Yes

Q125

If you would like to be invited to a phone interview, please provide your first name, email, and phone number with area code.

*(Your contact information will **not** be shared with anyone else and will only be used as a means to tell you more about the interview and to arrange for a time to complete the interview should you consent to the second part of the study.)*

☐ Name (1) _____

☐ Email (2) _____

☐ Phone number (3) _____

End of Block: Honorarium

Start of Block: Survey Debrief

Q127 Thank you very much for completing this survey. By completing this survey, you are contributing to knowledge about how maternal-infant sleep quality affects maternal wellbeing. Your responses will be kept confidential and presented only in combination with other data. During this survey, we asked you some questions about your mental state that may have triggered some emotional discomfort. This study does not allow us to link a participant with their responses, so we cannot identify that you might benefit from help by looking at your responses. Thus, we have provided some resources below. We also encourage you to reach out for support by talking to someone about how you are feeling and to reach out to your health care provider. These are some immediate options if you are currently feeling distressed and urgently need support. You may call the Canada wide crisis line at 1-833-456-4566 or visit [Crisis Services Canada](#) for a local number for your area. You may also get support from the Crisis Text Line by texting CONNECT to 686868. If you do not need immediate support, some other resources include:

Pacific Post Partum Support Society, a telephone support resource that is available between 10am PST and 3pm PST Monday to Friday toll free at 1 855-255-7999. <http://postpartum.org/> BC Reproductive Mental Health Depression and Anxiety Modules and Resources: <https://reproductivementalhealth.ca/resources> Best Start Mental Health Resources – Managing depression: A self-help skills resource for women living with depression during pregnancy, after delivery, and beyond <https://resources.beststart.org/product/m14e-managing-depression-workbook/> Postpartum Support International – Canadian Provincial Resources List: <http://www.postpartum.net/get-help/locations/international/canada/> Canadian Mental Health Association <https://cmha.ca/documents/postpartum-depression>

End of Block: Survey Debrief

Appendix D

Interview Guide

I started with obtaining demographic information and the baby's name as a way to build rapport and to confirm the accuracy of the demographic information from the online survey. I prompted the participants to provide contextual information deemed relevant for me to know e.g., perceptions about the labor and delivery process. I assured confidentiality and privacy and that both mother and infant will not be identified in any publications. The following questions were adapted from Charmaz's (2006) sample grounded theory interview questions (p. 30).

Initial Questions

I am interested in your moods after childbirth. Can you describe a typical day and your feelings and moods throughout the day?

Could you describe an atypical day where you would say you were not your normal self, perhaps where you might have been feeling overwhelmed?

Some women have voiced feeling angry in the postpartum period sometimes because they felt stressed or frustrated with lack of sleep, or lack of support from partners or family members, or distressed about the losses and changes that come with motherhood and sometimes a combination of these. For some mothers anger is a sign of distress and an indicator of needing more support. Were there any points in time you might have felt frustrated or even angry?

Can you tell me about how you came to feel angry on that day/occasion? What were the circumstances?

Were any individuals in particular involved with your anger? How were they involved?

How did you handle your anger?

Did you express your anger?

Was your anger accompanied by any other emotions?

In that situation, what effects did [expressing]/[suppressing] your anger have?

Tell me about your thoughts and feelings following your anger.

Thank you for sharing that with me – other mothers have felt similarly to you. Did the situation (e.g., the named cause(s) of anger like sleep loss, or lack of partner support) get better or worse? What was the effect on your mood?

Do you recall any other times where you felt angry?

Were your feelings of anger different from any anger that you might have experienced before childbirth? If they were different how were they different?

Has anger brought any positive changes in your life?

Has anger brought any negative changes in your life?

Intermediate Questions

Looking back on the past ____ months after having a baby, are there any other events that stand out in your mind? Could you describe them?

Could you describe the most important lessons you learned through experiencing [anger][strong emotions][feeling overwhelmed]?

What helps you to manage [anger][strong emotions][feeling overwhelmed]? What does not help?

Ending Questions

After having these experiences, is there any advice you would give to another mother?

Is there anything else you think I should know to understand [anger][distress] after childbirth better?

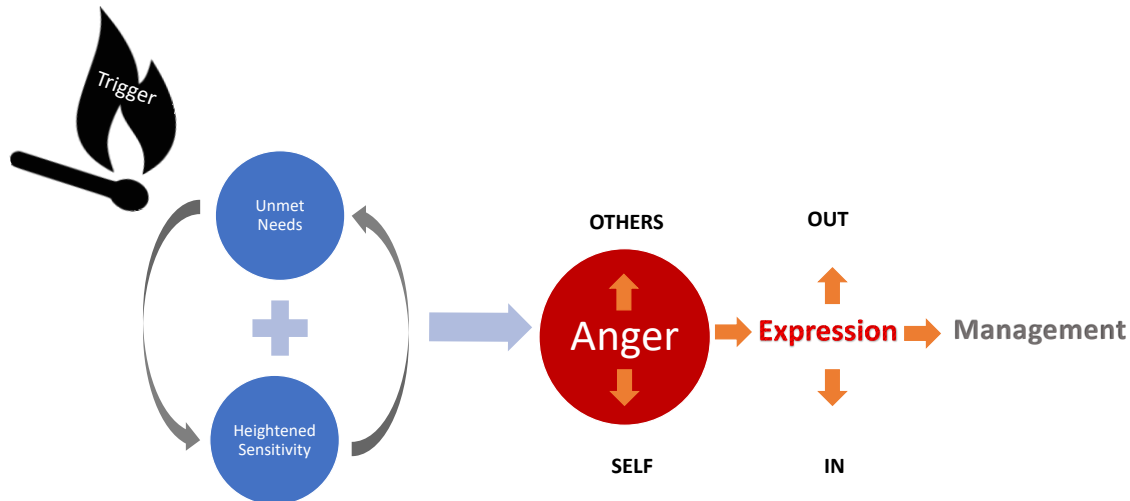
Is there anything I should have asked that I did not ask?

Appendix E

Memos on Developing *Compromised Needs* as a Category

January 16, 2020

How does anger develop in the postpartum?



Fire is ignited in the presence of fuel, oxygen, and heat. Similarly anger requires the presence of three components: unmet needs, heightened sensitivity, and a triggering situation. Postpartum anger or rage can occur when an individual has been experiencing an **unmet need** (such as not getting enough sleep, not getting enough practical or emotional support) and concurrent state of **heightened sensitivity** (such as having underlying anxious thoughts, paranoia, resentment, exhaustion, loneliness, loss, and/or disappointment).

Having unmet need(s) often worsens heightened sensitivity and the state of heightened sensitivity can also perpetuate unmet needs. For example, participants have reported anxiety about their sleep and their infants' sleep and that often leads to poor sleep, contributing to not meeting their sleep needs. Some mothers have been so exhausted or depleted that it is made more difficult to make efforts for self-care or have meaningful connection with others such as with their partners, which may also place them at risk for having unmet needs for social connection.

Triggers involve situations happening in real time that are negatively perceived by the individual to be either disrespectful, hurtful, threatening, and/or violating expectations held by the mother. For example, suggesting to a sleep-deprived (unmet need) mother to switch to formula feeding (trigger) when she was already anxious (heightened sensitivity) about her newborn's health problem resulted in an eruption of rage. Another example, was when a mom (the primary caregiver) who was up for hours tending to a colicky and crying infant for hours by herself while her partner was away for a work function was told by her brother-in-law that "dads need time for themselves too", she had had to remove herself from his presence to avoid not throwing her plate at him. In her case, at that time, she had unmet needs for support with the baby, heightened sensitivity encompassing exhaustion and frustration with tending to the baby,

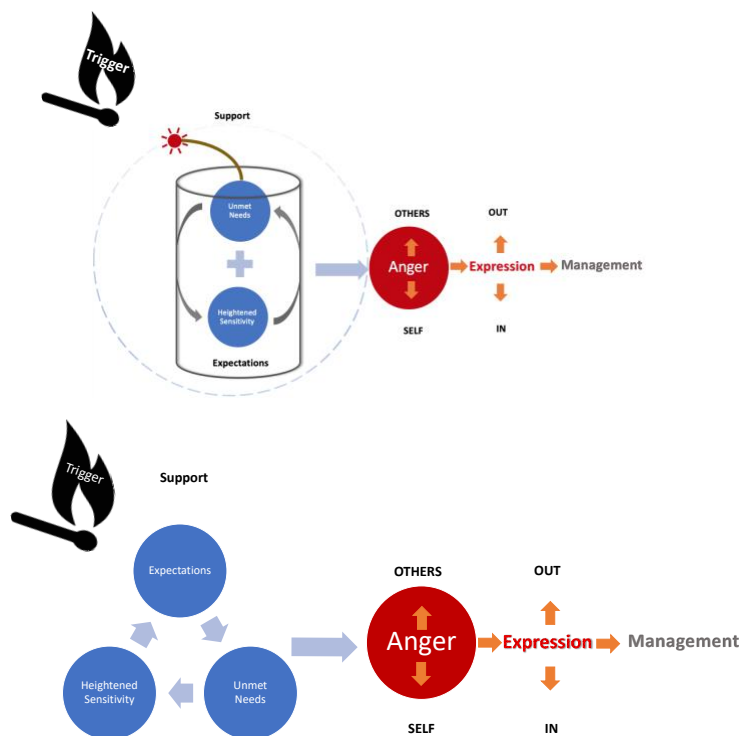
and the trigger was the perceived unempathetic and unsupportive comment that did not account for her struggles.

Anger – described by mothers as feeling like vibrating, shaky, tense, ragey, out-of-body, overreacting, quick, uncontrollable, wanting to shake something or someone, wanting to break things, wanting to punch pillows, wanting to scream, buttons pushed.

February 3, 2020

How does anger develop in the postpartum?

I am debating between these 2 models:



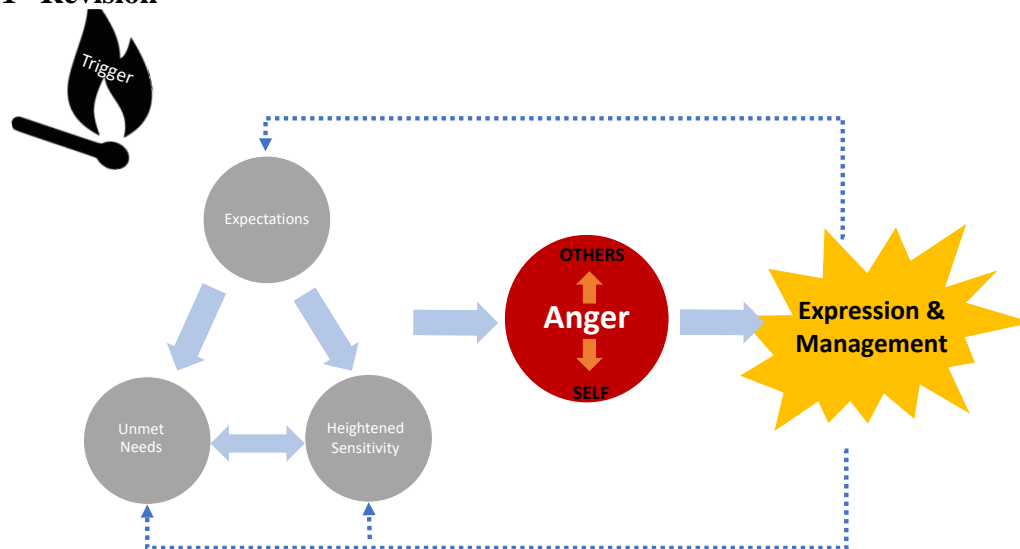
Fire is ignited in the presence of fuel, oxygen, and heat. Similarly, maternal anger requires the presence of several components: unmet needs, expectations, heightened sensitivity, and a triggering situation. Postpartum anger or rage can occur when a mother has been experiencing **unmet need(s)** with concurrent **heightened sensitivity** set amidst underlying **expectations** of the situation. **Unmet needs** may take form as physiological needs such the need for sleep, rest, and healing from birth or health problems, or the need to be loved and held in esteem by others, or needing a sense of belonging and emotional connection with others, and needing confidence in the mothering role by being able to care for the baby and feel good about the care that is

provided. **Heightened sensitivity** embodies the state of having anxious thoughts, constant worry, resentment, exhaustion, grief, loneliness, loss, and/or disappointment. Having unmet need(s) often increases heightened sensitivity and the state of heightened sensitivity can also contribute to or exacerbate unmet needs. For example, participants have reported anxiety about their sleep and their infants' sleep and that often leads to poor sleep, contributing to not meeting their sleep needs. Some mothers have been so exhausted or depleted that it is made more difficult to make efforts for self-care or have meaningful connection with others such as with their partners, which may also place them at risk for having unmet needs for emotional connection with others.

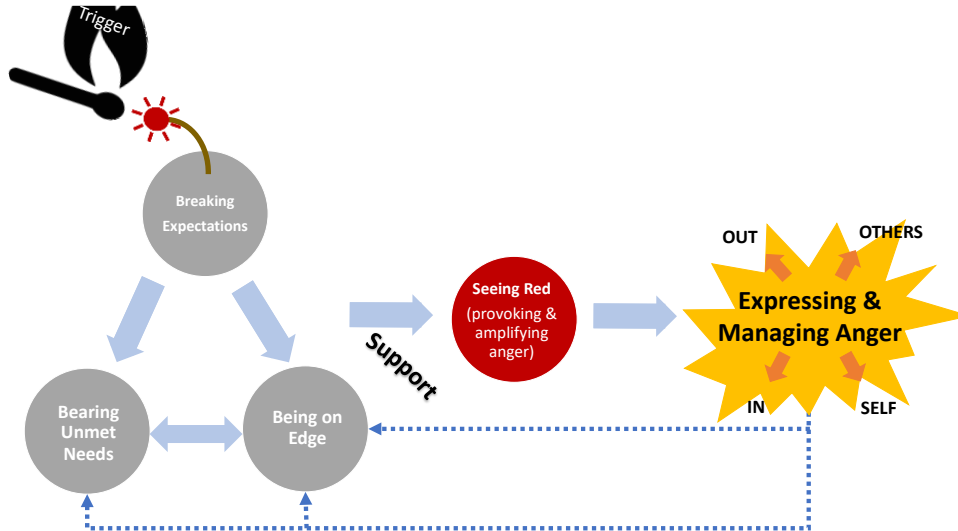
February 18, 2020

How does anger develop in the postpartum?

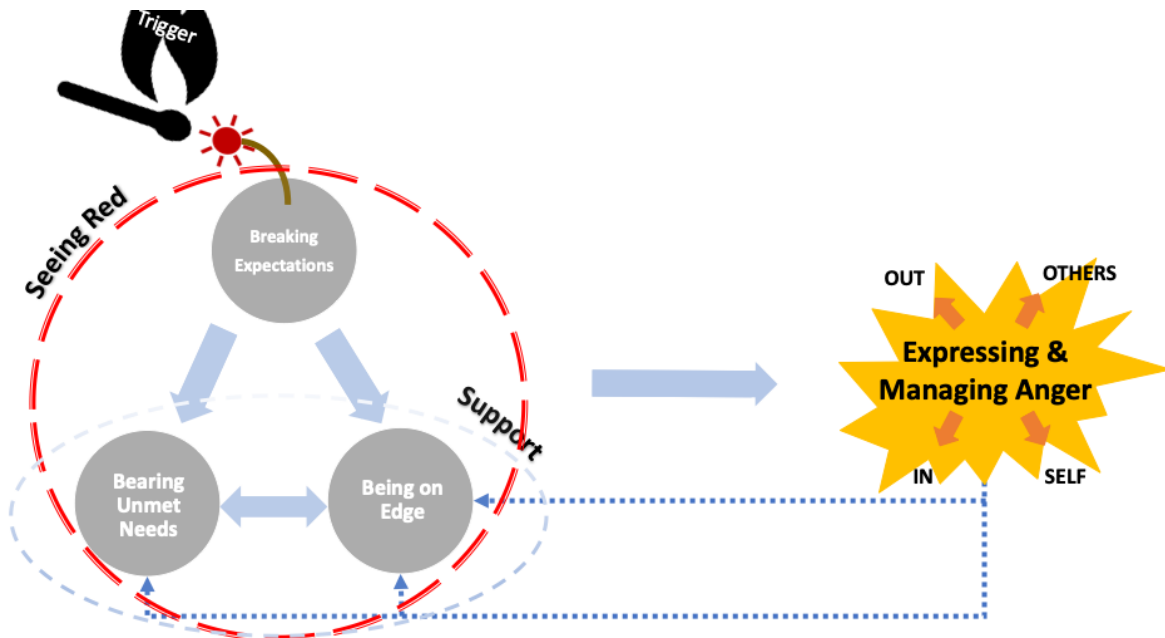
1st Revision



2nd Revision



3rd Revision



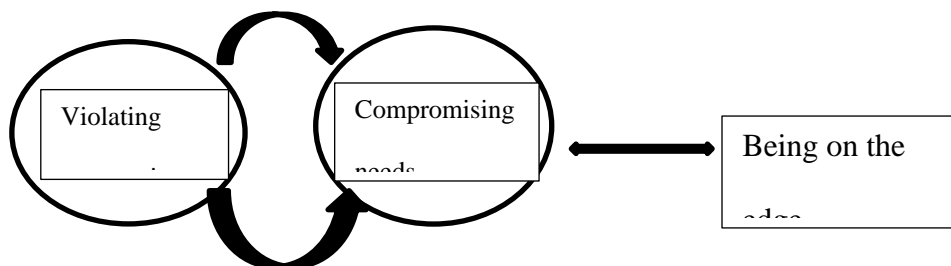
This model describes the basic social process of maternal anger development, which will be referred to as **seeing red**. Postpartum anger or rage (**seeing red**) describes the provocation and amplification of anger which can occur when a **triggering situation** a mother experiences does not meet her **expectations** resulting in **unmet need(s)** and **being on edge**.

We start first with **breaking expectations**. Unfulfilled or broken **expectations** can be described as a mismatch between reality and the individual's anticipated experience such as with unexpected stressors (e.g., infant sleep problems or health issues) and unmet needs (such as adequate sleep or time to self). Individuals enter motherhood often expecting to attain adequate rest, sleep, healing, nutrition, and confidence and competence about being a parent and to achieve this through their own efforts and through the support of others, especially from partners. When they are not able to attain adequate amounts of these basic requirements resulting in **unmet needs**, disappointment ensues resulting in mothers **being on edge**.

Unmet needs may take form as physiological needs such the need for sleep, rest, and healing from birth or health problems, self-care, as well as the need for belonging, emotional connection, to be held in esteem/respected by others, and self-esteem. Self-esteem related needs include attaining confidence and competence in the mothering role by being able to care for the baby and to feel good about the care that is provided. Mothers frequently identified adequate sleep as an unmet need. Unmet needs contributed to mothers feeling on edge. When mothers are getting inadequate sleep, they report feeling depleted and exhausted. In terms of needs for self-esteem, mothers identified lack of confidence and competence in the mothering role as putting them on edge e.g., feeling fearful, ashamed, guilty, and/or frustrated or disappointed at themselves.

February 23, 2020

Wendy has suggested that the relationship between **compromised needs/unmet needs** and violated expectations are cyclical like this.



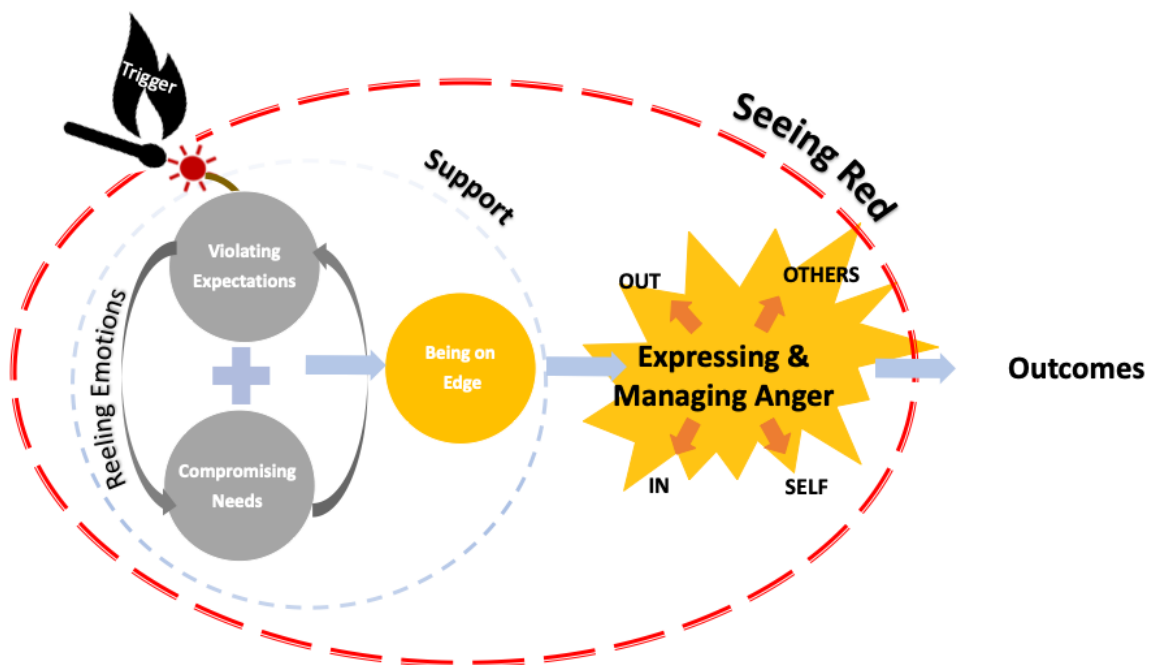
This makes sense as violated expectations do directly need to compromised needs and compromised needs at the same time violates expectations. E.g., mom wants baby to sleep, baby won't sleep, mom's need for sleep is compromised, which continues the violation of her expectation that baby should sleep.

Compromised needs may take form as physiological needs such the need for sleep, rest, health, self-care, as well as the need for belonging, emotional connection, to be held in esteem/respected by others, and self-esteem. Self-esteem related needs include attaining confidence and competence in the mothering role by providing effective care for the baby. Mothers frequently identified adequate sleep as a need that was compromised. Compromised needs contributed to mothers feeling frustrated which could escalate to being on the edge when the conditions

continued. When mothers are getting inadequate sleep, they report feeling depleted and exhausted. In terms of needs for self-esteem, mothers identified lack of confidence and competence in the mothering role as violating their expectations, contributing to their frustration and leading to edge e.g., feeling fearful, ashamed, grief, loneliness, guilt, exhausted and shame. Those feelings increased their frustration and led to anxiety, and resentment.

March 1, 2020

New model of Seeing Red – relationship between violating expectations and compromised needs.



November 5, 2020

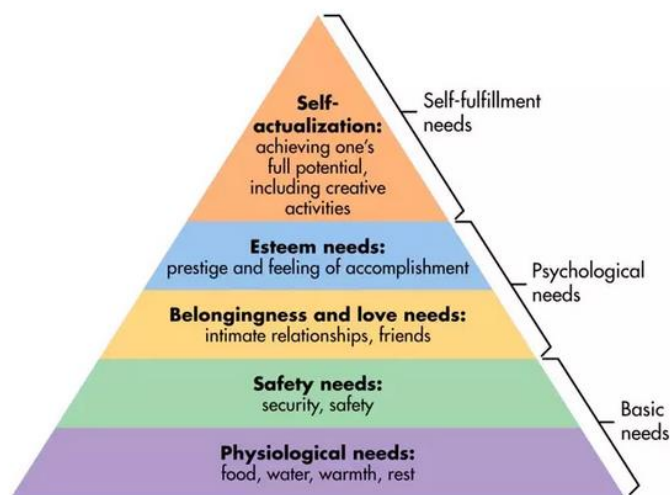
I have been reading and thinking about Wendy's comments about the inconsistencies in the way I have described compromised needs through Chapter 6. I need to re-examine the category properties of compromised needs because it seems sort of all over the place right now. But it's come a long way from when I used to characterize it as compromised need for support. It was necessary to separate those 2 categories because they are not of the same nature. A person needs support *in order to* get their needs met.

So I was re-reading my memos and thinking that it is important to make explicit what those needs were. I also discovered that from my last round of edits for Wendy prior to the August committee meeting, the overview of compromised needs description somehow got lost at the

beginning of the chapter when I am first introducing the process of seeing red as the grounded theory.

In italics is the section on introducing what compromised needs are in the previous draft (August 2020) that was sent to the committee:

Violated expectations often compromised women's ability to meet their needs, driving them to being on edge (e.g., feeling exhausted or being in despair), thereby providing fuel for seeing red. Participants indicated that their needs ranged from basic physical needs (for nutrition, sleep, rest, hygiene, and exercise), to needs for connection, love, care, and reciprocity from others, and self-actualization. They sought two facets of self-actualization – one to become confident and competent as a parent, and other to be able to continue pre-existing goals, such as career goals.



These were meant to be mapped onto Maslow's Hierarchy of Needs and I had originally grouped esteem needs (e.g., attaining parenting confidence and competence/mastery) with self-actualization. However, my compromised needs in the former draft were still a relatively rough mapping of Maslow's and I had not well defined the characteristics of each level of need.

Basic physical needs were the most straightforward and mothers talked about how the predominant physical need that was not met was sleep (Dawn, Nicole, Liz, Serenity, Alicia Megan, etc.) but some mothers talked about hygiene (like Kelly not being able to shower every day or in peace undisturbed by the kids), and not always eating well (Dawn, Kelly), or getting to exercise (Nicole, Kelly). Safety needs or concerns were not brought up by the participants explicitly.

Moving upwards on the higher of Maslow's Hierarchy, reading my August draft I can see how I'm inconsistent with describing needs for esteem, self-actualization, and belonging and love. I looked for a more theoretical discussion of Maslow's Hierarchy and found one in the context of romantic relationships by Finkel, Hui, Carswell and Larson (2014). Although this article was

more applicable to couples that are not contending with a caring for a young infant or young children, it still provided a clear explanation of the levels of Maslow's Hierarchy.

Figure 1. Maslow's hierarchy of needs, including his five categories of need and specific examples (adapted from Maslow, 1943, Maslow, 1954/1970), and the introduction of Mount Maslow.

Category of Need	Specific Examples	Mount Maslow
Self-Actualization	<ul style="list-style-type: none"> • Self-expression • Personal growth • Autonomy • Spontaneity • Veridical self-assessment 	
Esteem	<ul style="list-style-type: none"> • Self-esteem • Self-respect • Sense of mastery • Prestige • Respect from others 	
Belonging and Love	<ul style="list-style-type: none"> • Love others • Be loved by others • Trust others • Sexual intimacy • Belong to a group 	
Safety	<ul style="list-style-type: none"> • Economic security • Control • Predictability • Psychological safety • Physical safety 	
Physiological	<ul style="list-style-type: none"> • Hunger • Thirst • Warmth • Sleep • Respiration 	

I need to make clear the concept of “belonging” as encompassing needs for connection, love, care, and reciprocity from others. Belonging speaks to emotional connection with others as vital. E.g., receiving demonstrations of love and care from your partner, or feeling an accepted member part of a group. For example, Shannon went to the YMoms group which left her feel alone and in despair after it was clear that there was no space or accommodation for moms with more than 1 child (as Shannon had a very active older toddler), compromising her need for belonging and feeling like there was a place for mothers like her. Mothers want to be heard by their loved ones and to be cared for e.g., mothers who said that they wanted their mothers and others to “mother” them like they were mothering the baby.

Moving upwards, I realize I need to separate parenting confidence/competence from self-actualization. If I put parenting confidence/competence in self-actualization, I am kind of implying that that is what the women value the most. I think “esteem” better characterizes the gains people make when they acquire or master a new skill or role, such as confidence in their parenting role. An important aspect of esteem is self-esteem and believing for example that you are a competent parent. For example, Alicia's need for feeling confident and competent as a

parent was very compromised when no matter what she did, her son would/could not sleep. Esteem from others entails respect from others. I think some women concurrently experienced compromised needs for belonging as well as esteem in that they may not have felt heard or cared for and they were not respected or held in esteem by people around them. For example Liz ran into a lot of conflicts with her own parents around sleep training. She did not feel cared or respected when her mother would undermine her efforts at sleep training whenever Liz was away at bedtime. A few women (Frances, Kelly, and Elisabeth especially) shared experiences of health care providers who did not respect their wishes, compromising their need for esteem from others.

Finally in terms of self-actualization, I really appreciated that Finkel et al., (2014) had described autonomy as a component of self-actualization and that makes a lot of sense for me. If you don't have autonomy, you surely could not reach self-actualization. It's also difficult to act fully autonomously when you are caring for an infant and have to feed and take care of the infant 24/7. For Megan, she had imagined that post-baby, she could continue to travel and teach with her partner (they were both teachers) just like they had pre-baby and it was a big disappointment when she realized she just couldn't. She returned home to her parents for support and a familiar environment while her partner finished his contract. For Maya, it was also a big deal to return to work that she knew and loved (being a researcher) and that the long days at home with baby by herself really tired her out and made her feel like not her normal self. Elizabeth, Audrey, and Elisabeth also talked about how they appreciated the return to work that they loved even if could be stressful balancing work and family life. These women could engage in work they enjoyed because they had childcare and supports in place so that they could have the time for themselves to do this (and contribute to self-actualization).

Before I struggled with where "time for self" fit. I know how important it is but I wasn't sure where it fit. Postpartum advice to moms tend to underscore how important it is to somehow get time for yourself. Was it so that you could meet your basic physical needs (e.g., sleep, have a shower in peace, eat, and rest)? But now I see it better belongs in self-actualization. That's not very much quality time for mothers if all they are doing while they are is meeting the most basic needs. Time for self is important for self-expression and personal growth, e.g., the moms wanting to engage in their pre-motherhood identities