Conceptualizing Postpartum Depression: Examining Cognitive Styles, Perceptions of Loss, and

Relationship Maladjustment to Test the Distinction Hypothesis

by

Michelle Choch

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Department of Psychology

University of Manitoba

Winnipeg

Abstract

Is postpartum depression (PPD) a distinct syndrome from depression that occurs at other times in women's lives? How might certain vulnerabilities increase the risk of PPD and enhance our understanding of PPD etiology and phenomenology? The current study sought to answer these questions using a cross-sectional survey with a sample of 67 participants comprising two groups of mothers: postpartum depressed ($n = 37$) and nonpostpartum depressed ($n = 30$). Between subjects comparisons revealed that relative to nonpostpartum depressed women, women with PPD had more unrealistic expectations for motherhood, less consistent and confidently defined self-concept, and higher depression severity based on a measure of postpartum symptomatology, lending support to the "distinction hypothesis." The study also evaluated a cognitive diathesis-stress model for PPD. Different best fit models were identified for each type of maladjustment: symptomatology versus relationship maladjustment (partner, mother, or baby). State anxiety and unrealistic expectations predicted PPD symptoms, and self-concept clarity emerged as a consistent predictor of relationship maladjustment. Active and passive facets of perfectionistic self-presentation were predictors of maladjustment particular to partner relationship. Different levels of each cognitive vulnerability revealed vulnerability versus resiliency effects. Models with interactions between cognitive vulnerability and two types of loss, interpersonal and independent, confirmed the important role of self-categorized perceptions of loss as moderator in the prediction of maladjustment. Significant interactions between maladaptive independent goal orientation, self-criticism, and independent loss in prediction of depression, the "match hypothesis", was confirmed for both groups of mothers. The more powerful negative impact of self-criticism, compared to interpersonal goal orientation, on PPD was confirmed, and the impact of adaptive independent goal orientation, self-efficacy, on NPP MDD was demonstrated. Unique

conceptualization of PPD was supported with exploratory investigation of prediction models for

nonpostpartum depression in mothers. The discussion considered implications for tailored

prevention and treatment, and women's and societal perceptions of experiences of PPD. Namely,

traditional interventions such as IPT and CBT were supported, and flexible approaches and

aspects of treatment such as in-home visits, enlisting close others, facilitating adaptive

vulnerability, relying on a range of health professionals, and early screening for psychological

vulnerabilities in medical visits were recommended.

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Depression is a commonly experienced mental health issue in most countries around the

world (Weissman, Bland, Canino, Faravelli, Greenwald, Hwu et al., 1996) and a common cause

of global disease burden (Murray & Lopez, 1997). Although extensive research has focused on

depression in women, its manifestations are still not fully understood (Beck, 2002; Hopkins,

Marcus, & Campbell, 1984). For example, women remain a highly vulnerable population with

regard to depression. Namely, women have twice the prevalence rate as men (Kessler,

McGonagle, Zhao, Nelson, Hughes, Eshleman, Wittchen, & Kendler, 1994) and depression is the

leading cause of hospitalizations among women (see Burr, 2002; Deniss & Chung-Lee, 2006),

who are particularly vulnerable between the ages of 15 to 44, a time period that overlaps with the

childbearing years (see O'Hara, 2009).

**Prevalence and Effects of Postpartum Depression**

Postpartum Depression (PPD), which is characterized by nonpsychotic moderate

psychological maladjustment and onset within 4 to 6 weeks after childbirth (APA, 2013) and up

to one year postpartum, has a prevalence rate that is estimated at 10%-15% for moderate

depression (see Hopkins et al., 1984; see O'Hara, 2009; Pitt, 1968; Watson, Elliott, Rugg, &

Brough, 1984). Moreover, depression associated with childbirth is established as a common

source of psychological maladjustment in women (Beck, 2002), which significantly impacts the

mother (Beck, 2002), infant (Murray, 1997), and partner (O'Hara, Zekoski, Philipps, & Wright,

1990). Namely, PPD manifests in features including low mood, fatigue, lack of stamina, sleep

disturbance, excessive guilt, poor concentration, and thoughts of harming infant (Bernard-

Bonnin, 2004; Field, 2010; Morais, Lucci, & Otto, 2013; Parsons, Young, Rochat, Kringelbach,

& Stein, 2012). The effects of this psychological impairment are wide reaching to relationships in women's lives and can be long-term.

Immediate effects of PPD include disruption to mother-infant bonding (Taylor, Atkins, Kumar, Adams, & Glover, 2005; Brummelte & Galea, 2016), women's sense of security and identity (Beck, 2002), and relationship adjustment (O'Hara et al., 1990). For example, mother's caregiving may become compromised and subsequently has a significant harmful  impact on child development (Brummelte & Galea, 2016; Field, 2010; Parsons et al, 2012). Interactions with infants are typically marked by two maladaptive styles for PP women: intrusive and withdrawn. Use of these styles interferes with attentiveness and responsiveness, frequency and nature of touch, which is marked by low levels of affection and warmth, ability to attune vocal behavior with infant's vocal and non-verbal behavior, positive affect, engagement in enrichment activities, such as play and story-telling, and is associated with more hostile/irritable affect (Field, 2010). Other care giving activities such as breastfeeding, sleep routines, and safety practices are also compromised by PPD (Field, 2010). In fact, concerning breastfeeding, women with PPD are more likely to have lower self-efficacy, be unsatisfied, and discontinue prematurely. They are also more likely to use harsh punishment and less likely to use car seats or electric outlet covers (Field, 2010; Parsons et al., 2012). Consequences on children extend to various stages of development from infancy to school age (Bernard-Bonnin, 2004; Cummings & Kouros, 2009).

The psychosocial impact of maladaptive mother-infant interactions has been shown to manifest in insecure infant attachment (Brummelte & Galea, 2016). Namely, infants of depressed mothers exhibit an inability to self-regulate attention, arousal, or affect, and more negative affect, passivity, withdrawal, and self-soothing behaviors than infants of euthymic mothers (Bernard-

Bonnin 2004; Field, 2010). Research shows that infants of depressed mothers interact better with fathers, which although may buffer the effects of impaired interaction with mothers (Bernard-Bonin, 2004), may also reflect the additional responsibility placed and the impact of PPD on partners. Impact on infant health has also been documented. Infants with depressed mothers experience more gastrointestinal symptoms/diarrhea, and more emergency visits and hospitalizations in the two years after birth than infants with euthymic mothers (Brummelte & Galea, 2016; Parsons et al., 2012). Long-term effects of PPD on children are vast impacting multiple areas of functioning including health, cognitive, behavioral, social, and emotional. Namely, deficits such as stunted physical growth, showing less expressive language, impaired cognitive-linguistic functioning, academic problems including lower IQ and attentional problems in adolescence, less positive interactions with new others, elevated stress hormones, externalizing problems, and increased risk/vulnerability for developing a mood disorder or anxiety have been documented (Bernard-Bonin, 2004; Cummings & Kouros, 2009; Brummelte & Galea, 2016; Field, 2010; Hay, Pawlby, Sharp, Asten, Mills, & Kumar, 2001; Morais, 2013). Therefore, maternal depression in the postpartum (PP) period has been established as a common problem with significant intrapersonal, interpersonal, and societal consequences. The current study focused on two of these aspects of postpartum maladjustment (PPM): depression symptom severity and relationship maladjustment, defined as bonding with baby and relationships with partner and mother. Each of these aspects comprising PPM with respect to the conceptualization, consequences, and women's experiences, for the purpose of the current study, will be discussed below.

**History of Postpartum Depression Research: Under-recognition and Inconsistencies**

Despite increased interest in research and discourse in the past few decades, the history of PP research is marked by underrecognition and underdiagnosing of PPD (Meltzer & Kumar, 1985; Parsons et al., 2012; Phillips, Sharpe, & Matthey, 2009; Pitt, 1968), and greater focus on psychosis and baby blues (see Hopkins et al., 1984 for review). One of the first studies to identify the unique distress of mothers in the PP period (Pitt, 1968) has led to recognition of the need for more research and improved screening. However, methodological inconsistencies related to diagnostic criteria (Cox, Holden, & Sagovsky, 1987; Kammerer, Marks, Pinard, Taylor, Castelberg, Kunzil, & Glover, 2009), and inconsistent findings (Bloch, Daly, & Rubinow, 2003; Brummelte & Galea, 2010; Cooper & Murray, 1995; O'Hara, Schlechte, Lewis, & Varner, 1991; Parsons et al., 2012) related to onset (see Bloch et al., 2003; Kammerer et al., 2009), course (severity and duration; Cooper, Campbell, Kennerley, & Bond, 1988; Cooper & Murray, 1995; Hendrick, Altshuler, Strouse, & Grosser, 2000; O'Hara, 1990, Pitt, 1968; Watson et al., 1984; Whiffen, 1988; Whiffen & Gotlib, 1993), and phenomenology (Pitt, 1968; see Bloch et al., 2003) have all made it difficult to fully conceptualize PPD. For example, regarding onset of PP symptoms, some findings suggest that onset of PPD begins in pregnancy (O'Hara et al., 1991; Watson et al., 1984), while other studies suggest that for some women onset begins in the PP period (Cooper & Murray, 1995; Hendrick et al., 2000).

**Introducing the "Distinction Hypothesis": Postpartum Depression Compared to NPP Major Depressive Disorder in Women**

Conceptualizing PPD becomes more complicated when considering its relationship to nonpostpartum (NPP) major depression. Specifically, the question of whether PPD is a qualitatively distinct construct has been a focus in research and discourse for several decades

(Hendrick et al., 2000; Hopkins et al., 1984 for review; Jones, Scott, Cooper, Forty, Smith, Sham, Farmer, McGuffin, Craddock, & Jones, 2010; Phillips, Sharpe, Matthey & Charles, 2010; Pitt, 1968; Whiffen, 1988; Whiffen & Gotlib, 1993; O'Hara et al., 1990). Although PPD has been classified in the DSM-5 under major depressive disorder (MDD) with the only distinction being temporal, related to timing of onset during pregnancy or the early PP period (APA, 2013), research suggests that PPD may differ substantially from NPP MDD. For example, some women only develop depression during the PP period (O'Hara, 2009), supporting a differentiation between depression related to childbirth from NPP MDD. Moreover, studies looking at factors such as heredity (Bloch et al., 2003) history (Bloch et al., 2003; O'Hara et al., 1991), incidence (Cooper & Murray, 1995) and biological factors (Bloch, Schmidt, Danaceau, Nieman, & Rubinow, 2000; Steiner, Dunn, & Born, 2003) point to a distinction, suggesting that depression related to childbirth, PPD, may warrant being identified as distinct from depression at other periods of women's lives. For example, relatives of women with a history that includes only PPD are at lower risk for developing a psychiatric illness than relatives of women with a history of both PPD and MDD and only MDD (see Bloch et al. for review, 2003). Research findings and ongoing discourse have still not resolved this question. In the current study, the term *Distinction Hypothesis* was coined to represent the long-standing issue of uniqueness of PPD, relative to NPP MDD.

**Importance of Cognition in Postpartum Depression (PPD)**

Diagnosis of PPD has typically been based on the DSM criteria (APA, 2013). However, despite the ubiquitous use of the DSM criteria as the gold standard for diagnosing depression, PPD has exhibited a distinction from NPP MDD in the reduced power of somatic symptoms to identify depression in the PP period, calling into question the utility of somatic symptoms for

diagnosing depression in new mothers (Yonkers, Smith, Gotman, & Belanger, 2009). One

argument for focusing less on somatic symptoms in PP women is the concern that the experience

of new motherhood is being overpathologised (Matthey, 2010). Specifically, women experience

known physiological changes inherent in the childbirth experience along with the physical

demands of taking care of a new baby (Steiner et al., 2003), and symptoms such as changes in

appetite, fatigue, and loss of energy occur in nondepressed new mothers (Kammerer et al., 2009).

However, there is a competing concern that serious psychological distress, reflected in features

that are more relevant to PPD, may be minimized or overlooked (Phillips et al., 2009; Ussher,

2010). Indeed, studies demonstrate that women who are identified as meeting criteria for PPD

through screening assessed with clinical interviews or standardized measures of PPD may not be

identified as having PPD based on measures (such as the Beck Depression Inventory; BDI, Beck,

Ward, Mendelson, Mock, & Erbaugh, 1961) alone, which rely heavily on somatic symptoms

(Harrington & Greene-Harrington, 2007; Parsons et al., 2012; see Whiffen & Gotlib, 1993).

Because cognitive symptoms, such as concentration and attention deficit, appear to be less

confounded by the natural physical and physiological demands of the PP period, it has been

recommended that more emphasis be placed on them for diagnosis and screening of PPD. A

measure of PPD, the Edinburgh Postnatal Scale (EPDS; Cox., Holden, & Sagovsky, 1987), was

developed to address the lack of a standardized screening tool for PPD that relies less on somatic

symptoms and was used in the current study, along with a clinical interview.

Another issue that underscores the limited utility of somatic symptoms and poses

challenges to research on PPD is treatment constraints. Finding and evaluating treatment for

depression in the PP period is more challenging than at other time periods due to new mothers'

concerns regarding taking medication, particularly while breastfeeding (Bennett, Boon, Romans,

& Grootendorst, 2007; Bernard-Bonnin, 2012; Dennis & Chung-Lee, 2006). Mothers who are

breastfeeding are reluctant to use psychotropic medications and are faced with balancing the

risks of leaving their depression untreated with the risks of passing negative effects of

medication to their baby or switching to formula (Bennett et al., 2007; Bernard-Bonnin, 2012).

Moreover, PP mothers universally report preferring "talk therapies" to pharmacological treatment

(Dennis & Chung-Lee, 2006), which raises another treatment issue, namely the limitations of

current psychological treatments for PPD. Individual cognitive behavioral therapy (CBT) and

interpersonal therapy (IPT) treatments, the most commonly used psychotherapeutic interventions

for PPD, both focus primarily on mother's beliefs and perceptions related to her role (O'Hara,

Stuart, Gorman, & Wenzel, 2010), targeting aspects of women's cognition. For example,

although IPT may include sessions with partners, partners are enlisted to support women's

treatment and therefore may only attend as few as one or two sessions. Indeed, aspects of

women's cognition are targeted as the primary focus of intervention efforts and women's

preference suggest that interventions must continue to be refined to be a beneficial approach to

addressing maladjustment and promoting recovery. For example, in one study, ruminative

thinking in pregnancy/prepartum was predictive of mother-infant bonding PP, but not PP

depressive symptoms (Muller, Teisman, Havemann, Michalak, & Seehagen, 2013).

     Overall, it is clear that somatic aspects of depression are extremely limited in their utility

for conceptualizing, diagnosing, treating, and monitoring depression in the PP period. Rather,

psychotherapeutic interventions must be primarily relied upon for treatment, emphasizing the

need for their effectiveness and ability to target key aspects of risk, antecedents, and PPD

phenomenology. Therefore, understanding the particular cognitive aspects of women's

experiences in the PP period is particularly important for prevention, screening, and treatment of

PPM, and specifically PPD. A primary aim of the study was to identify these key cognitive risk factors as ideal targets for treatment and directions for effective intervention approaches.

**Introducing the Cognitive Diathesis-Stress Model and History in PPD Research**

The research on PPD draws from the depression literature and a cognitive diathesis-stress model (CDS) of depression etiology, which identifies the role of dispositional cognitive styles and cognitive factors as important in the development of PPD (Masih, Spence, & Oei, 2007; Warner, Appleby, Whitton, & Faragher, 1997). Specifically, in PP women, cognitive styles, including attachment schemas (Simpson, Rholes, Campbell, Tran, & Wilson, 2003), perfectionism (Mazzeo, Landt, Jones, Mitchell, Kendler, Neale, Aggen, & Bulik, 2006), maternal orientations (Van Bussel, Spitz, & Demyttenaere, 2009), goal orientation (dispositional self-definition and relatedness; Vliegen, Luyten, Meurs, & Cluckers, 2006), self-esteem (Logsdon & Usui, 2001; Jones et al., 2010), egocentrism (Rosenwald & Stonehill, 1972), emotional intelligence (Rode, 2016), and cognitive processes, including cognitive appraisal (Pakenham, Smith, & Rattan, 2007) have an association with PPD. However, research has revealed inconsistent findings with some variables (e.g., goal orientation) and has been sparse regarding others (e.g., self-concept clarity), leaving the particular role of cognitive vulnerabilities undetermined. Moreover, because interest in PPD has emerged more recently than NPP MDD, and cognitive vulnerabilities identified in relation to classic MDD may not be particular to PP women, the particular cognitive styles that are most significant to the etiology of depression in the PP period remain to be determined (see Jones et al., 2010; Whiffen & Gotlib, 1993).

Therefore, the existing research on PPD requires replication of findings of the contribution of cognitive vulnerabilities that have been examined in the CDS model, investigation of cognitive vulnerabilities that have been identified as important in the literature,

but neglected in studies of the CDS model of PPD, and clarification of the role of vulnerabilities

that have demonstrated mixed findings. The current study used the CDS model as a framework

to investigate the role of particular cognitive vulnerabilities identified as relevant to PPD. Stress

has also been identified as a crucial component of the CDS model (Phillips et al., 2010; Rode,

2015). However, in past research on PPD, stressors have been difficult to identify, rather,

perceptions of stress have emerged as more important in the relationship between cognitive

variables and PPD (Masih et al., 2007; O'Hara, 1985; O'Hara et al., 1991; Whiffen, 1988).

Namely, less stable cognitive constructs, such as perceptions of stress, particularly loss, have

been identified as integral to women's experiences of PPD (Beck, 2002). However, little research

has focused on the relationship between these variables, chronic cognitive styles, and PPD

(Masih et al., 2007; O'Hara, 1985; O'Hara et al., 1991; Warner et al., 1997; Whiffen, 1988).

Finally, the nature of the relationship between cognitive variables and particular aspects of PPM

is still unknown (see Robakis, Williams, Crowe, Kenna, Gannon, & Ragson, 2015). Two theories

will be described as a basis for understanding the role of cognition in PPD, and the relationship

between particular cognitive styles, a cognitive process, and aspects of maladjustment to PPD

will be delineated. The extant research provided direction for the current study, which used a

CDS model that will be described, and comparison of groups to address the distinction

hypothesis. Moreover, the role of cognitive styles identified in research as representing the most

relevant psychological vulnerabilities, as well as types of perceptions and stressors, will be

described based on empirical evidence, women's narratives, and theory.

**Summary of Importance and Direction for Research on Postpartum Depression**

Clearly, there is a need to understand more about the etiology and phenomenology of

PPM and several issues regarding PPD, including its validity as a unique construct. One fact

remains obvious: how PPM is conceptualized may have significant implications for mothers'

perceptions of themselves, their experiences, researchers' perspectives and practices, and the

perspectives and approaches of healthcare providers. Namely, researchers and practitioners are

challenged with conceptualizing PP related adjustment in a manner that both provides sufficient

recognition for women's distress, while avoiding overpathologising the experience of

motherhood (Matthey, 2010; Ussher, 2010). Determining whether PPM reflects a unique

experience to the PP period and identifying the particular aspects that are most influential and

distressing to PP women is integral to meeting this challenge. Variables related to cognitive

styles and contextual factors have been identified as important to understanding the

phenomenology and etiology of PPD (O'Hara et al., 1990, 1991; Scattalon & Stoppard, 1999).

However, few studies have examined a model of depression using direct comparisons of

depression in women PP and NPP (O'Hara et al., 1990, 1991; Whiffen, 1988; Whiffen & Gotlib,

1993). Consequently, the variables identified in studies of PPD (and MDD) have been limited,

particularly with respect to psychological variables, such as cognitive vulnerabilities, leaving a

gap in research needing to be filled in order to address the distinction hypothesis directly. Taken

together, quantitative and qualitative studies provide some evidence for a distinct quality of PP

related maladjustment, but have also shown some inconsistencies. Specifically, the question of

whether anxiety is greater for PP women than NPP women has been of focus in discourse

regarding the distinction hypothesis (Bloch et al, 2003; Pitt, 1968; Whiffen & Gotlib, 1993).

Similarly, emotional dependency and relational maladjustment have been identified as favoring a

unique role in PPD, in contrast to NPP MDD, and in contrast to other predictions (O'Hara et al.,

1991; Vliegen et al., 2006). Therefore, anxiety, dependency, and relational maladjustment were

examined in the current study to address the distinction hypothesis.

Overall, PPD appears to be a unique experience marked by loss (Beck, 2002; Masih et al., 2007; Mauthner, 1999), internal struggle, high anxiety, unrealistic and unmet expectations, and negotiating attachment with partner, mother, and infant. Therefore, several specific questions provide direction to address the distinction hypothesis including: Do certain cognitive styles uniquely contribute to predicting PPD? Do certain types of perceptions or appraisals impact the etiology and experience of PPM? Does relationship maladjustment with people other than partner distinguish PPD from NPP MDD? Can a model describing the association between the intrapersonal, interpersonal, and environmental aspects of women's psychological experience PP distinguish them from women with depression at other time periods? Examining women's patterns of cognition, perceptions, and relational maladjustment provided a direction/framework for addressing these questions. Moreover, this framework has been supported in research on NPP MDD (Clark, Beck, & Brown, 1992; Coyne & Whiffen for review, 1995) and PPD (O'Hara et al., 1990; Whiffen & Gotlib, 1993), and therefore will be described and was used in the current study.

**Purpose of the Study**

The purpose of the current study was to investigate the issue of whether PPD is a unique experience particular to PP related maladjustment, compared to NPP MDD, namely the distinction hypothesis. Based on a cognitive diathesis-stress (CDS) model of depression etiology, the nature of the relationship between cognitive dispositions and PPD was also investigated. To this end, the study examined the role of relevant cognitive dispositions, identified in theory and research, as vulnerabilities to the development of PPD. Namely, based on extant quantitative and qualitative research on PPD, this study tested the theory that because perfectionism, self-concept clarity, goal orientation, and anxiety are risk factors for experiencing four significant types of

loss during the PP period, namely, loss of control, loss of relationships (self in relation to others),

loss of self (identity), and loss of independence, they contribute to the development of PPD.

Additionally, there was a focus on a cognitive variable particular to the context of becoming a

mother (unrealistic expectations for motherhood), which is a risk factor for a fifth type of loss;

the loss of the imagined experience or unrealized dream of motherhood. Finally, a less stable

cognitive variable (perceptions of loss), and specific aspects of PPM (bonding with baby and

relationship maladjustment with partner and mother) were included in the study.

**Research and Theory: Conceptualizing PPD Etiology and Phenomenology**

**Overpathologizing and the Distinction Hypothesis**

Since a seminal study conducted by Pitt (1968) who identified PPD as having "atypical"

features, ongoing discourse regarding the unique nature of depression in the PP period has

ensued (see Brummelte & Galea, 2010; O' Hara et al., 1990; Whiffen, 1988; Whiffen & Gotlib,

1993). However, compared to classic MDD, few studies have examined and identified the

particular phenomenology and addressed the possible unique etiology of PPD (e.g., Hendrick et

al., 2000). One consequential effect of failing to adequately identify unique aspects of PPD is

that serious psychological distress may be minimized or overlooked (Ussher, 2010), leading to

poor screening, prevention, and treatment. In support of this concern, the Beck Depression

Inventory (BDI), a reliable and widely used measure of depression, has failed to correctly

identify depression in women with PPD in past research (Bernard-Bonnin, 2012). Yet, some

women experience significant psychological distress in the PP period identified by other methods

of screening/inquiry (see Boyd, Le, & Somburg for review, 2005). In fact, findings suggest that

although prevalence is not necessarily higher in the PP period, it is a time of higher incidence of

depression and greater psychological maladjustment, especially in the early PP period up to 3

months (O'Hara et al., 1990). Moreover, some studies have found more severe symptomatology in women with PPD than women with NPP MDD (O'Hara et al., 1990) and although some studies suggest that PPD manifests with less severe symptoms (Whiffen & Gotlib, 1993), PPD does not necessarily remit more quickly (Hendrick et al., 2000; Pitt, 1968). For example, in one study, compared to women with NPP MDD, women with PPD required a higher number of medications, and took longer to exhibit response to treatment and experience recovery (Hendrick et al., 2000).

Existing research on conceptualizing PPD raises another issue related to the distinction hypothesis, namely, that the experience of new motherhood may be overpathologised (Matthey, 2010). Women identified as having PPD experience psychosocial challenges that are inherent to the transition to early motherhood. Placing these experiences in the paradigm of psychological disorders, by overemphasizing somatic symptoms or relational challenges, for example, may create more distress for mothers, particularly new mothers. That is, erroneously pathologising ubiquitous and normal aspects of new motherhood may serve to increase women's distress by feeding into unrealistic expectations and ultimately contributing to their worries that something is "wrong" with them. Some findings support the overpathologising hypothesis. For example, minor depression may be more common in mothers than major depression (Watson et al., 1994; Whiffen & Gotlib, 1993). Specifically, PPD is characterized by an absence of suicidal ideation and hopelessness, short duration, mild symptoms, and features such as dependency and high frequency of anxious symptoms (Pitt, 1968; Hendrick et al., 2000). Anxiety tends to revolve around PP related worries. Specifically, women worry about their own and their baby's health (Pitt, 1968), and in some cases this manifests as thoughts about and fear of harming their baby (Field, 2010). Therefore, findings have led to conceptualizing the PP period as a period of stress

and milder psychological maladjustment, consistent with an adjustment process, and PP related

maladjustment as an adjustment disorder rather than a depressive disorder (Whiffen, 1988;

Whiffen & Gotlib, 1993). The apparent milder nature and absence of symptoms such as

suicidality, along with prominence of anxiety, has led some researchers to label PP related

maladjustment as a "depressive neurosis" (Watson et al., 1984), or "postpartum mood disorder"

(Van Bussel, Spitz, & Demyttenaere, 2006; Matthey, Barnett, Howie, & Kavanagh, 2003).

**Subgroups of Postpartum Women**

Studies examining history and recurrence of depression in PP and NPP women provide

additional evidence for the Distinction Hypothesis. For example, Hendrick and colleagues (2000)

found that compared to women with NPP MDD, women with PPD were less likely to have a

prior history of depression and the majority of women with PPD reported no depressive

symptoms until the PP period, suggesting that some women only develop depression during the

PP period (see O'Hara, 2009 for review). With regards to recurrence of depression, similar to

NPP MDD, past episodes of depression predict future episodes of depression in women with

PPD (O'Hara et al., 1990). However, women with PPD who have only had a PPD episode are at

lower risk for developing NPP MDD and higher risk for developing PPD following a future

pregnancy than women who have had an episode of depression at both time periods (Cooper &

Murray, 1995).

One way of explaining these findings has been to identify heterogeneous groups among

women who develop depression in the PP period (Church, Brechman-Toussaint, & Hine, 2005;

Cooper & Murray, 1995; Phillips et al., 2010; Warner et al., 1997; Watson et al., 1984). The role

of biological stressors has been postulated to play a role for a subgroup of these women who may

have a unique PP related maladjustment. Namely, dramatic changes in hormones from levels in

pregnancy (identified as the ovarian steroid withdrawal hypothesis), including a marked drop in

cortisol, estrogen, and progesterone, and a sharp increase in oxytocin and prolactin (Bloch et al.,

2000; Steiner et al., 2003), and thyroid dysfunction (Harris, 1993) have been identified.

However, for most PP women, a model including psychological and contextual variables has

been postulated to play an important role. Particular personality and cognitive vulnerabilities

have also been identified as unique for PP women with recurrent depression compared to women

with de novo PPD (Phillips et al., 2010). Therefore, PPD may best be understood as including

some unique features, and a heterogeneous presentation. Yet, some studies have found no

distinct features of PPD from NPP MDD (Cooper et al., 1988; Jones et al., 2010; Whiffen, 1988)

and evidence is difficult to interpret without a model and comparison with women with other

depressive episodes (i.e., NPP). Therefore, inconsistent findings create a gap in knowledge

regarding PPD etiology and phenomenology. Past studies comparing PPD to NPP MDD provide

some direction for addressing this gap.

**Conceptualizing PPD: Research Using Comparison of Groups and a Psychosocial Model**

Much of the research on PPD supports the importance of a psychosocial model of PPD

etiology to explain phenomenology (O'Hara et al., 1990; 1991; Phillips et al., 2010; Reid &

Taylor, 2015; Rode, 2016; Watson et al., 1984). Moreover, the most direct method of empirically

addressing the Distinction Hypothesis is to compare women with PPD and women with NPP

MDD. Few studies have provided direct evidence by comparing PPD with NPP MDD using a

psychosocial model (O'Hara et al., 1990, 1991; Whiffen, 1988; Whiffen & Gotlib, 1993). In one

study, O'Hara and colleagues (1990) found that compared to women with NPP MDD, women

with PPD had higher depression levels and symptom severity, including both cognitive and

somatic symptoms. Specifically, the major difference between PP and NPP women was higher

severity of somatic symptoms and less enjoyment of intercourse for PP women. Using models of PPD etiology, studies have found that the interaction between variables including history of depression (number of episodes and depression during pregnancy), number of recent life events, appraisal of events, and number of childcare related stressors was also associated with PPD (Whiffen, 1988; O'Hara, 1990; 1991). In one study, women with PPD had greater social maladjustment, particularly marital maladjustment, than matched NPP depressed women (O'Hara et al., 1990). Moreover, whereas maladjustment improved for NPP women, it remained stable over time for PP women. These findings suggest that unique stressors and course and aspects of maladjustment should be considered in predicting and understanding PPD phenomenology. In a similar study using comparison of groups, Whiffen (1993) found contradictory findings. Specifically, NPP women had more severe symptomatology compared to PP women, including greater anxiety, and worse marital adjustment, somatic concerns, and psychomotor agitation. However, recruitment methods may have overselected for severe depression in the NPP group.

Even fewer studies have included a comparison with new euthymic mothers, examining normal PP experience (Jones et al., 2010; O'Hara, 1985; O'Hara et al., 1990; 1991; Phillips et al., 2010). In one of these studies (O'Hara,1985), compared to euthymic mothers, women with PPD experienced greater stress, including more stressful life events in PP and child-care related stress events, and poorer social support, including very deficient emotional and instrumental support from spouse. Furthermore, certain relationships contribute the most to PPM. Specifically, while there was no difference in perceived frequency of support from friends and other relatives between depressed and euthymic mothers, depressed women were less satisfied with the support from their spouse, parents, and parents-in-law, and experienced less marital

satisfaction, underscoring the role of these relationships in PPM. In another study, women with

PPD had higher maternal specific negative attitudes than euthymic mothers (Phillips et al.,

2010), highlighting the importance of this cognitive vulnerability to PPM.

**Summary of Findings from Studies of Comparison Groups and a Psychosocial Model of**

**PPD**

Overall, the role of anxiety, maternal specific attitudes, women's satisfaction with

relationships - particularly marital adjustment - psychiatric history, and symptom severity

provide initial variables, investigated to date in the development of a psychosocial model of

PPD. The discovery of the importance and particular presentation of these variables suggests that

PPD may warrant a distinction as a psychological disorder from NPP MDD. Moreover, these

variables demonstrate more success at predicting symptom level as opposed to diagnosis of PPD,

suggesting that (focus on) women's experiences of PP distress are important in understanding

PPD and can be predicted with the right variables. In fact, the utility of continuous measures to

capture PPM has been emphasized (Matthey et al., 2003; Whiffen, 1988). Therefore, the current

study focused on symptom severity and depression as a continuous variable. Findings further

suggest that it is necessary to consider unique aspects of stressors and the interaction with

vulnerability variables to understand etiology of depression (Monroe & Simons, 1991). What

remains to be determined is whether a particular model of depression etiology can distinguish

PPD from NPP MDD and whether the role of important contributors distinguishing PPD and

MDD, such as maternal expectations and anxiety, can be clarified. Few studies have identified

cognitive vulnerabilities particularly relevant to PPD in interaction with life stress, including

perceptions of stress, in a diathesis-stress model with comparison groups of NPP women with

MDD (O'Hara et al., 1990, 1991; Whiffen & Gotlib, 1993). The current study used a CDS model

and included two groups of women, a postpartum (PP) depressed and a nonpostpartum (NPP) depressed group, to address the distinction hypothesis.

**Theory: The Cognitive Diathesis Stress Model**

Much of the research on depression has used a diathesis-stress model of depression etiology (Coyne & Whiffen, 1995; Masih et al., 2007; O'Hara et al., 1991; Pakenham et al., 2007; Phillips et al., 2010; Rode, 2016), where a stressor combined with existing vulnerabilities contributes to the development of onset of depression (Abramson, Metalsky, & Alloy, 1989; Hyde, Mezulis, & Abramson, 2008). Vulnerabilities in the diathesis-stress model are considered persistent, stable variables that are latent and endogenous to the individual. Based on the diathesis-stress model, vulnerabilities act as risk factors that create greater susceptibility to experiencing psychological maladjustment and developing psychological disorders, such as depression. The role of cognitive style has been identified as an important vulnerability in the diathesis-stress model, in this case, also referred to as the cognitive diathesis-stress model (CDS). Namely, individuals who demonstrate a greater tendency to have maladaptive cognitions associated with certain cognitive styles are at higher risk of developing and experiencing more severe depressive symptoms.

**Cognitive Vulnerabilities (Diatheses) and the Current Study**

The current study followed the existing empirical evidence on the CDS model (Abramson et al., 1989; Coyne & Whiffen, 1995; Phillips et al., 2010; Rode, 2016) in PP women, with the addition of drawing on the reported experiences of women with PPD based on qualitative studies (Beck, 2002; Mauthner 1999), to identify the most relevant cognitive styles to PPD. Specifically, women with PPD consistently identify three types of changes posing challenges related to (a) their sense of self, (b) their self in relation to others, that is, their relationships, and (c) their sense

of control (Beck, 2002). Presumably, women who are already susceptible to struggling with these issues will experience greater difficulty and subsequent distress with the inherent changes in these domains, and more specifically, potential losses associated with new motherhood. Five particular losses related to these challenges are identified by women with PPD: (a) loss of self, (b) loss of (self in) relationships, (c) loss of control, (d) loss of independence, and e) loss of the imagined dream of motherhood (self as mother). Therefore, it was predicted that cognitive styles that correspond with these specific aspects of the self and challenges of motherhood that become salient PP should represent the most relevant vulnerabilities. Moreover, they should be triggered easily, placing women at greatest risk for developing depression PP. That is, the cognitive variables examined in the current study are postulated to correspond with the ubiquitous types of challenges experienced by women with PPD.

The current study examined four general cognitive styles and one particular to becoming a mother. Perfectionism, which reflects a tendency to have high standards and a sense of failure when these standards are not met, was postulated to be associated with PPD. Women with high perfectionism are presumably more susceptible to maladjustment related to all five losses associated with motherhood when faced with challenges to sense of self, relationships, and independence. Two types of perfectionism were examined: a) Unrealistic expectations for motherhood, which is the tendency to have high expectations for motherhood, similar to perfectionism, but targeted more directly to motherhood and b) Perfectionistic self presentation, which is the tendency to attempt to present a perfect or flawless self to others. Self-concept clarity, the tendency to have a clear, consistent, well-defined sense of self was postulated to be particularly vulnerable to challenges to sense of self associated with motherhood. Goal orientation, related to valuing and focus on two types of goals, namely individual/self-definition

CONCEPTUALIZING POSTPARTUM DEPRESSIONand interpersonal, was postulated to be vulnerable to challenges to sense of independence and

self in relationships, respectively. Finally, anxiety, the tendency to react to situations, such as the

need to make consequential decisions regarding health and safety for self and baby, with intense

worry, fear, and sense of danger, has been identified in association with the distinction

hypothesis and was postulated to be vulnerable to challenges related to loss of control.

**Stress and the Cognitive Diathesis-Stress (CDS) Model**

Vulnerabilities are considered to be most powerful in the development of depression

through their interaction with environmental factors (Hyde et al., 2008). Although little research

has produced direct evidence of the power of interaction between cognitive vulnerability and

stress in onset of depression, the CDS interaction has demonstrated prediction of both diagnosis

and symptoms of depression (see Scher, Ingram, & Segal 2005 for review). Therefore, a key

component of the CDS model is the role of environmental factors, namely stress, in activating

vulnerabilities (Scher et al., 2005). Scher and colleagues (2005) conducted a review of studies

examining the CDS model with different methodologies, including priming and longitudinal

designs. They concluded that depressive schemas presumed to underlie cognitive vulnerability

only affect processes considered to be instrumental to depressive symptomatology, namely,

attention, information processing, memory, and interpretive bias, when activated by external

stimuli, such as stress. For example, unlike individuals who have never been depressed,

individuals who have been previously depressed report more dysfunctional attitudes and

irrational beliefs when triggered by sad mood induction or self focus, but are similar to never

depressed individuals when situational stimuli are designed to be neutral. Moreover, in

longitudinal studies, naturally occurring stressors result in effects in support of the CDS

interaction between cognitive vulnerability and stress (Scher et al., 2005).

The persistent and automatic nature of cognitive vulnerabilities predispose individuals to psychological maladjustment due to the tendency to apply negative beliefs and attributions associated with the vulnerability to circumstances that they encounter. The more negative or potentially stressful the circumstance, the more easily negative cognitions may be triggered and the greater the psychological outcome. Moreover, the relationship is reciprocal in the sense that negative attributions can create the meaning of events for individuals (Monroe & Simons, 1991). Therefore, stressors, at the very least, activate the latent content of cognitive vulnerabilities and play an instrumental role in the development of psychological outcomes such as depression.

**Stress, Women, and Depression**

Women and researchers consistently recognize depression in women as occurring in a context that may include immediate environmental, social, cultural, or political factors (Beauboeuf-Lafontant, 2007; Stoppard, 1999; Ussher, 2010). This contextual view is important not only to avoid a deficit based approach, but it serves to place PPD in a larger picture of its antecedents, external influences, and self-perpetuating mechanisms. Stress is a common and significant contextual factor in women's psychological health and has been shown to impact their psychological distress. Studies show that women in particular report more chronic strain (Nolen-Hoeksema, Larson, & Grayson, 1999) and are more vulnerable than men to the physiological (Brummelte & Galea, 2010) and psychological impact of stress (Hyde et al., 2008; Nolen-Hoeksema et al., 1999). Specifically, stressors related to female role demands, such as housework and childcare (Nolen-Hoeksema et al., 1999; O'Hara et al., 1991), and interpersonal stressors, including marital dissatisfaction (Hammen & Brennan, 2002; O'Hara et al., 1990), and poor social support (Logsdon & Usui, 2001; Rode, 2016) have been identified as contributing to depression in both NPP and PP women.

**Stress and Postpartum Depression (PPD)**

Women in the PP period are exposed to unique stressors and the impact of certain stressors has demonstrated a specific role in the development and severity of PP related maladjustment. For example, childbirth is considered a unique stressor to the PP period and women in particular, compared to men, find the transition to parenthood more stressful, rating their experience as more difficult (Terry, 1991). Other common and unique stressors for PP women include major surgery, decreased time for personal activities, and increased conflict with spouse and in-laws (Masih et al., 2007). Along with childbirth related stressors, women also experience other naturally occurring stressors, and research demonstrates that experiencing a greater amount of stressful events predicts the development of PPD (Masih, 2007). Moreover, certain stressors, namely, interpersonal stressors, play a significant role in PPM (O'Hara, 1990).

**Interpersonal Stress and Support: Relationships with Mothers, Partners, and Baby**

Interpersonal stressors and supports emerge in the literature as particularly salient in women's experiences of PPD. For example, narratives of women with PPD reveal that they placed the greatest emphasis on the relationship with their mothers and husbands (Akerjordet & Severinsson, 2010) and other people, such as mother in laws, could not compensate for the lack of support from these two primary sources (Morrow, Smith, Lai, & Jaswal, 2008). Moreover, emotional support from partner and close others can moderate the impact of negative affect due to stressors on parenting stress in mothers, namely their cognitive and emotional reactions to childcare demands (Williamson, McCabe, & O'Hara, 2013), underscoring the importance of these relationships.

**Original Mother-Daughter Relationship**

　　Attachment theory (see Bretherton, 1992) and psychodynamic theory (see Besser, Vliegen, Luyten, & Blatt, 2008) point to the pivotal role that early attachment with caregivers plays in adult psychological adjustment. Namely, the resulting schemas (i.e., internal working models), consisting of expectations for security and support in close relationships and unconscious/unprocessed experiences related to these early relationships impact current close relationships and psychological processing, respectively. Mothers, who tend to be the primary caregivers during (most new mothers) early childhood, lead the original mother-daughter relationship to be the focus for new mothers' psychological processing. Consequently, the original maternal relationship is subsequently triggered and made salient by the experience of childbirth and becoming a mother. Negative experiences in the original mother-daughter relationship, such as loss, neglect, and other forms of abuse, are expected to pose particular challenges and contribute to the etiology of negative experiences in early motherhood, namely PPD. Research findings on PPD supports these conceptualizations and the role of a difficult maternal relationship as a risk factor for PPD (Besser et al., 2008; Boyce, Hickie, & Parker, 1991; Matthey, Barnett, Ungerer, & Waters, 2000; McLaren, Kuh, Hardy, & Mishra, 2007; Mills, Finchilescu, & Lea, 1995).

　　Two different types of dysfunctional parenting, defined as early perceived negative attachment experiences, have been identified as risk factors for PPD. Namely, both low maternal care characterized by indifference, lack of warmth, and affection and high maternal control, characterized by overprotection, overcontrol, intrusiveness, and an infantilizing attitude predict PPD, particularly early in the PP period up to 4 months (Boyce et al., 1991; Matthey et al., 2000; McLaren et al., 2007). Furthermore, early maternal separation increases risk of PPD (McLaren et

al., 2007). Therefore, research suggests that women who hold unresolved emotional conflicts related to their own mother relationship are vulnerable to experience difficulty PP (Mills et al., 1995). Presumably, the initial surprises associated with childbirth and motherhood trigger the historical psychological aspects and current representations/perceived relationship with a woman's own mother. Moreover, the triggering of original mother attachment schema occurs at a time when a woman is struggling to develop her own attachment with her new baby and representation of herself as a mother (see Besser et al., 2008). Questions or doubts associated with confidence in being a good mother, and negative emotions or memories of her own experience of being mothered, may interfere with a mother's ability to adapt to her new role in a healthy, positive way and lead to onset of depression.

A woman's current relationship with her mother, for example the need to rely on her mother, also becomes salient in the PP period, particularly the early period. A difficult relationship has an impact on her own experience of motherhood and the degree and quality of support she receives (Akerjordet & Severinsson, 2010; Morrow et al., 2008). Specifically, women who experience perceived lack of emotional closeness/distance in their current relationship with their mother are at greater risk of developing PPD (McLaren et al., 2007). In one study, despite describing a close relationship with mothers, women with PPD were more likely to also describe their relationships with mothers as tense and difficult. These relationships were characterized by an inability to discuss feelings, ask for advice about their baby or parenting, and having a mother that was less likely to help with the care of the baby, compared to euthymic PP women (Mills et al., 1995).

Although the role of the original mother-daughter relationship and its impact on the development and experience of PPD has consistently been identified in theory and research, only

recently has this relationship been the focus of research inquiry. Moreover, theory, qualitative

analyses, or accounts of the early childhood relationship have primarily been the focus (Besser et

al., 2008; Boyce et al., 1991; Matthey et al., 2000; McLaren et al., 2007; Mills et al., 1995).

Women's perceptions of their maternal relationship appears to be particularly important in

predicting PPM. In one study, retrospectively collected and current data based on women's

perception were more consistent/powerful in predicting PPD than prospectively collected data

from a women's early childhood (McLaren et al., 2007). Accordingly, women's current

perceptions of their relationship with mother was the focus in the present study. Moreover, there

is a gap in research examining the cognitive vulnerabilities that contribute to maladjustment in

the current maternal relationship, an important source of support in the PP period. The current

study included relationship with mother as a variable to provide evidence for the distinction

hypothesis, namely whether the relationship demonstrates more maladjustment and has greater

significance for women with PPD compared to NPP women with MDD. Women's cognitive

styles and experiences of different types of loss that may impact this relationship was also

investigated.

**Partner Relationship**

Attachment theory also identifies the impact of current close intimate relationships on

depression in adults (Simpson et al., 2003), and on the development, and particularly the

perpetuation of PPD (Boyce et al., 1991; Matthey et al., 2000). Similar to mother-daughter

relationships, dysfunctional partner relationships have a significant impact on women PP. Partner

relationships identified as low care, characterized by partners lacking empathy and sympathy,

showing little affection, and being inconsiderate, and relationships identified as controlling,

characterized by partners' dominance and criticism, are risk factors for PPD. Moreover, while

maternal relationships are most influential in the initial PP period, during which novel stresses

are present, lack of partner support appears to be particularly influential to the perpetuation of

PPD at 3 months PP and afterward (Boyce et al., 1991, Matthey et al., 2000). Therefore, it is not

surprising, that women also identify the support of their partner as particularly important and the

experience of marital strain when their expectations are not met (Beck, 2002; O'Hara et al.,

1990). Women with PPD are more likely to describe their partners as generally unsupportive or

absent, namely that their partners withdraw physically and emotionally during conflict, their

partner's presence was unhelpful during birth, and their partner works long hours, compared to

euthymic mothers (Mills et al., 1995).

The disruption to relationships with partners is particularly evident in women with

depression in the PP period compared to other periods. For example, during pregnancy women

indicate that the relationship with their partner strengthens (Bennett et al., 2007; O'Hara et al.,

1990). In one study, both women and their partners perceived the partners as providing more

support for their wives during pregnancy, whereas partners were perceived as being less

supportive, associated with more marital strain, PP (Simpson et al., 2003). One explanation for

this finding is that husbands may have intentions to protect their wife and child during

pregnancy, but this motivation and ability may wane when they have experienced the demands

of a new baby and a wife who is struggling. This decline in perceived support from partners

during the PP period contributes to women's maladjustment. For example, Logsdon & Usui

(2001) found that greater emphasis placed on support was associated with greater incidence of

depression in PP women. Moreover, less support from partners and greater marital

maladjustment PP predicts severity of depression.

Evolutionary theory provides one way of conceptualizing the role of partner support in women's depression and suggests that PPD may be adaptive and function to elicit more support from partners (Gilbert, 2006). Namely, depression is postulated to be a defensive strategy of toning down positive affect and may include strategies such as protest (i.e., crying, exhibiting distress, and clinging) and despair (i.e., behavioral deactivation, helplessness, fatigue, and withdrawal) in order to cope. Coping strategies are engaged in response to lack of control over fulfillment of needs such as affection, support, and sexual needs from partners, or lack of control over avoiding aversive experiences, such as abuse, stress, and loss of partner. Quantitative research on psychosocial factors suggests that cognitive style plays a role in the relationship between partner characteristics and PPD (Boyce et al., 1991; Simpson et al., 2003). For example, women with adaptive cognitive styles such as low interpersonal sensitivity may be more resilient and overcome their depression in the face of a dysfunctional partner relationship, compared to women with high interpersonal sensitivity, who may be more likely to remain depressed (Boyce et al., 1991). Qualitative discourse provides a contrasting view emphasizing the position of depression within a context of environmental factors, describing depression as "embodied", particularly within relationships, which may include a range of circumstances/external factors and particularly stressors, including patriarchal social relations (Burr, 2002). Moreover, women's narratives reveal a focus on strength and enduring hardship, often leading to "suffering in silence" (Beauboeuf-Lafontant, 2007), arguably a stark contrast to the learned helplessness and "manipulative" role of depression presented in evolutionary theory (Abramson et al., 1989; Gilbert, 2006). Although the relationship between support from partners and PPD is likely complex, what is clear is that marital maladjustment, particularly lack of support, plays an important role in the development and experience of PPM. The current study examined partner

relationship to provide evidence for the distinction hypothesis, namely whether the relationship demonstrates more maladjustment and has greater significance for women with PPD, compared to NPP women with MDD. Women's cognitive styles and experiences of different types of loss that may impact this relationship were also investigated.

**Bonding With Baby**

Bonding with baby is crucial to a positive experience of motherhood. However, the PP period can also be a time of greater risk of poor bonding with baby, defined as mother's negative, ambivalent, or neutral attitude towards her baby. Euthymic mothers begin bonding earlier with their babies and enjoy being with their babies more often than mothers with PPD (Mills et al., 1995). Specifically, women have reported greater emotional involvement, marked by more positive emotions towards their baby three months prepartum, compared to three months PP, reflecting a decline between mother's bonding with fetus to bonding with infant (Figueiredo & Costa, 2009). Bonding with baby is associated with PPD and the relationship appears to be bidirectional. Specifically, poor emotional involvement with their baby predicts depression and anxiety for PP women, and PPD predicts worse emotional involvement with baby, marked by more negative and unclear emotions and poorer bonding than for euthymic mothers (Figueiredo & Costa, 2009). Moreover, studies demonstrate that the best predictor for negative emotional involvement is the fact that the mother is depressed (Figueiredo & Costa, 2009; Figueiredo, Costa, Pacheco, & Pais, 2009). Hence, mother's depressive symptoms have a significant impact on her ability to bond, and bonding may reciprocally impact a women's PP experience. This demonstrated relationship between depression and bonding underscores the importance of examining the role of bonding with baby in the context of women's interpersonal maladjustment PP. In the current study, how women's psychological distress, and cognitive

vulnerability in particular, contribute to PP relational maladjustment, including bonding with baby, was investigated.

**Stressors Relevant to Postpartum Depression**

Researchers emphasize the importance of examining stressors that are specific to the population of interest in order to increase sensitivity to the role of stress in psychological maladjustment (Monroe & Simons, 1991; Norbeck, 1984). That is, stressors that are most relevant to women should be examined to target the most powerful potential triggers of underlying cognitive vulnerabilities, and capture the specific experience of stress for women and its influence on the etiology of PPD. Accordingly, a comprehensive collection of stressors were examined with a life event questionnaire designed by Norbeck (1984) for women of childbearing age. Furthermore, the current study focused on relational adjustment with mothers, partners, and baby, relationships where maladjustment plays a large role in the PP period and is of particular importance for women with PPD. Specifically, the role of women's predispositions, namely, cognitive styles in predicting interpersonal maladjustment was the focus of the current study.

**Limited Power of Life Events: The Role of Perceptions in Depression in Women**

Although stress has been identified as a key component in activating and increasing the power of vulnerabilities leading to depression, the role of stressors in the diathesis-stress model has been difficult to identify, suggesting that it may be complex. Much of the research has examined a variety of life events, yet has found weaker relationships between stress and psychological maladjustment than expected (Masih et al., 2007; Terry, 1991). This trend reveals the limited power of examining the amount of stress (assessed by the number of stressful life events) and underscores the need for additional information to explain the interaction between cognitive styles, stress, and depression. To address this missing piece, cognitive processes have

been postulated to play an important role in the relationship between cognitive style and depression (see Coyne & Whiffen, 1995; Masih et al., 2007; Terry, 1991). Moreover, this role has been supported by research findings (Hammen & Brennan, 2002; Monk, Leight, & Fang, 2008).

**Cognitive-Phenomenological Theory of Stress and Coping**

Lazarus and Folkman's (1984) cognitive phenomenological theory of stress and coping provides a framework for understanding the psychological context of a situation by emphasizing the role of cognitive processes (Folkman, Lazarus, Gruen, & Delongis , 1986; Folkman, Lazarus, Dunkel-Schetter, DeLongis & Gruen, 1986). The cognitive phenomenological theory proposes that the power of events lies in how they are appraised subjectively by the individual. Namely, through cognitive appraisal, individuals determine the meaning and significance that an event represents, whether there is potential for harm or benefit in a given situation, and the seriousness of the harm or benefit, that is, what is at stake for them (see Folkman et al., 1986). The greater deemed the stakes or importance of the event, the more individuals are vulnerable to experiencing psychological symptoms (Terry, 1991). For example, in a sample of pregnant women, appraising life events as threatening predicted depression, such that greater threat appraisal was associated with greater depression (Pakenham et al., 2007). In another study, women who were more likely to attribute greater personal significance to their miscarriage and perceive it as a devastating event and a loss, demonstrated higher risk of negative psychological and interpersonal outcome. Specifically, this outcome manifested in a more distant relationship with their partner one year after the miscarriage (Swanson, Karmali, Powell, & Pulvermakher, 2003). Therefore, perceptions of events, and specifically the personal meaning given to events as

threatening or representing loss, are powerful in moderating the interaction between events and

psychological outcomes, including depression and relationship maladjustment, for women.

**Perceptions of Loss and Postpartum Depression**

Cognitive appraisal is also associated with depression in PP women (Masih et al., 2007;

Pakenham et al., 2007). Namely, women's perceptions of events are subjective. In one study,

perceptions of loss associated with life events, rather than the type of event, namely whether they

were related to independence or relational needs, predicted greater depression PP. That is,

women who perceived events as representing greater loss were more likely to experience an

increase in depressive symptomatology, regardless of the type of event (Masih et al., 2007).

Hence, appraisal of events, particularly perception of events as representing loss, (i.e.,

perceptions of loss), rather than occurrence of events or type of event alone, contributes to PPD

by determining the personal impact of events for PP women.

Women's narratives support research using quantitative methods, which rely on life event

inventories (e.g., Clark et al., 1992; Masih et al., 2007), and reveal that for PP women loss is not

only a common theme, but a pervasive phenomenon in their lives (Beck, 2002). Specifically,

following the birth of their baby, women with PPD identify a host of losses related to

motherhood. For example, the constant and weighty task of caring for a newborn brings a loss of

autonomy. This loss is marked by a lack of free time for the self, which previously would have

been spent processing and clarifying feelings and thoughts and maintaining physical appearance

(Mauthner, 1999). More broadly, women describe experiencing a loss of their former self, which

includes their body image and sexuality (Beck, 2002). Furthermore, the change in their roles

from working to staying at home and caring for their baby brings a loss of occupational status.

Women also experience a loss of self in relation to others for a variety of reasons, including the

distance created by their anger and resentment, and the resources depleted by their anxiety or their discomfort with their baby (Mauthner, 1999). Moreover, the discrepancy of the relationship they imagined having with their partner and infant, based on expectations for motherhood, creates a loss of an imagined experience when they experience the reality of struggling to bond or care for their infant and a strained relationship with their partner.

**Interaction between Cognitive Vulnerabilities, Cognitive Processes, and Postpartum Depression**

Cognitive vulnerabilities may create a greater tendency to appraise events negatively and perceive them as a loss. For example, a woman who sets challenging goals for herself and is accustomed to having a sense of control over the internal and external conditions needed to achieve them, may be particularly challenged by the attention and focus that the basic needs of a newborn demands. The sense of loss over previously having freedom to pursue goals may create greater difficulty. Namely, as opposed to accepting these changes resulting in a positive experience, distress and PPM may occur. In this case, a woman with an independent goal orientation, may perceive the demands of a newborn as interfering with her ability to maintain control over reaching her goals and experience a loss of independence, control, and satisfaction of goal achievement. Therefore, cognitive appraisals related to loss, perceptions of loss, should be powerful in the relationship between persistent cognitive styles (vulnerabilities) and PPM (i.e., PPD and relationship maladjustment). In fact, healing for women with PPD includes dealing with losses in their lives (Beck, 2002). Clearly, for women with PPD perceptions of loss plays a significant role in their suffering. The current study examined the role of perceptions of loss to determine the meaning that women attribute to events, and in turn the degree of stress they actually represent, in order to investigate their influence in the development of PPD and

relationship maladjustment. Moreover, the interaction of cognitive styles and perceptions of loss were tested in models predicting PPM.

## Cognitive Vulnerabilities and Postpartum Depression

**Perfectionism**

The transition to motherhood is accompanied by personally and socially prescribed ideas of what women will experience. Women with PPD describe how they discover that these expectations are often unrealistic and are confronted with the difficult challenge of adjusting to the reality of motherhood after their imagined dreams have been shattered (Beck, 2002). Specifically, feelings of losing control, a recurrent theme in the experiences of women in the early stage of motherhood with PPD arise (Beck, 2002) as women experience loss of control over every aspect of their lives, particularly in the areas of self identity and self in relationships (Besser et al., 2008; Masih et al., 2007). For example, experiences in the role of early motherhood, such as bonding with baby and the amount of support received from others, may be incongruent with expectations. Namely, others may behave in unexpected ways creating a challenge for mothers to accept and assimilate. Moreover, daily tasks previously accomplished easily without baby, such as leaving the house, may require more time and effort, and create obstacles that require greater flexibility. For women who hold high, rigid, and unrealistic expectations of self and others, the need to adapt to unexpected and challenging conditions, such as the unpredictability of interactions with a new baby and others in a new context, may be particularly devastating. Consequently, they may be more prone to experience the loss of control that is associated with PPM and PPD.

Perfectionism is defined as the tendency to have high expectations of self and others, perceive others as having high expectations of self, and feeling a sense of failure when these

expectations are not met, and has been associated with depression in past research (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1990). Moreover, it is a multidimensional construct with adaptive and maladaptive facets that have different relationships with depression (Frost et al., 1990; Hewitt & Flett, 1990). For example, in one study, while having high personal standards, considered an adaptive facet of perfectionism, had no association with PPD, the tendency to feel like a failure if one makes a mistake was associated with PPD (Mazzeo et al., 2006). Little research has systematically investigated the relationship between PPD and facets of perfectionism. Specifically, studies examining the relationship between perinatal difficulty and perfectionism have used different measures, focused on different populations (i.e., clinical versus subclinical), different parts of the perinatal period (i.e., pregnancy versus postpartum), different cultures, conceptualized facets differently, and focused on a particular subset of facets (Hewitt & Flett, 1990; Macedo, Bos, Marques, Maia, Soares, Pereira, Gomes, Valente, & Azevedo, 2009; Mazzeo et al., 2006). Moreover, some research suggests that the distinction between adaptive and maladaptive facets is less important in the etiology of perinatal depression than the degree of perfectionism as a risk factor and emphasizes the need to examine variables that mediate or moderate the relationship between perfectionism and perinatal maladjustment (Mecedo et al., 2009).

Clearly, the tendency to have high, unrealistic, and rigid standards for self and others characteristic of perfectionism has the potential to increase women's susceptibility to experiencing PPM. Yet, more clarification regarding its role as a risk factor is needed. Specifically, perfectionism particular to the context of becoming a mother has garnered some attention in the conceptualization and etiology of PPD (Church et al., 2005; Phillips et al., 2010; Warner et al., 1997). Furthermore, the role of perfectionism in the context of women's lives and

relationships, that is, the interpersonal context that clearly plays an important role in women's experiences of PPD has also lacked attention in research on perfectionism and PPD. To address these gaps in research, the current study examined two types of perfectionism, unrealistic expectations for motherhood, (perfectionistic standards targeted at becoming a mother), and perfectionistic self presentation, (individual differences in the interpersonal expression of perfectionism).

**Expectations for Motherhood: The Perfect Mother Archetype.** Images hold power in women's experiences with depression with an archetype symbolizing the ideal feminine, referred to as the "good mother", "perfect mother" (Beck, 2002), "good wife", and "heroine" (Beauboeuf-Lafontant, 2007). The ideal feminine image draws from notions of feminine roles, and is present in women's narratives of depression. The good mother is a representation of women as selfless caregivers responding to the needs of others and limitless in their ability to sustain care for their husbands and children. This image conflicts with the experience that many women have when they are faced with the challenges of motherhood not contained in their perfect image of motherhood and themselves as mothers (Beck, 2002; Beauboeuf-Lafontant, 2007). One particular type of loss identified in narratives of women with PPD, the loss of the unrealized dream of motherhood (Beck, 2002), reflects how women are influenced by the powerful archetype of the "perfect mother", based on the myth of motherhood drawn from cultural norms and values as a positive, and even idyllic experience. For example, the finding that mothers' positive emotional involvement with their baby declines from pregnancy to PP (Figueirido & Costa, 2009), suggests that women hold an imaginary version of their baby in pregnancy (Besser et al., 2008). Postpartum, they may lose their idealized version of their baby, being forced to take into account the real life circumstances and interactions with their baby,

creating a real version of their baby. Exposure to this reality results in disappointment and poorer

emotional involvement (Figueiredo & Costa, 2009). Some women also experience intrusive

thoughts regarding their infants, such as harming them, that conflict with ideas of how they

should be as a mother, leaving them feeling ashamed and guilty (Beck, 2002; Field 2010).

Research suggests that women who are not adequately psychologically prepared for

childbirth and motherhood, including unrealistic expectations for motherhood and lack of

knowledge of the potential PP struggle, are vulnerable to experiencing difficulty PP (Dennis &

Chung-Lee, 2006; Mills et al., 1995). For example, in a quantitative study, having unrealistic

expectations for motherhood mediated the relationship between having a difficult baby and

depression (Church et al., 2005). Women may be faced with the incongruity of their unrealistic

expectations and the reality of motherhood, creating a predicament in which their dreams for

themselves as mothers, and their relationships with their babies and partners are shattered (Beck,

2002). Subsequently, they are faced with a conflict between the mother they want to be and the

mother they experience being (Mauthner, 1999). Therefore, the discrepancy between their ideals

and reality of motherhood sets the stage for women to suffer a sense of guilt and shame and

struggle (Dennis & Chung-Lee, 2006), which may foreshadow their PPM. Narratives of women

with PPD reveal a particular type of perfectionism and loss associated with their experience of

becoming a mother, and how the feminine archetype of the good woman plays a substantial role

in experiences with depression (Beauboeuf-Lafontant, 2007; Beck 2002). Therefore, following

both qualitative and quantitative research findings, the current study included unrealistic

expectations for motherhood as a cognitive vulnerability particular to the context of becoming a

mother. This vulnerability was expected to be a differentiator between PPD and NPP MDD,

contributing to the distinction hypothesis, and an important predictor of both depression and relational maladjustment.

**Silencing the Self.** An important aspect of PPD is how women cope once they discover that their experience falls short of what they expected and that they are struggling. Narratives of women with PPD reflect another common theme related to coping; the tendency to hide their pain, minimize their distress, and present a deceptive, seemingly perfect, image to the outside world. Women who have a tendency to believe that they must present themselves as perfect may be least likely to allow themselves to be perceived as vulnerable or engage in adaptive help-seeking, and subsequently may suffer in their struggles PP. Rather, women's help-seeking behavior reflects the tendency to normalize their experiences in the context of stressors and reject the biomedical model to explain their depression. Moreover, ambivalence about the word depression as a label for their experience is apparent in women's narratives (Allan & Dixon; Burr, 2002; Scattolon & Stoppard, 1999). Therefore, women often refrain from seeking help from healthcare professionals, such as their general practitioners, unless it is for physical symptoms which had accumulated (Burr, 2002; Morrow et al., 2008). Moreover, even women who deem their partners and friends as supportive do not reach out to them due to fear of judgment, difficulty engaging the way they previously could as their old self, and belief that others may not understand them and will reject them (Beck, 2002; Dennis & Chung-Lee, 2006; Schrieber, 1996). This reluctance leaves others unaware of the severity of their distress (Mauthner, 1999). Consequently, women also experience social withdrawal and isolation.

Narratives of women with PPD reveal that they use striking metaphors which paint a graphic picture of their pain and reflect this theme of hiding their depression from others. Specifically, women use descriptions that reflect the hidden nature of their pain and presenting

an unreal image of themselves to the world, with language that includes wearing a "mask" (Allan & Dixon, 2009), an "exterior wall" (Beauboeuf-Lafontant, 2007), and a "façade of normalcy" (Beck, 2002). Consistent with maintaining the mask is how women express their emotions, which is typically in private as opposed to public (Burr, 2002). In fact, the mask is so effective that women describe being around others yet feeling alone and disconnected (Bennett et al., 2007). The pain that women with depression experience, combined with the belief that they must hide it or deal with it alone, has been identified in the literature as a "double burden" (Schreiber, 1996). Moreover, the incongruity between their image of the feminine ideal and the reality of their experience creates a struggle that they resolve by concealing their feelings and maintaining the façade in what has been described as "silencing the self", or "silencing own voice" (Beauboeuf-Lafontant, 2007; Beck, 2002). The tendency to present the self in a perceived socially desirable image may be easily triggered by women who are vulnerable to this type of perfectionism, especially when adopting the (new) role of becoming a mother, in a context where there are powerful and widespread socially prescribed ideas of the experiences that women should have of motherhood.

   **Perfectionistic Self-Presentation.** One type of perfectionism, perfectionistic self-presentation (PSP), reflects a desire to present and a tendency to attempt to appear perfect and avoid disclosing imperfections to others (Hewitt, Flett, Sherry, Habke, Parkin, Lam, McMurty et al., 2003). PSP is a stable interpersonal style or process of perfectionism, that is, how it is expressed. PSP consists of three facets: a) Perfectionistic Self Promotion, which is the tendency to promote a perfect image of having socially desirable qualities, such as being flawless, capable, moral, and successful b) Nondisplay of Imperfection, which reflects concern over demonstrations of imperfections and avoidance of behaviors that are perceived to reveal

imperfections and c) Nondisclosure of Imperfection, which reflects concern over revealing imperfections through verbal disclosure. Both nondisclosure and nondisplay of imperfection are considered passive and maladaptive facets of PSP reflecting attempts at self-concealment, and perfectionistic self promotion is considered a proactive facet of PSP that may be adaptive.

**Perfectionistic Self-Presentation (PSP) and the Current Study.** Research reveals that PSP is associated with trait perfectionism but is a distinct type of perfectionism that captures more of the interpersonal expression of perfectionism. Specifically, PSP is associated with self-oriented and socially-oriented perfectionism, the tendency to perceive high expectations for self from others (Hewitt et al., 2003). The PP period is expected to be a time where both personally and socially prescribed ideas of the experience of motherhood are salient and may be particularly challenging for women who try to fulfill these ideals. Research reflects this role in the PP period, as socially-prescribed perfectionism predicts PPD (Church et al., 2005).

Intrapersonally, research reveals that PSP is associated with several aspects of psychological maladjustment and distress including social anxiety, low self-esteem, depression, and personality pathology commonly identified in the DSM (Hewitt et al., 2003; Sherry, Hewitt, Flett, Lee-Baggley, & Hall, 2007). Therefore, in the current study, PSP was expected to be associated with PPD. PSP was also examined to address the distinction hypothesis. Namely, the question of whether women's experiences during the PP period lead to a unique experience of depression and have a different etiology for PP women versus women with depression at other periods was explored by comparing PSP in PP women and NPP women and its relationship to depression.

Interpersonally, women who are more concerned with maintaining a perfect image may attempt to hide imperfections, presumably to avoid rejection, or self promote to gain approval

and support. However, the desire to appear perfect is not necessarily associated with the ability to appear perfect, that is, success in adaptive skills related to self-presentation. For example, in one study, greater nondisplay or nondisclosure was associated with poorer self-presentational skills and less behavioral flexibility (Hewitt et al., 2003). Moreover, PSP is associated with maladaptive self presentational skills including excuse-making and self concealment. Therefore, in fact, attempts at PSP may be counterproductive and lead to a self fulfilling prophecy of feared rejection, isolation, lower self-esteem, and sense of self as imperfect (Hewitt et al., 2003). That is, individuals may be attempting to bring others closer, but fail to engage in adaptive interpersonal behaviors, or engage in behaviors that are aversive to others, in turn sabotaging their efforts to gain positive social rewards. Rather, their attempts create greater distance from others. An underlying motivation in PSP relates to a strong fear of rejection and loss of relationships, a recurrent theme with women with PPD. In the current study, the role of PSP in women's PPM was examined. Namely, given the interpersonal nature of the perfectionistic style, PSP was expected to predict relational maladjustment. Perceptions of loss was also examined to determine their role in the relationship between PSP and relational maladjustment.

**Self-Concept Clarity**

The transition to becoming a mother carries the ubiquitous and inevitable challenge of redefining the self (Besser et al., 2008; Manzi, Vignoles, & Regalia, 2010; Mauthner, 1999; Reich, Harber, & Siegel, 2008). Specifically, new mothers are faced with the challenge of integrating attitudes, values, and standards related to motherhood with their existing sense of self. Mothers with older children may have changes in roles, such as occupational status, and in turn be faced with deepening their identification with the role of being a mother. Several perspectives and empirical evidence regarding self-concept demonstrate that psychological

thriving results from a congruent self in which behaviors, attitudes, opinions, and values are internally motivated, authentic, and fully integrated with the actual or autonomous self. That is, a congruent self is experienced when all aspects of self-concept create a consistent whole (Cross, Gore, Morris, 2003; Deci & Ryan, 2000; Ryan & Deci, 2000; Rogers, 1961). Moreover, the ability to adapt to transitions is associated with this healthy, whole, integrated, self-concept (Johnson & Nozick, 2011; Manzi et al., 2010; Reich et al., 2008). For example, having a clear and consistent self-concept has been associated with healthy self evaluation skills, such as self-compassion (Johnson & Nozick, 2011). Moreover, having an integrated and clear sense of self allows individuals to know themselves better and have greater awareness to more easily identify and assess their opinions, thoughts, values, and traits (Leite & Kuiper, 2008).

The power of achieving an integrated sense of self is demonstrated by research where self congruence moderates the effects of negative events in the transition to motherhood. In one study, mothers with unplanned pregnancies, who were presumably least prepared to deal with negotiating changes to self-concept, had greater depression than women with planned pregnancies (Manzi et al., 2010). However, achieving a desired self-concept moderated the effect of unplanned pregnancy on depression, such that achieving a self-concept related to motherhood resulted in a negative association with depression. Moreover, mothers with unplanned pregnancies had similar psychological well-being to women with planned pregnancy when they were able to achieve their desired self-concept. Therefore, the structure of the self plays a crucial role in the transition to motherhood and may buffer the potential negative effects of other aspects of the experience that are unexpected or stressful, such as unplanned pregnancy. Because motherhood is inherently a time of negotiating the structure of the self and relationships, a clear and congruent self is an essential asset in making the transition with a positive psychological

outcome. In this sense, the structure of the self can facilitate transitions such as motherhood as an opportunity for developing a more integrated self. "The self, then, becomes the fulcrum upon which transitions are leveraged. How the self is built, and what it is built of, should therefore be especially important during transitional periods" (Reich et al., 2008, p. 130).

Conversely, the inability to integrate aspects of the self and difficulty negotiating changes to self-concept during transition may lead to internal tension, dissonance, and psychological maladjustment. For example, loss of self or identity has consistently been identified as an important aspect of women's experiences of PPM (Beck, 2002; Besser et al., 2008). Moreover, women confront a series of changes experienced as losses, including changes in body image, sexual self, occupational status, and perception of self as liberated and independent. Women with an unclear or unstable sense of self may be most susceptible to the impact of these changes. Moreover, women with a rigidly negative sense of self may equally be susceptible to the damaging impact of a dysfunctional self-concept. For example, in one study women with a highly diffuse negative self-concept (i.e., tendency to appraise themselves negatively across several aspects of self) exhibited greater depression following the transition to motherhood than other mothers. However, having a more congruent self-concept as mother predicted less depression for these women (Reich et al., 2008). These findings underscore both the negative impact of a poor self-concept and the benefits of an integrated self-concept.

Conversely, a too clearly defined self-concept may interfere with integration of skills, attitudes, and goals associated with a new role by creating excessive rigidity (Johnson & Nozick, 2011; Leight & Kuiper, 2008). Specifically, individuals may enlist coping mechanisms, such as defensiveness, to protect against destabilizing changes to the self-concept posed by a new role (Johnson & Nozick, 2011). Therefore, the role of self-concept structure as being too rigid may

also have an impact on the ability to integrate the role of early motherhood. However, research has neglected to identify the individual characteristics that may contribute to the struggle with changes in role inherent in becoming a mother. In other words, the question regarding which cognitive predispositions and what levels contribute to greater maladjustment with respect to dealing with issues of self-concept and role change for mothers remains unanswered.

Moreover, self-concept is relational and subject to interpersonal and social feedback (Ayduk, Gyurak, & Luerssen, 2009; Bell, Wieling, & Watson, 2008; Cross et al., 2003). For example, one study found that individuals with a dispositional tendency to expect and avoid rejection had lower transient self-concept clarity (SCC) following an interpersonal stressor, conflict with their partners, but not after a noninterpersonal stressors (Ayduk et al., 2009). This finding supports the important and iterative role of stressors, particularly relational feedback, in the development of self-concept.

Given the prominence of both personally held and societal beliefs regarding the experience of motherhood, the transition to motherhood is a time of potential confusion and feeling like one is falling short of expectations. Moreover, due to the struggle of redefinition of self that is part of the PP experience, the nature of previously held beliefs regarding the self presumably play a role in how difficult the identity challenges associated with motherhood will be. That is, how strong or stable beliefs are may determine how much psychological maladjustment will be experienced. Specifically, an unclear self-concept may interfere with the ability to assess thoughts, beliefs, and expectations of self and others and determine whether they are maladaptive (Leite & Kuiper, 2008), creating greater risk for psychological distress and relationship maladjustment. Stressors, particularly perceptions of interpersonal stress, may exacerbate the negative effect of an unclear self-concept on psychological outcome, and

confusion, anxiety, intrapsychic, and interpersonal tension may result. Moreover, an unclear self-concept may perpetuate psychological distress by interfering with the ability to identify problematic cognitive styles, unrealistic expectations for self and others, and actions for better psychological adjustment to motherhood, and thereby undermine hope (Leite & Kuiper, 2008).

**Self-Concept Clarity: Directions for the Current Study.** Research suggests that individuals differ in how their self-concept structure relates to emotional adjustment after a transition, such as motherhood (Manzi et al., 2010). Campbell and colleagues (1996) developed a scale to assess a dispositional cognitive style related to identity, self-concept clarity (SCC), a cognitive schema that focuses on the structural aspect of identity, that is, how components or contents of knowledge are organized. More accurately, SCC is the extent to which contents of individual's self-concept are a) clearly and confidently defined, b) internally consistent, and c) temporally stable (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996). Furthermore, SCC captures the beliefs about self, or the cognitive schemas that hold these beliefs, not necessarily the accuracy of beliefs. Research has found that lower SCC is associated with several aspects of psychopathology and psychological maladjustment, including neuroticism, conscientiousness, depression, borderline personality disorder, low self-esteem, and passive coping styles (Ayduk et al., 2009; Campbell et al., 1996; Roepke, Schroder-Abe, Schutz, Jacob, Dams, Vater, Ruter, Merkl, Heuser, Lammers, 2011).

Therefore, lower SCC may also be associated with greater struggle with the changes in identity experienced with becoming a mother, and specifically PPD as an indicator of this struggle. Although the role of the self as consistent or congruent has been examined in studies on the transition to motherhood (Manzi et al., 2010; Reich et al., 2008), there is an absence of studies directly examining individual differences in SCC and PPD. Moreover, the role of

relational adjustment and moderating variables, such as perceptions of loss, has been identified, yet given little empirical attention. In the current study, women with PPD were expected to have lower SCC than NPP women with MDD, contributing to the distinction hypothesis. SCC was also examined for its role, along with perceptions of loss related to both interpersonal and independent needs, in the prediction of depression and relational maladjustment. Similarly, low SCC was expected to predict greater PPM.

**Goal Orientation: Self-definition and Relatedness**

Changes accompanying becoming a mother may interfere with a particular aspect of the self, valued goals. Two types of valued goals have been identified in the depression literature, independence or self-definitional goals and interpersonal or relational goals, reflecting internally directed attitudes towards the self and externally directed attitudes towards interpersonal relations, respectively (Blatt, D'Afflitti, & Quinlan, 1976; Blatt, Quinlan, Chevron, McDonald, & Zuroff, 1982). The inability to achieve goals that are most valued is associated with psychological maladjustment, especially for individuals who have a greater tendency to value goals related to either independence or interpersonal needs. For example, women who value independence may struggle with the dependency of a baby for their basic needs, resulting in restrictions on time to pursue personal goals. Indeed, women with PPD describe loss of freedom and independence as part of their psychological maladjustment (Beck, 2002). Similarly, women who value closeness in relationships may struggle with the changes in their relationship with their partner, lack of desired support from others in their lives, and isolation that can occur when their world becomes "all about baby" (Beck, 2002; Mauthner, 1999; Scattalon & Stoppard, 1999). Therefore, the tendency to value certain goals may impact a woman's ability to deal with

the changes to her independence and relationships, and whether she will subsequently experience PPM.

One type of cognitive style that has been examined extensively in research on depression reflects the two types of goal orientations, related to interpersonal needs of closeness and self-definitional needs of independence. Blatt and colleagues (1976) developed a measure that reflects these tendencies, which are considered complementary orientations. Moreover, both orientations can manifest in adaptive or maladaptive forms. For example, while the maladaptive expression of interpersonal goal orientation, dependency, is characterized by preoccupation with fears of abandonment and loss, a more adaptive expression, relatedness, is characterized by mature, reciprocal attachment (Blatt, Zohar, Quinlan, Luthar, & Hart, 1996; see Vliegen et al., 2006). Dependency is further characterized by an effort to please others, concern over what others think, dislike of being alone, need for close and dependent interpersonal relationships, loneliness, helplessness, and preoccupation with receiving love, nurturance, and support. Self-criticism is the maladaptive form of the orientation related to the need to achieve personal or independent/self-definitional goals and is characterized by preoccupation with failure, ambivalent feelings about self and other, a self-critical stance, harsh standards, extreme striving for mastery and achievement, and extreme need for acknowledgement (see Besser, et al., 2008; Blatt, et al., 1982).

Several studies have shown an association between these orientations and psychological maladjustment, including depression (Coyne & Whiffen for review, 1995). With regards to PPD, research has found that both greater interpersonal and independent goal orientation contribute to symptoms of PPD (Masih et al., 2007). Furthermore, a stronger association between maladaptive self-definition, self-criticism, and severity of depression and anxiety is a consistent finding in the

literature (Vliegen et al., 2006). Therefore, researchers suggest that for some women, the more adaptive qualities of independence/self-definition, such as the ability to cope independently and greater comfort being alone, may be a protective factor in the PP period (Masih et al., 2007). Conversely, self-criticism is a vulnerability. Presumably, because women with greater self-criticism may be more rigid in their expectations for self and other, they experience greater disappointment when unable to pursue goals that reflect their sense of independence that they may have focused on before becoming a mother, such as self-care and occupational and financial goals. In turn, they may struggle the most to adapt to experiences in the (new) role of motherhood, particularly the incongruence between their expectations for motherhood and the reality they face. Consequently, they suffer maladjustment and PPD. In the current study, greater maladaptive independent goal orientation, self-criticism was expected to be associated with greater PPD.

Research on facets of the interpersonal orientation exhibits a different pattern. When different facets are examined, the adaptive form, relatedness, as opposed to the maladaptive form of dependency, has been associated with depressive symptoms in PPD. Therefore, dependency may not be associated with PPD (Dover, 1992; Vliegen & Luyten, 2009) and may even serve as a protective function (see Besser et al., 2008; Coyne & Whiffen, 1995). Namely, women who are higher on dependency may seek support, engage in more adaptive coping, such as approaching close others, whereas women who are higher on independence may engage in more maladaptive avoidant coping or only ask for support from certain others (Besser, et al., 2008; Pakenham, et al., 2007). Furthermore, for women high on dependency, having a baby that is dependent on them for care and survival may fulfill their strong attachment needs. Therefore, a greater interpersonal orientation, including maladaptive qualities, may become adaptive in the PP period

because of the opportunity to fulfill needs that are not met at other times, due to a context that

promotes greater need for dependence, closeness, and even greater fear (Monk et al., 2008).

Moreover, the losses that women must adjust to, such as independence, may be less challenging

for women who crave closeness. In this way, the PP period may be unique in that it provides an

opportunity for a positive experience of fulfillment and growth for women whose cognitive

tendencies usually contribute to psychological distress and maladjustment. For example, women

who tend to appraise themselves negatively benefit from developing a self-concept that identifies

with being a mother, which tends to buffer against psychological maladjustment in the PP period.

Namely, one study demonstrated that women who appraise themselves negatively and develop

this more congruent self-concept have lower depression than women who do not appraise

themselves negatively (Reich et al., 2008). Therefore, the PP period has been described as a time

for a "new start" during which women can experience satisfaction of normally thwarted/unfilled

needs of attachment and self validation for women who have an extreme need for dependence, or

who perceive themselves negatively. In the current study, greater (adaptive) interpersonal goal

orientation, relatedness, and lower (maladaptive) interpersonal goal orientation, dependency,

were expected to be associated with greater PPD.

The relationship between orientations towards goals and depression may be complex.

Specifically, some women may have a tendency to value both types of goals similarly, and

therefore, orientations may not be as independent as assumed (see Coyne & Whiffen, 1995).

Moreover, there may be a curvilinear relationship between dependency and PPD, with moderate

levels being adaptive in the PP period, as opposed to either low or high levels (see Besser et al.,

2008). Finally, understanding the development of psychological maladjustment is further

impacted by the interaction between levels of cognitive orientations and other factors, such as

stress, which can either increase likelihood of depression, or buffer against the effects of

maladaptive cognitive variables (Besser et al., 2008; Logsdon & Usui, 2001; Pakenham et al.,

2007).

**Goal Orientation and Stress in the CDS Model for PPD: The Match Hypothesis.**

Using the CDS model, research on the relationship between orientations related to

independence and interpersonal needs and depression has examined the role of stressful events.

The CDS model proposes a match hypothesis, that is, a match between stressors that are

congruent with the content of specific cognitive vulnerabilities is expected to be more powerful

in activating the cognitive content, and therefore triggering an episode of depression. Several

studies have demonstrated support for the match hypothesis in women (see Hyde et al., 2008;

Coyne & Whiffen for review, 1995). Specifically, women classified as more dependent respond

with greater distress to social stressors than women who have a self-critical style (Clark et al.,

1992; see Coyne & Whiffen, 1995 for review).

Contrary to these findings, some studies with perinatal women do not support the match

hypothesis. In fact, in one study, findings supported an incongruent match between cognitive

style and type of stress. Specifically, only the interaction between greater independence and

greater number of interpersonal events was associated with depression in pregnancy (Masih et

al., 2007). For PP women, an even different finding emerged. Women's perceptions of events as

reflecting independent versus relational goals were subjective, demonstrated by particular events

defined initially by the researchers as representing either relational or self-definitional goals

being interchangeable when rated by PP women. Moreover, perceptions of loss associated with

life events did predict greater depression PP. That is, women who perceived greater loss were

more likely to experience an increase in depressive symptomatology, regardless of the type of

loss (whether they were related to self-definitional or relational needs). In other words, the degree to which events represented loss for women, as opposed to whether they were related to independence or relatedness, was associated with increased risk for depressive symptoms. This finding mirrors the emphasis on experiences of loss in women's narratives of PPD. Thus, although the tendency to value self-definitional or relational goals contributes to PPD, the nature of the relationship is still unclear. Perceptions of loss seem to provide an important contribution as a moderating variable between orientations to goals and PPD. Moreover, goal orientation may represent a vulnerability factor that operates distinctly for depression in the PP period compared to depression at other periods for women, particularly in interaction with stress. These findings underscore the importance of examining goal orientation and perceptions of loss to address the distinction hypothesis, that is, whether PPD phenomenology and etiology is qualitatively distinct from NPP MDD. While the match phenomenon was expected to emerge for NPP women with MDD in the present study, both a match and nonmatch phenomenon was expected for women with PPD.

**Anxiety**

Anxiety plays a prominent role in both etiology and women's experiences of PPD, often demonstrating comorbidity with, and as a risk factor for PPD (Giakoumaki, Vasilaki, Lili, Skoutroliakou, & Liosis, 2009; Monk et al., 2008; Simpson et al., 2003). Anxiety disorders are highly prevalent in the PP period, demonstrating an association with PPD (Van Bussel et al., 2006). In fact, there is some evidence that previous history of an anxiety disorder is a greater risk factor for PPD than history of depression (Matthey, 2003). Moreover, anxiety is associated with particularly crucial aspects of women's worlds PP; relationships with their partner and baby. For example, PP anxiety impacts mothers' ability to bond with their babies, with higher anxiety

predicting poor emotional involvement, marked by more negative feelings towards their babies (Figueiredo & Costa, 2009; Figueirido et al., 2009). Similarly, with regards to partner relationships, higher anxiety in women has been associated with a less positive and more negative relationship with their partners during the transition to early motherhood (Figueiredo et al., 2008). Moreover, in another study, perceiving their husbands negatively, namely as angrier and providing poorer social support, predicted an increase in depressive symptoms from pregnancy to PP that continued to increase PP for women with greater attachment anxiety, but not for women with low attachment anxiety (Simpson et al., 2003). Therefore, dispositional anxiety predicts PPD, and for women who have greater anxiety, moderating factors such as stressors, particularly perceptions of stress, play an important role in this relationship, presenting a vulnerability for greater perceived stress and subsequent PPM.

Anxiety is also a prominent aspect of women's phenomenological experiences of depression manifesting in intrapsychic tension. Specifically, women experience a series of conflicts or "two voices" (Mauthner, 1999) that they struggle to resolve leaving them in a world of paradox, ambivalence, and distress. They describe being overwhelmed by the pressure of the knowledge of their responsibility for taking care of a dependent infant (Homewood, Tweed, Cree, & Crossley, 2009) and decisions regarding the care of their infants weigh heavily on their minds, leaving some women uncertain as to what choice to make (Beck, 2002; Bennett et al., 2007; Homewood et al., 2009). Moreover, these decisions may be perceived, and are consequential to the well being of the infant, placing a large burden on mothers who have to make the decision. For example, many women who struggle PP identify their concern regarding taking medications to treat their depression while breastfeeding due to the potential harmful effects to their baby (Beck, 2002). Difficulty making this decision is compounded with

inconclusive information leading to fear of the effects of the medication on their baby on one hand, and the effects of not treating their depression and having a depressed mother on the well-being of their baby on the other hand (Bennett et al., 2007; Bernard-Bonnin, 2004). They may also hold beliefs regarding the importance of breastfeeding and must weigh information with their preferences and circumstances. Moreover, the decision regarding breastfeeding may have an impact on the mother. In fact, breastfeeding cessation by four months PP has been associated with PPD (Akman, Kuscu, Yurdukul, Ozdemir, Solakoglu, Orhon, Karabekiroglu, & Ozek, 2008; Field, 2010; Parsons et al., 2012). Therefore, choosing whether or not to breastfeed is an important decision for mothers and this issue has an impact on their PPM. Participants in the current study were asked about whether they had breastfed their baby.

Women are faced with several difficult decisions related to motherhood and childcare, such as whether or not to work and who should care for their baby when they are absent. The necessity of making difficult decisions leads women to wrestle with the persistent thought that they could make a mistake, or are "getting it wrong" (Homewood et al., 2009) on the backdrop of thoughts that that there is a "right" answer, that they "should" or "ought" to choose (Mauthner, 1999). Consequently, anxiety, intrusive thoughts, and cognitive impairment become part of women's experiences of PPD (Beck, 2002). In support of the prominent role of anxiety in PP distress, narratives of women with PPD reveal that they view their healing as a process of having to stop fighting against themselves (Mauthner, 1999) and involving acceptance of conflicts (Homewood et al., 2009).

**Anxiety and the Distinction Hypothesis.** Anxiety has also garnered attention with respect to the distinction hypothesis. Specifically, extant research findings raise the question of whether the challenge of dealing with decisions associated with motherhood, and subsequent

anxiety marked by internal conflict, serves to differentiate PP related depression from MDD at other periods in women's lives. The seminal article by Pitt (1968), which identified anxiety focused on baby and mother's own health as a prominent feature of PPM, has been followed by studies examining the role of anxiety in PPD compared to NPP MDD with inconsistent findings. Pitt and other researchers have found more prominent anxious features, including greater frequency of anxious symptoms, compared to NPP women with MDD (Hendrick et al., 2000; Pitt, 1968). However, one study found somewhat higher levels of anxiety in a group of NPP women with depression (Whiffen & Gotlib, 1993). Overall, research suggests that anxiety may play a distinct role for women with depression during the PP period compared to MDD at other time periods. However, findings have been inconsistent and little research has examined the role of trait anxiety as a cognitive vulnerability for PPD (see Hendrick et al., 2000). The current study examined both transient anxiety (state anxiety) and anxiety as a cognitive style (trait anxiety) to investigate whether reported current levels of anxiety for PP women replicated the cited experience of PP women, providing additional support for anxiety as a prominent and unique aspect of PPM. Anxiety was also examined to test its proposed, yet unclear role in the distinction hypothesis, with a comparison with NPP women with MDD.

**Social Desirability Bias**

Prior to examining the content of participants' self-reports, the approach to testing, that is, possible response bias and validity of content, should be considered. The current study examined socially desirable responding (SDR).

**Conceptualizing Construct: Content and Process.** Self-report measures of undesirable traits/tendencies may be vulnerable to biases. Models have been developed and tested to examine testing behavior based on one of these biases, socially desirable responding (SDR), that is, the

tendency to provide positive self-descriptions in self-reports of personality, attitudes, or behavior (Paulhus & Reid, 1991; Paulhus, 2002). Social desirability bias (SDB) as a construct has been conceptualized as occurring on both a content level and a tactic or process level. On the content level, self-deception, also labelled Alpha, and thought to represent an egoistic bias, is distinguished from impression management, also labelled Gamma, and thought to represent a moralistic bias related to motivation for communion or associated with need for approval/self-presentation. This latter type of bias is often identified as impression management. There is some evidence for shared variance with items representing these two types of content (Dodaj, 2012).

On the tactic/process level, enhancement, the identification with positive attributes or behaviors, is distinguished from denial, the negation of negative attributes or behaviors (Paulhus & Reid, 1991, Paulhus, 2002). These two approaches to testing are further distinguished as representing conscious versus unconscious motivations (Dodaj, 2012; Paulhus, 2002). For example, for impression management, a moralistic bias would lead to engaging in either self-deceptive denial, an unconscious tendency, or communion management, a more conscious tendency, in order to gain approval. However, because response biases do occur with anonymous responding, an absence of conscious deception with SDB has been suggested (see Dodaj, 2012; Paulhus, 1991). Moreover, keying of items requiring the acceptance versus negation of statements does not appear to impact the degree of social desirability reported (Paulhus, 1991).

**Research Findings.** The tendency to engage in enhancement is generally more strongly associated with adjustment, including high self-esteem, low social anxiety, low trait anxiety, and low neuroticism, than the tendency to engage in denial (Paulhus, 1991). Impression management is more strongly and positively associated with agreeableness and conscientiousness, which may be considered communal (Paulhus, 2002; Trapnell & Paulhus, 2012) and adaptive traits (see

Dodaj, 2012). Therefore, impression management tends to correlate more with communal values

associated with maintaining positive relationships. These values are also associated with

femininity (Trapnell & Paulhus, 2012). The two types of tactics/processes, enhancement and

denial, are more distinguishable with self-related content than impression management, where no

distinction is evident. However, a process of self-deceptive denial emerges with impression

management (Paulhus, 2002). Correlations with Big Five Personality Dimensions (McCrae &

Oliver, 1992) are weaker for impression management (Paulhus, 2002), suggesting that there is

some self-deceptive bias in all personality styles, but they are independent constructs,

particularly with impression management. Moreover, some evidence that bias (i.e., self-

enhancement) has a positive impact on self-esteem but negative impact on interpersonal

interactions highlights both the adaptive and maladaptive value of SDB. This raises the question

of whether SDB captured in most measures is an independent and pathological trait, considered

to contaminate true data reflecting measurement error, or in fact contributing true variance and

reflecting participants' honest perception of themselves, the true-behavior hypothesis (see

Johnson, Fendrich, & Mackesy-Amiti, 2012). Generally, based on extant research findings, it is

accepted that SDB does not need to be controlled or eliminated from participant data to

accurately assess and gain useful findings on other psychosocial tendencies (Dodaj, 2012).

     **Marlowe-Crowne Social Desirability Scale.** A measure of social desirability bias, the

Marlowe-Crowne Social Desirability Scale (MCSDS) was included in the study (Crowne &

Marlowe, 1960). Paulhus (2002) described the MCSDS as the most widely used measure of SDR

with the most comprehensive program of construct validity with relevant behavioral correlates.

The MCSDS contains a combination of items that load on both factors of self-deception and

impression management, however mostly focused on impression management, and specifically

associated with and thought to be driven by the need for approval. Moreover, the MCSDS consists of items that are free of pathology related content. Rather it asks participants to respond to items focusing on endorsing frequent socially desirable behaviors (e.g., "always a good listener", "always careful about my manner of dress") or infrequent socially undesirable behavior (e.g., "gossip at times", "irritated by people who ask for favors") to determine their level of SDB. As such, it includes both the identification of positive attributes and behaviors and negation of negative attributes and behaviors to demonstrate tendency towards bias. Because the measure uses improbably positive statements, it also measures an exaggerated positivity and therefore represents some departure from reality (Paulhus, 2002). That is, the MCSDS appears to measure both some reality and some distortion and both conscious and unconscious processes/motivation.

**Research on Postpartum Women and Social Desirability Bias.** The MCSDS has been used previously in studies examining depression and anxiety with pregnant and PP women (Dipietro, Costigan, & Sipsma, 2007; Lau, Hurst, Smith, & Schanler, 2007; Van Busell, Spitz, & Demyttenaere, 2010a), NPP women (Hewitt et al., 2003; Lakey & Heller, 1985; Zuroff, Moskowitz, Wielgus, Powers, & Franko, 1983), as well as women with diverse cultures and ethnicities (Lau et al., 2007; Van Bussel et al., 2010a; Van Bussel, Spitz, & Demyttenaere, 2010b). Small to moderate correlations are consistently found. For example, studies with depressed pregnant and PP women found negative correlations between the MCSDS and anxiety (STAI) and depression (BDI) (Dipietro et al., 2007; Lau et al., 2007). The researchers concluded that the actual number of mothers who were truly depressed may have been underestimated due to a bias towards socially desirable responding (Lau et al., 2007), suggesting that depression severity may be minimized by some perinatal women, and in turn impact research findings/conclusions. However, the overall impact of SDB may not be large, as controlling for

SDB does not appear to significantly affect results. In fact, SDB has been estimated to contribute only 4.8% of variance in anxiety scores (Dipietro, 2007). For example, in one previous study, the accuracy of reporting negative life events and psychological symptoms in women, namely depression, was examined (Lakey & Heller, 2012). Demonstrated congruence with a close others' rating, and the positive association of these congruent ratings with both depression and life events similarly provided support for the accuracy of perception of life events and depression. The authors concluded that there was no evidence for over-reporting bias associated with depression or social desirability. Moreover, association between negative events and psychological distress was significant when measures of events free of reporting bias were used, suggesting that life events may play a genuine role in the development of depression over and above SDB. Using the MCSDS (short version), SDB has exhibited small positive correlations with maternal attachment, including both quality (of experience) and preoccupation (time spent thinking of baby) for pregnant women (Van Bussel et al., 2010a) and bonding with baby for PP women (Van Bussel et al., 2010b). Therefore, women who had higher SDB and were presumably more reluctant to admit unpopular beliefs or behaviors reported better bonding. It would be expected that negative feelings, or the absence of what are imagined maternal feelings towards baby, would be considered undesirable to admit due to concern about withdrawal of approval, and thus may impact reports of these feelings in the opposite direction. Therefore, small to moderate negative associations between SDB and depression, anxiety, life events, and poor bonding with baby were expected for PP women in the current study.

SDB has also emerged as associated with the independent/self-definitional goal orientation of the depressive experiences questionnaire (DEQ) for women. In previous research with women from the general population (i.e., students), dependency, the maladaptive

interpersonally focused orientation had no association with SDB (Zuroff et al., 1983). In

contrast, higher self-criticism, the maladaptive individually focused orientation had a negative

relationship with SDB. Therefore, greater SDB was expected to be associated with lower self-

criticism in the current study and exhibit no association with dependency. No association with

the adaptive independent and interpersonal orientations self-efficacy and relatedness, or a

positive association were expected.

Perfectionistic self presentation (PSP) has typically had a small negative association with

SDB, implying perceived undesirability of admitting the tendency to engage in interpersonal

expression of perfectionism. For example, previous research with a student population

demonstrated that all three facets of PSP had a small significant negative relationship with social

desirability (Hewitt et al., 2003). The same pattern of association with facets of PSP was

expected in the current study.

**Overview of the Current Study: Components of a Cognitive Diathesis-Stress Model of
Postpartum Depression**

Life transitions are marked by changes in identity and attempts to understand the self

(Johnson & Nozick, 2011; Manzi et al., 2010; Reich et al., 2008). Studies show that the transition

to parenthood is marked by a challenge to the existing sense of self, namely the need to integrate

past and present aspects of the self and different aspects of identity (Beck, 2002; Manzi et al.,

2010; Mauthner, 1999). Moreover, women who struggle with an unclear sense of self or negative

self-concept are more likely to experience greater depression PP than woman with a more

positive self-concept (Reich et al., 2008). However, self-concept clarity (SCC), a dispositional

style of organizing cognitive content about the self, the cognitive structure of the self, has never

been examined in PPD and was included in the study. Namely, because lower SCC has been

associated with depression in past research (Campbell et al., 1996), lower SCC was expected to be associated with greater depression in PP women. Perfectionism (unrealistic expectations for motherhood and perfectionistic self presentation), which is characterized by unrealistic expectations/standards for the self, others, and circumstances (Frost et al., 1990) and goal orientation, a vulnerability that divides into complementing sides of self-definition/independence and relatedness/dependency (Blatt et al., 1982), have both been examined in the context of understanding etiology of PPD and were included in the study. While greater perfectionism, a maladaptive vulnerability, was expected to be associated with greater depression, greater dependency was expected to either have no association, or be associated with lower depression, based on findings in previous research identifying dependency as adaptive in the PP period.

Transient anxiety (state anxiety) refers to the current experience of anxiety or anxiety symptoms in the present, and is often a reaction to a situation at a given time at a certain level of intensity. State anxiety has been identified in research and discourse on the Distinction Hypothesis (Pitt, 1968; see Bloch et al., 2003) and was examined in order to understand phenomenology of PPD. Specifically, state anxiety has been identified as greater for some women with PPD compared to NPP women with MDD. Therefore, in the current study state anxiety was expected to be higher for women with PPD than NPP women with MDD, supporting the distinction hypothesis. Chronic anxiety (trait anxiety) refers to more general preexisting anxiety, namely individual differences in the disposition to respond to stressful situations with different levels of anxiety. Trait anxiety which has garnered limited focus as a cognitive style in past research on PPD was included to investigate its role in the etiology of PPD (Figueirido & Costa; 2009; Matthey et al., 2003; Monk et al., 2008; Simpson et al., 2003; Van Bussel et al., 2009). Research on anxiety and PPD has consistently revealed comorbidity between anxiety and

PPD, and having an anxiety disorder is a risk factor for PPD (Giakoumaki et al., 2009; Matthey et al., 2003; Monk et al., 2008; Simpson et al., 2003; Van Bussel et al., 2006). In the current study, greater trait anxiety was expected to be associated with greater depression and was included as a risk factor for PPD. Different aspects of PPM (i.e., depression and relational adjustment) and a cognitive variable (i.e., perceptions of loss) as a moderator were examined in a model of PPD etiology. Finally, a measure of socially desirable responding was included to assess response bias.

**Research Questions**

Do postpartum women with depression (PP) differ from nonpostpartum women with depression (NPP) in their levels of different relevant cognitive vulnerabilities, perceptions of loss, and relationship maladjustment? What is the nature of the relationship between dispositional cognitive styles/diatheses (perfectionism, self-concept clarity, goal orientation, and anxiety), perceptions of loss, and different aspects of postpartum maladjustment (relational maladjustment and depression)? Moreover, is the relationship between variables based on the proposed model unique to women's experiences of depression in the postpartum period, that is, does it support the distinction hypothesis?

**Hypotheses**

**Testing the Distinction Hypothesis**

1. A significant difference in means of relevant dispositional cognitive styles, perceptions of loss, and relational maladjustment will be found in women with PPD compared to NPP women with MDD. Specifically, women with PPD, relative to NPP women with MDD, will exhibit (a) greater state anxiety, (b) greater trait anxiety (c) greater perfectionism, (d) more unrealistic expectations for motherhood, (e) lower self-concept clarity, (f) lower dependency, (g) greater

relatedness, (h) more perceived loss, and (i) greater relationship maladjustment with mother and partner.

2.  The relative level of depression across the PP and NPP groups is expected to vary with the measure employed. Specifically, women with PPD, relative to NPP women with MDD are hypothesized to exhibit higher depression severity when measured by the EPDS, a measure sensitive to PP depression.

3. The nonmatch hypothesis, namely an interaction representing a nonmatch between type of goal orientation (i.e., independent and interpersonal) and type of perceived loss (i.e., independent and interpersonal) will be similarly significant in predicting depression as a match for the PP group, whereas the match hypothesis, namely an interaction representing a match between type of goal orientation and type of loss, will be stronger than a nonmatch in predicting depression for the NPP group.

a) The match between goal orientation and loss will be statistically significant for both PP and NPP groups. Namely, an interaction between self-criticism or self-efficacy and independent loss and dependency or relatedness and interpersonal loss will significantly predict depression.

b) For both PP and NPP groups, when a match exists between type of goal orientation and type of loss, higher levels of loss will be associated with higher levels of depression, and this effect will be greater among those higher in a maladaptive goal orientation and lower in an adaptive goal orientation, matching type of loss.

c) The nonmatch between goal orientation and loss will be statistically significant as a predictor only for women with PPD. That is, for PPD women, an interaction between self-criticism or self-efficacy and interpersonal loss and dependency or relatedness and independent loss will significantly predict depression.

d) Greater self-criticism and lower self-efficacy will predict greater PPD.

e) Independent goal orientation, and particularly self-criticism, will be a stronger predictor of

PPD than interpersonal goal orientation.

f) Greater relatedness and lower dependency (or no association) will predict PPD.

g) Both independent and interpersonal loss will predict PPD.

**Cognitive Diathesis-Stress Model for PPD (and Distinction)**

4. The following predictions specify the expected links between cognitive diatheses and various

forms of maladjustment for PP and NPP depressed women.

a) For PP women, higher maladaptive styles and lower adaptive styles will predict higher PPM.

That is, greater perfectionism (PSP and unrealistic expectations for motherhood), greater anxiety,

and lower self-concept clarity will contribute to different aspects of PPM, namely greater

depression, poorer bonding with baby, and relationship maladjustment with partner and mother.

b) The CDS model with the inclusion of a moderating variable, perceptions of loss, will be

statistically significant, and both types of loss will contribute to prediction. Women who report

higher levels of loss will show a stronger association between cognitive diatheses and

maladjustment relative to those with lower levels of loss.

c) The best fit CDS model will differ based on depression measure (EPDS vs. BDI) and type of

maladjustment for each group. That is, the cognitive vulnerabilities and interaction with types of

perceived loss contributing to a statistically significant model predicting depression and

maladjustment will be different for each group. For example, regarding depression, more

variance will be explained by cognitive vulnerabilities and loss in the prediction of the EPDS for

the PP group and in the prediction of the BDI for the NPP group.

d) The interaction model predicting relationship maladjustment will fit better (i.e. emerge as significant and account for more variance) for PP women than NPP women and the model predicting depression severity. Different variables will be significant predictors for the PP group compared to the NPP group.

e) The interaction model predicting depression as measured by the BDI will be the best fit for NPP MDD compared to PP women and the model predicting relationship maladjustment. Different variables will be significant predictors for the PP group compared to the NPP group.

**Social Desirability Bias**

5. Small to moderate correlations between social desirability and depression, anxiety, goal orientation, life events, and bonding with baby will emerge for PP women. Namely, social desirability will have a negative association with self-criticism and all three facets of perfectionistic self-presentation, a positive association with self-efficacy, relatedness, and poor bonding, and no association with dependency.

**Research Design**

The present study used a cross-sectional, group comparison design. The study compared samples from two populations: Women with postpartum depression (PP) and nonpostpartum women with a major depressive disorder (NPP), creating two groups to address hypotheses. Specifically, in order to address whether and how particular variables contribute to the distinction hypothesis, the two groups were used to examine whether there was a significant difference in means for some variables between groups (i.e., between group comparison). Groups were also used to test the proposed CDS model with predicted relationships between cognitive dispositions as predictors, perceptions of loss as moderators, and variables of maladjustment (i.e., depression and relationship) as criterion variables. This approach provided a method for

determining whether the model is unique to PPD where a poor replication emerged for the NPP

group, supporting the distinction hypothesis, and where aspects of the model were replicated in

the NPP group, supporting the lack of unique quality of PPD as a construct, and PPD etiology,

compared to NPP MDD. A subset of participants from each original sample group was also

selected, based on more conservative inclusion criteria, and used to create two additional smaller

groups: PP conservative and NPP conservative. These conservative groups were used in some

analyses (i.e., ANOVAs) along with the two larger original PP and NPP groups and are

discussed more extensively below in the Method/Participants and Results sections.

## Method

### Participants

Two groups of depressed mothers participated in the study: Postpartum depressed (PP)

and nonpostpartum women with major depression (NPP). Initially, 64 participants were sought

for each group in order to achieve power of .80 to detect an expected medium effect at two-tailed

alpha of .05 using Analysis of Variance (ANOVA) tests with two groups (Cohen, 1992).

However, due to the inherent challenges of recruiting a clinical sample with a limited research

budget and short timeline, recruiting 30 participants per group was defined as the goal for the

current study.

Participants were eligible for participation if they were female, between 18 and 45 years

of age, had a partner for at least one year, had at least one child between the ages of 1 and 18,

can speak, read, and write in English fluently, and met criteria for depression based on phone

screening and a measure of depression. Both primiparous and multiparous mothers were

included in the study. Exclusion criteria included current severe psychopathology, namely

psychosis, for both groups. For the PP group, inclusion criteria included having an onset of symptoms between 4 weeks and 1 year postpartum. For the NPP group, inclusion criteria included an absence of pregnancy or childbirth in the previous 12 months and an onset of the most recent episode of depressive symptoms after one year postpartum of the last childbirth. A total of 220 women expressed interest and had contact with the study research team (Figure 1). Of these, 153 participants were deemed ineligible due to not completing their package, declining participation, improvement in mental health, not meeting criteria for depression, random responding, (possible) pregnancy, not having children, lack of time/busy, or their package was lost in the mail. Complete packages/data were collected for 67 participants, all of whom were retained for the study (Figure 2).

The PP group consisted of 37 participants ranging in age from 23 to 44 ($M = 31.30$, $SD = 4.86$). The NPP group consisted of 30 participants ranging in age from 25 to 44 ($M = 33.60$, $SD = 5.79$). Total sample age ranged from 23 to 44 ($M = 32.10$, $SD = 5.30$). Participants' annual income ranged from \$6,000 to \$200,000 ($M = \$52,000$) for the entire sample. When income level was examined separately for each group, the PP group had a more normal distribution, while the NPP group was positively skewed (PP: \$10, 000 - \$93, 000, $M = \$52, 000$; NPP: \$6, 000 - \$200,000, $M = \$50,000$). With regards to education, the most frequent educational attainment endorsed was completing a college or undergraduate degree (40.3%). Length of partner relationship duration was from 1 to 26 years ($M = 8.00$ years, $SD = 4.80$) for the entire sample and was similar for each group when examined separately. Most participants had two children (50.8%, $M = 1.90$, Range = 1-8) and the most frequent category of children in care was two (46.6%, $M = 1.80$, Range = 1-6). Most participants had planned their pregnancies (66.1%) and had a history of Major Depression (71.6%) and Postpartum Depression (51.4%). In the entire

sample, (PP and NPP), most participants had breastfed their children (79.7%). Participants in the

NPP group reported a total of 54 children ranging from 1 year 5 months to 20 years old ($M =$

5.80, Mode = 2, $SD = 5.60$) and had a maximum of 3 children. Most participants in the PP group

were in the 9 months to 1 year (or more) postpartum period, gave birth to their baby full term

(97.2%) with a range of 8 months, 2 weeks to 10 months, 3 weeks ($M = 9.50$ months). Sample

participant characteristics for each group are presented in Table 1.

Participants for the PP depressed group were recruited through several media including

poster, digital commercial, online (Facebook page), and in-person advertising. Sites for

recruitment included local hospitals in Winnipeg and affiliated regions in Manitoba, and

organizations and groups (e.g., postpartum support, outpatient depression group) across Canada

and USA. Therefore, participants came from a range of geographical areas within Manitoba, and

more broadly in Canada, and the USA (Table 2).

In order to retain all participant data while maintaining a conservative recruitment

approach, 2 additional groups with more conservative criteria were created, in which 16 original

participants were eliminated. Reasons for exclusion included previous pregnancy or time of

symptom onset, scores below criteria on the BDI or EPDS, going through divorce or separation

with partner, fertility complications and loss (i.e., ectopic pregnancy, miscarriage, stillbirth, and

death of child), children being in care, and difficulty with English language comprehension. The

final resulting smaller conservative groups consisted of 31 participants for the PP group and 20

participants for the NPP group (Figure 2).

Table 1
*Demographic and Descriptive Characteristics of Sample by Group (PP and NPP)*

| | PP | NPP | PP | NPP | PP | NPP |
|---|---|---|---|---|---|---|
| Variables | Mean/Frequency | | *SD* | | Range | |
| Age | 31.30 | 33.60 | 4.86 | 5.79 | 23 - 44 | 25-44 |
| Income | 52, 000 | 50,000 | | | 10 - 93 | 6 - 200 |
| Education | | | | | | |
| High School | 5.4% | 13.3% | | | | |
| College | 27% | 36.7% | | | | |
| Undergrad | 45.9% | 33.3% | | | | |
| Graduate | 21.6% | 16.7% | | | | |
| Number of Children | 2 | 1.83 | 1.31 | 0.65 | 1 - 8 | 1 - 3 |
| Number of Children in Care | 1.87 | 1.73 | 1.08 | 0.74 | 1 - 6 | 0 - 3 |
| Breastfeeding | 70.3% | 90% | | | | |
| Planned Pregnancy | 72.2% | 57.7% | | | | |
| ICU | 11.8% | 30.0% | | | | |
| MDD History | 70.3% | 73.3% | | | | |
| PPD History | 62.5% | 48.1% | | | | |
| Partner Duration | 7.5 | 8.4 | 4.09 | 5.54 | 2 - 23 | 1 - 26 |

*Note*. Age and Partner Duration reported in years. Income reported in thousand dollars. Education reported as last level achieved. Breastfeeding, Planned Pregnancy, ICU, MDD and PPD History reported as presence or absence (i.e., dichotomous yes/no).

No significant differences found between groups for demographic/descriptive variables

Table 2

*Geographical Locations For Both PP and NPP Groups*

| Region | PP (*n* = 37) | NPP (*n* = 30) | Total (*N* = 67) |
|---|---|---|---|
| Manitoba | 24 | 19 | 42 |
| Alberta | 0 | 3 | 3 |
| British Columbia | 0 | 2 | 2 |
| Ontario | 2 | 1 | 3 |
| Prince Edward Island | 0 | 1 | 1 |
| Saskatchewan | 1 | 1 | 2 |
| Arizona | 6 | 0 | 6 |
| Florida | 1 | 0 | 1 |
| Minnesota | 0 | 1 | 1 |
| Missouri | 0 | 1 | 1 |
| Nevada | 1 | 0 | 1 |
| Oklahoma | 0 | 1 | 1 |
| Texas | 1 | 0 | 1 |
| Washington | 1 | 0 | 1 |

**Measures**

A combination of a structured diagnostic interview, measures of major depression and postpartum depression (to confirm eligibility criteria), and a self-report questionnaire package of measures were used in the study. PP participants received a package including 15 measures. NPP participants received a package including 14 measures (Table 3 and 4).

Table 3

*Depression, Cognitive Vulnerability, and Relationship Maladjustment Measures for Both Groups*

| Measures | PP | NPP |
|---|:---:|:---:|
| Demographic Questionnaire | ● | ● |
| Edinburgh Postnatal Depression Scale (EPDS) | ● | ● |
| Beck Depression Inventory (BDI) | ● | ● |
| Mini International Neuropsychiatric Interview (MINI) | ● | ● |
| Perfectionistic Self Presentation Scale (PSPS) | ● | ● |
| Self-Concept Clarity Scale (SCC Scale) | ● | ● |
| Depressive Experiences Questionnaire (DEQ) | ● | ● |
| State Trait Anxiety Inventory (STAI) | ● | ● |
| Dyadic Adjustment Scale (DAS) | ● | ● |
| Relationship Assessment Scale (RAS) | ● | ● |
| Maternal Attitudes Questionnaire (MAS) | ● | ● |
| Mother to Infant Bonding Scale (MIBS) | ● | |
| Revised Life Event Questionnaire (Revised LEQ) | ● | ● |
| Perceptions of Loss (POL) | ● | ● |
| Marlowe-Crowne Social Desirability Inventory(MCSDS) | ● | ● |

Table 4

*Measures, Variable of Interest, and Group Assessed*

| Measures | Variables of Interest | Group (PP or NPP) |
|---|---|---|
| Demographic Questionnaire | Risk Factors/Controlled Variables: Age, Income, Education, Breastfeeding, Planned Pregnancy, Gestational age of baby at birth, Parity, History of depression | PP and NPP |
| Edinburgh Postnatal Depression Scale (EPDS) | Criterion Variable and Inclusion criteria: Depression (PP) | PP and NPP |
| Beck Depression Inventory (BDI) | Criterion Variable and Inclusion Criteria: Depression (NPP) | PP and NPP |
| Mini International Neuropsychiatric Interview (MINI) | Inclusion and Exclusion Criteria: Screening for Depression | PP and NPP |
| Perfectionistic Self Presentation Scale (PSPS): Self Promotion, Nondisplay, and Nondisclosure | Predictor Variable: Perfectionism | PP and NPP |
| Self-Concept Clarity Scale (SCC Scale) | Predictor Variable: Self-Concept Clarity | PP and NPP |
| Depressive Experiences Questionnaire (DEQ): Relatedness, Dependence, Self-Criticism, Self-Efficacy | Predictor Variable: Goal Orientation (Self-definition and Relatedness) | PP and NPP |
| State Trait Anxiety Inventory (STAI) State subscale and Trait subscale | Predictor Variables: Trait Anxiety and State (Between Subjects) | PP and NPP |
| Dyadic Adjustment Scale (DAS) | Criterion Maladjustment Variable: Partner Relationship | PP and NPP |
| Relationship Assessment Scale (RAS) | Criterion Maladjustment Variable: Mother Relationship | PP and NPP |
| Maternal Attitudes Questionnaire (MAQ) | Predictor Variable: Unrealistic Expectations for Motherhood | PP and NPP |
| Mother to Infant Bonding Scale (MIBS) | Criterion Maladjustment Variable: Bonding with Infant | PP |
| Revised Life Event Questionnaire (Revised LEQ): Number, Valence, and Impact | Moderating Stress Variable: Stressful Events | PP and NPP |
| Perceptions of Loss: General, Interpersonal, and Independent | Moderating Variable: Perceptions of Loss (Independent and Interpersonal) | PP and NPP |
| Marlowe-Crowne Social Desirability Inventory (MCSDS) | Validity Variable/Covariate: Social Desirability Bias | PP and NPP |

*Figure 1*. Recruitment Description: Non-eligible Potential Participants

Women expressed interest and contacted study = 220

↓

Initial contact = 29
No response to attempts to reach

↓

Expressed Interest and Initial Contact. No screening due to pregnancy, no children, not meeting criteria for depression, no partner/single, male = 25

↓

Screened (MINI)= 78

↓

Packages Sent, withdrew, incomplete, impossible to reach, lost in mail (2X), symptom improvement = 21

↓

Total Non-eligible = 153

↓

Eligible Participants = 67

*Figure 2.* Eligible Participants: Final Sample Groups
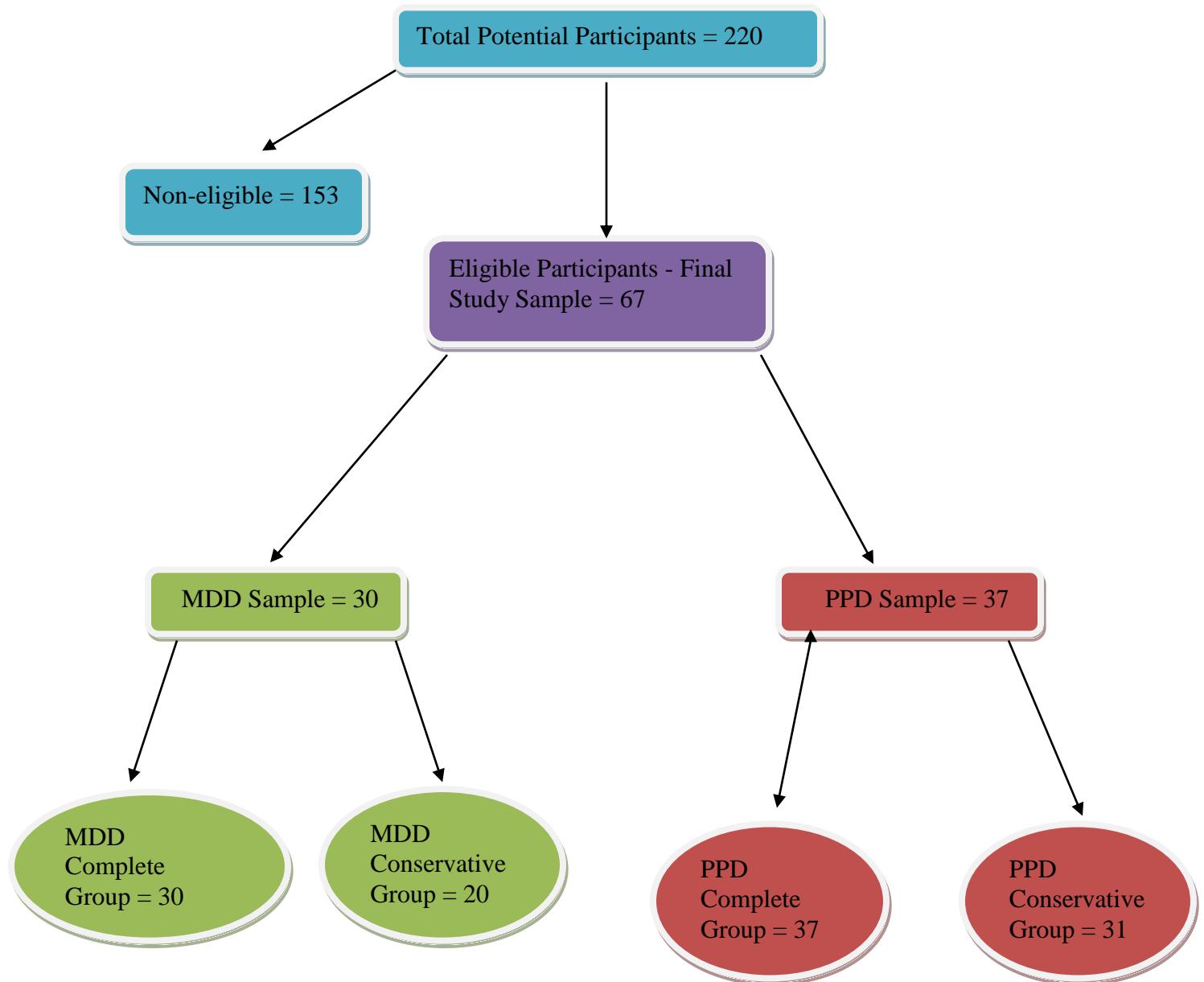


Note. Complete groups contain all data collected for eligible participants. Smaller conservative groups contain data from remaining participants following elimination based on more conservative criteria, i.e., previous history of fertility issues or loss, questionable categorization due to time of depression symptom onset.

**Mini International Neuropsychiatric Interview** (MINI; Sheehan, Janavs, Baker, Harnett-Sheehen, Knapp, & Sheehan, 2003). The MINI is designed to assess diagnoses of DSM-IV and ICD-10 major Axis I disorders, including Major Depression. Depression is assessed using two entry criteria (depressed mood and loss of interest) and seven associated symptoms of depression (appetite problems, sleep problems, motor problems, lack of concentration, loss of energy, poor self esteem, and suicidality). Additional modules assessing Suicidality, Dysthymia, Mania, and Psychosis were also administered. The MINI is designed to be brief, easily administered with brief training, and structured utilizing specific questions requiring a "yes" or "no" answer. In order to develop competency for administering the MINI, the researcher reviewed available materials for conducting MINI interviews, followed instructions from the authors regarding training, and practiced interviews with an experienced clinical practitioner/psychologist. The MINI was administered by phone as a screening to determine whether the inclusion and exclusion criteria related to mood and psychosis, respectively, were met for each participant. The MINI has demonstrated acceptable inter-rater reliability (kappa = .56 - .87), sensitivity (.61- 1.0 for 15/20 DSM-IV disorders, excellent specificity for 20 disorders (.73 - 1.0) and concordant validity with several relevant disorders (mood, anxiety, substance use, and behavioral) comparable to other clinical interview instruments (Sheehan et al., 1997, 2003, 2010). The MINI provides the benefit of using modules that allow for focusing on particular diagnostic categories, promoting specificity, while also promoting flexibility, including the ability to focus on particular diagnostic categories, decreasing the length of the interview, and can generally be administered in a brief period of time.

**Edinburgh Postnatal Depression Scale** (EPDS; Cox et al., 1987). The EPDS is a 10-item self-report measure that was designed to assess symptoms of depression in the PP period

with a focus on cognitive and affective symptoms. Participants are asked to rate items on a Likert scale from 0 (least severity) to 3 (most severity) based on how they felt in the last week. Total scale scores range from 0 to 30 with a cutoff of 10-13 indicating major depression. The EPDS has been widely used with perinatal women, widely researched, used in different languages and cultures, and internationally validated (Boyd et al., 2005). The scale exhibits good test-retest reliability ranging from .53 to .74, (e.g., r = .75; Figueiredo et al., 2008), split-half reliability ranging from .73 to .83, and internal consistency with Cronbach's Alpha ranging from .73-.87 (e.g., .85; Figueiredo et al., 2008; see Boyd et al., 2005) and reaching .90 in some studies (Masih et al., 2007). The scale also demonstrates high levels of sensitivity, ranging from 34% to 100% (e.g., 86%; Cox et al., 1987) and specificity, ranging from 44% to 100% (e.g., 78%; Cox et al., 1987), in the detection of PPD (Gibson, Mckenzie-Mcharg, Shakespeare, Price, & Gray, 2009; Phillips, Charles, Sharpe, & Matthey, 2009). Predictive validity (e.g., positive = 73%; Cox et al., 1987) and concurrent validity have also been demonstrated with the scale (see Boyd et al., 2005; Figueiredo et al., 2009). Overall, the EPDS has moderate psychometric properties, good face validity, and the benefits of being a brief measure, easily administered for screening, and designed to be acceptable to women who do not see themselves as unwell based on an overemphasis on somatic symptoms (Cox et al., 1987; Appendix A). Cronbach's alpha for the current sample of participants was .76.

   **Beck Depression Inventory** (BDI; Beck et al., 1961). The BDI is a 21-item self-report measure that assesses cognitive, behavioral, affective, and somatic aspects of depression. Participants are asked to select one response among 4 increasingly depressed responses provided for each item that best represents their current state. Total scores can range from 0 to 63, with higher scores representing greater depression. The psychometric qualities of the BDI have been

demonstrated with both clinical and nonclinical samples (see Leahy, 2004). For example, Cronbach's Alpha for the BDI was .87 in a previous study (Choch, 2006). With the current sample of participants, alpha level was .78. The BDI has been widely used in research on PPD (e.g., O'Hara et al., 1990; O'Hara et al., 1991; Pakenham et al., 2007), and therefore its use in the current study allowed for replication of previous findings and contextualizing current findings in PPD literature (Appendix B).

**Perfectionistic Self-Presentation Scale** (PSPS; Hewitt et al., 2003). The PSPS is a 27-item self-report scale containing 3 subscales measuring different facets of an interpersonal style of perfectionistic self expression: Perfectionistic Self Promotion, Nondisplay of Imperfection, and Nondisclosure of Imperfection. Good reliability and validity has been demonstrated with the scale in student, community, and clinical samples. In terms of reliability, Cronbach's Alpha generally ranges from .78 to .86 for the subscales and .79 to .81 for test-retest reliability. In terms of validity, convergent validity has been demonstrated with moderate to high correlations with other measures of perfectionism, including widely used measures of trait perfectionism and observer ratings (Hewitt et al., 2003). Furthermore, moderate correlations between subscales of the PSPS and measures of theoretically associated constructs, such as self-esteem, social anxiety, types of impression management (i.e., self concealment), psychological distress (depression and negative affect), and personality pathology related to the DSM diagnostic categories (i.e., dysregulation) have contributed to demonstrating criterion validity and overall construct validity of the PSPS (Hewitt et al., 2003; Sherry et al., 2007). Discriminant validity between facets and incremental validity with other measures of personality/pathology has also been demonstrated (Sherry et al., 2007). The PSPS was chosen for the current study to assess perfectionism due to demonstrated reliability, validity, relevance of the construct to women's experiences of

depression, and the established ability of the scale to identify individual differences in a form of

perfectionism that is relevant to PPD, yet has garnered little research. Moreover, the PSPS is

associated with commonly examined aspects of trait perfectionism, but is a distinct aspect of

perfectionism related to interpersonal style assessing the expression of perfectionism (Appendix

C).  In the current sample, Perfectionistic Self Promotion, Nondisplay of Imperfection, and

Nondisclosure of Imperfection facets exhibited alpha levels of .84, .87, and .87, respectively.

**Self-Concept Clarity Scale** (SCC Scale; Campbell et al., 1996). The SCC Scale is a 12

item self-report measure of an individual's consistency, confidence, and stability in their

definition of self. Items are rated on a 5-point Likert scale from 1= (strongly disagree) to 5=

(strongly agree). The SCC Scale has demonstrated good reliability with good internal

consistency (Cronbach's Alpha =.86), item-total correlations (mean of .54), and mean inter-item

correlation (.34). With regards to validity, the SCC Scale has also demonstrated good convergent

and construct validity with moderate to strong correlations with theoretically relevant constructs

in expected directions, including self-esteem, neuroticism, and ruminative self-consciousness

(Campbell et al., 1996; Appendix D). In the current sample, good reliability, with an alpha level

of .85, was demonstrated.

**Depressive Experiences Questionnaire** (DEQ;  Blatt, D'Afflitti, & Quinlan, D. M.,

1976; Appendix E). The DEQ is a 66 item self-report measure of goal orientation and consists of

2 factors reflecting values and attitudes towards the self and interpersonal relations: Self

Definition and Relatedness. The DEQ further consists of adaptive and maladaptive facets of goal

orientation. Facets of the two factors reflecting maladaptive and adaptive self-definition (self-

criticism and self-efficacy) and adaptive and maladaptive focus on interpersonal relations

(relatedness and dependency) were assessed in the current study. The items for these facets were

drawn from shortened subscales based on smallest space analysis conducted by Blatt, Zohar, Quinlan, Zuroff, & Mongrain (1995) and the Reconstructed Depressive Experiences Questionnaire (DEQR; Bagby, Parker, Joffe, & Buis, 1994), an extensive psychometric refinement of the DEQ (Appendix F). The Relatedness subscale consists of 8 items and measures an adaptive reaction to interpersonal experiences with a specific person marked by "reactions of loss and loneliness to disruption" of the relationship. Significant correlations with self-esteem and efficacy are found with this subscale, particularly for women. The Dependence subscale consists of 10 items and measures a maladaptive focus on interpersonal experiences that is more generalized, (rather than focused on a particular person or relationship), and marked by "helplessness, and intense fears focused on separation, rejection, and abandonment." The Self-Criticism subscale consists of 9 items and measures "internally directed" feelings of guilt, emptiness, hopelessness, being threatened by change, unsatisfied, failing to meet expectations/standards, ambivalence about self and others/insecurity, pressured by responsibilities, and self blame (Blatt et al., 1995).

Items for each subscale are rated on a 7-point Likert scale from 1 = (strongly disagree) to 7 = (strongly agree). The DEQ has been widely used in research on depression (see Coyne & Whiffen, 1995) and PPD (see Besser et al., 2008; Vliegen et al., 2006). Research demonstrates stability of the factor structure (Blatt et al., 1976), internal consistency with Cronbach's alpha in young mothers ranging from .86 to .90 (see Vliegen et al., 2006), and good construct validity demonstrated with correlations with measures of depression (Blatt et al., 1976). Moreover, the dependence and relatedness subscales have demonstrated significant correlations with depression measured with the BDI, and self-esteem and efficacy, respectively, particularly in women. Alpha levels have ranged from .66 to .75 for the dependence subscale and .65 to .69 for relatedness in

women. In the current study, alpha levels were .61 for the dependence subscale and .67 for the

relatedness subscale. Good internal consistency (.80 or greater), test-retest reliability,

discriminant validity evidenced by distinguishing between normal and clinical (i.e., depressed,

community) samples, and factor structure of the reconstructed self criticism scale in a variety of

samples has been documented (Bagby et al., 1994). The Self-Criticism and Self-Efficacy

subscales each reached an alpha of .74 in the current sample (Appendix F).

**State Trait Anxiety Inventory** (STAI; Spielberger, Gorsuch, & Loshene, 1983/1999;

Appendix H). The STAI is a 40 item self-report questionnaire and consists of 20 questions

measuring the transient experience of anxiety and 20 questions measuring dispositional trait

anxiety. Items are rated on a 4-point Likert scale ranging from 1 = (not at all) to 4 = (very much),

with total scores ranging from 20 to 80. The STAI has been widely used, demonstrates reliability

with good internal consistency with alpha ranging from .65 to .96 ($M$ = .91) for the State scale,

and .72 to .96, ($M$ = .89) for the Trait scale (e.g., State alpha = .88, Trait alpha = .87; Figueiredo

et al., 2008) and test-retest reliability ranging from alpha = .34 to .96 ($M$ = .70) for the State

scale, and alpha = .82 to .94 ($M$ = .88) for the Trait scale (Barnes, Harp, & Jung, 2002). The

STAI has been used in research with PP women (Akman et al., 2008; Figueiredo et al., 2008;

Monk et al., 2008; Appendix G).  In the current study, the State items demonstrated an alpha of

.91 and the Trait items demonstrated an alpha of .88.

**Dyadic Adjustment Scale** (DAS; Spanier, 1976; Appendix H). The DAS is a widely

used self-report measure of relationship adjustment in couples designed to capture experiences of

cohabitating as well as marital relationships. It contains 32 items and is rated on two different

likert scales both ranging from 0 to 5 ("always disagree" to "always agree" and "all the time" to

"never.") Total scale scores and subscales have both been used in research, however the validity

of using some subscales has been questioned (Crane, Busby, & Larsen, 1991). In the current

study, due to wide use and good psychometric properties of the full scale and the small sample

size requiring limiting the number of variables to maintain power, only the full scale was used.

The DAS has shown good internal consistency with Cronbach's Alpha greater than .90, validity

in predicting PPD in pregnant women (O'Hara et al., 1990), and has been widely used in

research on PPD and the distinction hypothesis (O'Hara, 1985; O'Hara et al., 1990, 1991;

Whiffen & Gotlib, 1993). Cronbach's alpha for the DAS in the current study was .94,

demonstrating excellent internal consistency reliability.

**Relationship Assessment Scale** (RAS; Hendrick, 1988; Appendix I). The RAS was

designed to be a self-report measure of general relationship satisfaction that can provide wider

application than existing measures of marriage satisfaction. It consists of 7 items rated on a 5-

point Likert scale ranging from 1 = (low satisfaction) to 5 = (high satisfaction). Therefore, higher

scores represent greater relationship satisfaction. The RAS provides the benefit of being a brief

measure with items tapping a range of more general aspects of relationships than measures

tapping romantic relationships, such as the DAS. Items in the scale were modified for the study,

with permission from the author, to be appropriate for measuring relationships with mothers

(e.g., How much do you love your *mother*, original wording *partner*). The RAS demonstrates

reliability with good internal consistency and a unidimensional factor structure. Validity has

been demonstrated with predictive validity, construct validity with moderate to high correlations

in predicted directions with theoretically relevant constructs, such as commitment, investment,

altruistic love, and self-esteem, and convergent validity with a high correlation with the DAS, a

well established measure of marital satisfaction (Vaughn & Baier, 1999). The alpha level in the

current study was .93, demonstrating excellent reliability of the measure.

**Maternal Attitudes Questionnaire** (MAQ; Warner et al., 1997). The MAQ is a 14 item self-report measure rated on a 4-point Likert scale scored 0, 1, or 2, corresponding with "strongly disagree" or "disagree," "agree," and "strongly agree," respectively. Higher scores indicate more unrealistic expectations for motherhood or greater role conflict in becoming a mother. High internal consistency (Cronbach's Alpha = .84) and test-retest reliability (mean change in total score = 0.0) has been demonstrated with the scale (Warner et al., 1997). The MAQ has also shown good concurrent validity with a strong relationship with PPD, measured with the EPDS. Moreover, the scale has good face validity including items derived from both research and clinical experience with women with PPD (Warner et al., 1997; Appendix J). The MAQ had an alpha of .77 in the current study.

**Maternal-to-Infant Bonding Scale** (MIBS; Taylor et al., 2005). The Mother-to-Infant Bonding Scale is an 8-item self-report measure assessing how a mother feels towards her infant. It is rated on a Likert scale ranging from "Not At All" to "Very Much," corresponding with 0 to 3, depending on whether the item assesses positive or negative affect. The scale has demonstrated adequate internal consistency with Cronbach's Alpha of .71 and good convergent validity with a strong significant rank correlation with PPD, measured by the EPDS, with Spearman's rho = .244, .310 (Taylor et al., 2005; Appendix K). In the current study, the alpha value was .81, demonstrating good reliability.

**Revised Life Event Questionnaire** (revised LEQ; Norbeck, 1984). The revised LEQ was developed to address the limitations of existing life event questionnaires by including items designed to be relevant for adult female respondents of childbearing age. It is a self-report measure consisting of 82 items. Participants are asked to indicate whether they experienced each event in the past 12 months (Life Event Number), whether the event was "bad" or "good"

(Valence), and then rate on a 4-point scale the degree of impact that each event had ranging from

0 = (no effect) to 3 = (great effect). The LEQ has demonstrated reliability with good test-retest

consistency, and validity with correlations with measures of psychological symptoms, including

trait anxiety and negative mood (Norbeck, 1984; Appendix L).

**Perceptions of Loss** were assessed based on a method used in previous studies (Clark et

al., 1992; Davila & Sargent, 2003; Masih et al., 2007) with questions designed to examine degree

and type of loss experienced by each event. Participants were asked to rate all endorsed life

events on a 7-point Likert scale ranging from 0 = (no) to 6 = (great loss). One question was used

to examine general loss: How much loss was associated with the event? Five questions were

used to assess interpersonal loss: How much did this event result in a disruption to your

relationship with others? How much did this event result in: a) Loss of emotional support that I

had or wanted to have? b) Closeness or affection I had or wanted to have? c) Friendship or

companionship I had or wanted to have? d) Trust that I had for someone? Five questions were

used to assess loss of independence/self-definition: How much did this event result in a loss of

your independence, freedom or (life) goals? How much did this event result in loss of: a)

Succeeding at what I do? b) Accomplishing what I wanted? c) Reaching my goals or fulfilling

my hopes for how I do? d) Meeting my expectations or performing up to my own standards?

(Appendix M). The general loss item was used as a single total score. The five questions for each

type of loss were used as items and combined to create two total scores representing an

interpersonal loss measure and an independent loss measure.

**Marlowe-Crowne Social Desirability Scale** (M-C SDS; Crowne & Marlowe, 1960;

Appendix N). The M-C SDS is a 33-item self-report questionnaire designed to measure the

degree to which participants attempt to present themselves in a socially desirable manner.

Participants are asked to indicate whether each statement is *true* or *false* about them. A social desirability bias is indicated with false answers to some questions on the scale (e.g., "I like to gossip sometimes") and true answers on others (e.g., "No matter who I'm talking to, I'm always a good listener.") The M-C SDS has exhibited good reliability with an internal consistency coefficient of .88 using Kuder-Richardson formula 20 and test-retest correlation of .89 (Crowne & Marlowe, 1960). In a previous study, Cronbach's Alpha for the MC-SDS was .75 (Choch, 2006). In the current study, the M-C SDS had an alpha value of .68.

**Procedure**

      **Ethics and Funding**. Ethics approval for recruitment was obtained from several organizations, including the University of Manitoba, St. Boniface Hospital, Seven Oaks General Hospital, Victoria General Hospital, Grace Hospital, Prairie Mountain Health, Southern Health, and New Directions/Parenting Centre. Funding for this study, particularly the advertising/recruitment task and some participant compensation, was provided by (an award from) the Manitoba Health Research Council.

      **Recruitment.** Due to being a community based study of a clinical population, participant recruitment was a significant task on this study. Recruitment was conducted from January, 2014 until June, 2015. In person recruitment sessions were held at the Manitoba Clinic, Wolseley Family Place, and the Parenting Centre. Several physicians, obstetricians, and organizations (e.g., hospitals, colleges/universities, libraries, daycares, churches, Mood Disorders Association of Manitoba) were contacted and provided advertising material for the study (see Appendix O for posters). Organizations and women's (mental) health, postpartum, and mothers groups across Canada and the USA were contacted by phone, email, and social media. Digital advertising located in several businesses and health clinics across Manitoba, and media advertising,

including two live interviews with local radio stations, were conducted (i.e., CTV News

Community Calendar segment, CBC Radio, CJOB Radio, UM Today News Release).

**Initial Participant Contact, Information, and Screening**. Women who noticed

advertising or were informed of the details of the study called or emailed the researcher (to the

study email account) or sent a message to the study Facebook page

(https://www.facebook.com/motherhoodanddepression/) to inquire about the study and express

interest in participating. They were contacted by phone if they indicated interest in the study and

provided with information regarding the nature and requirements of the study (Appendix P). As

part of this information, they were told both verbally and in written format that  "The study is

looking at how mothers perceive their thoughts and feelings in relation to themselves and their

relationships (after having a baby). Specifically, the study is looking at mothers' experiences of

depression." Questions were asked to determine whether they met the inclusion and exclusion

criteria of the study and consent information was reviewed on the phone or via an email

document. Women also completed a diagnostic interview over the phone (i.e., MINI) to screen

for depression, other comorbid disorders, and an absence of psychosis.

**Questionnaires.** Questionnaire packages including additional written instructions for the

participant (Appendix Q), forms for informed consent (Appendix R), and all self-report measures

(Appendix A - N) were subsequently mailed out to all eligible participants who met both

inclusion and exclusion criteria and agreed to participate. Eligible participants were invited to

return questionnaire packages by mail (postage-paid) or drop off at the University of Manitoba

Psychology Department, based on preference.

**Follow up and Feedback.** A follow up call was made two weeks after questionnaires

were mailed out if the package had not been received or contact by the participant had not been

made by this time. Participants were generally provided with a minimum of one month to respond regarding their participation. Whether these potential participants were still eligible to participate was determined on a case by case basis, depending on interest, reported change, if any, in symptom severity, and whether package was completed and mailed, or had not been or only partially completed. A final email informing participants that multiple attempts to contact had been made while receiving no response and providing a deadline of 1 or 2 weeks to respond was sent to any participants who could not be reached by any method available.

For completed questionnaire packages, a feedback package was mailed out to each participant including a personalized letter thanking the participant, a summary of the hypotheses/purpose of the study (Appendix S), $20 compensation (Canadian or US currency as appropriate), resources for crisis and counselling services (Appendix T), and facts and tips for dealing with postpartum depression or major depression during motherhood, as appropriate (Appendix U). In a few cases, women who were not eligible for the study were also provided with this information due to a keen interest in the study and more information about depression. A follow up email was sent two weeks after mailing out each feedback package to confirm that the participants received the feedback package.

**Determining Meeting (Depression) Criteria.** Demographic and descriptive information including age, education, income, number of children, and previous history of depression for all participants was collected, (in questionnaire packages and by phone), and initially checked for consistency in reporting and meeting criteria (Appendix V). For PP women, information regarding current month of PP, gestational age of baby at childbirth, post-delivery hospital care of infant, whether pregnancy was planned, and whether mother is breastfeeding was collected. In addition to demographic information, as described above, the criteria for a Major Depressive

Episode from the MINI was used to determine presence and severity of depression and eligibility for participation in the study. These criteria were used as an initial screening to determine eligibility to proceed with filling out questionnaire packages. An ideal cut-off score of 10 on the Edinburgh Postnatal Depression Scale (EPDS) for the PP group (Cox et al., 1987; Gibson, McKenzie-McHarg, Shakespeare, Price, & Gray, 2009) and 18 on the BDI for the NPP group (Beck et al., 1961) was aimed for to confirm diagnostic criteria and identify participants with clinically significant depression to retain for the study. Previous studies with perinatal women have used a cut-off of 10 on the BDI for "notable depression" (e.g., Lau, Hurst, Smith, Schanler, 2007). In the current study, 7 was the lowest score on the EPDS for the PP group, and 12 was the lowest score on the BDI for the NPP group, which were deemed acceptable. The psychotic disorders section of the MINI was used to screen for exclusion criterion of severe psychopathology. No women were identified as or eliminated due to meeting this criteria.

**Checking Information, Scoring, and Data Entry for Reliability/Consistency.**

Questionnaire packages were also checked for missing or unusual data. Participants were contacted to provide an opportunity to complete missing items and receive clarification or more copies of the Perception of Loss Measure to correspond with number of Life Events endorsed. Demographic information and particular questions related to time of pregnancy (and miscarriage or abortion) on the Life Events Questionnaire was checked for consistent responding and to confirm that participants met criteria. The EPDS and BDI were handscored by one member of the research team to confirm participants met criteria for depression and check safety items (discussed below). The DAS was also handscored. All handscored measures were checked a second time by a different member of the research team. All data entry was checked manually with two members of the research team, where one member did not enter the data initially.

**Addressing Risk/Safety of Participants.** The Depression module of the MINI includes items that specifically assess current and past suicidality and therefore provided an opportunity to asses risk and have a discussion with each woman contacted about safety. Namely, current risk, prior suicidality, and access to treatment/resources was discussed with each participant by the primary researcher who has training and clinical experience with depression and assessing suicidality. In some cases, participants noted on questionnaires that they were in treatment with a mental health professional or explicitly stated that although they had some suicidal ideation, they had no intentions to harm themselves. In cases where this information was not provided and participants endorsed a 3 on Item #10 of the EPDS, or a 2 or higher on Item #9 of the BDI (both referring to suicidality), participants were contacted by the primary researcher to assess risk and offer assistance to promote safety.

**Resources.** Any potential participants, including those who were not eligible, were offered resources for counselling services (Appendix U). Resources for participants outside of Manitoba were researched for their particular province or state and area, and provided in the same format. Participants were offered resources at every contact/interaction, namely the initial phone contact, after the structured interview, anytime during the study if requested, and at the end of the study. Participants were also encouraged in emails and phone contacts to contact the researcher for information about the study or resources if needed.

**Results**

**Data screening and Preliminary Analyses**

   **Data Checking.** Prior to performing data analyses, a fidelity check was conducted to determine and address any errors that occurred during data entry. Entered scores were examined for each measure and compared to participants' initial handwritten, paper entry scores and any errors were corrected. Reduction of bias was attempted by ensuring that the primary researcher and each research assistant only review the measures for which she had not completed the data entry initially.

   Most preliminary analyses examined the PP and NPP groups separately. This approach was chosen due to the nature of the research design focusing on a group comparison between women with PPD and NPP women with major depression, and the primary hypotheses posed regarding expected differences between groups. In preparing data for testing hypotheses, data were first examined for plausible minimum and maximum values, missing data (missing values analysis), outliers (boxplots and z scores), and assumptions of normality (Q-Q plots, histograms, and statistical tests). Concerning missing data, one participant did not complete an entire measure, the Revised LEQ and Perceptions of Loss. A total of 3 missing values were also identified, for three different measures: DAS, MC-SDS, and PSP Nondisplay of perfectionism subscale. Due to the apparent random nature and small number of missing items, imputation, namely mean substitution, was used to complete missing items prior to computing total scores and proceeding with descriptive analyses (Newman, 2009).

   **Meeting Assumptions.** Descriptive statistics and visual representations of data were examined in combination to determine the nature of distribution of scores for each measure within groups, and identify the steps required to maximize interpretability of the data and meet

assumptions for inferential analyses. Because statistical tests of normality may lack sensitivity

for smaller sample sizes, such as found in the current study, the Shapiro-Wilk normality test,

which is a more sensitive statistic for sample sizes less than 50, was used to determine normality

based on values that were greater than .05, along with skewness and kurtosis values. Potential

outliers were identified based on examination of graphs (i.e., boxplots) and Z scores for outliers

were calculated. Scores that were found to fall below the 3.29 cutoff were retained in the data set

(Tabachnick & Fidell, 2007). Extreme outliers were addressed by resetting data with the

winsorizing technique (Dixon, 1980). In order to retain all participants' data and sufficient

power, in cases where winsorizing did not improve distribution of scores sufficiently, that is,

meeting criteria of reducing skewness and kurtosis values to less than 1 or Z scores less than 3,

transformations were conducted and distributions compared. Namely, transformations were

performed to force scores to more closely approximate a normal distribution, improve

interpretability of data, and retain power for finding true effects. The transformed data that best

met these criteria were used in subsequent analyses. All measures and distributions of measures

met criteria for fulfilling normality assumptions following preliminary analyses. Characteristics

of each measure are presented in Table 5 for the PP sample and Table 6 for the NPP sample.

Prior to correlational analysis, continuous variables were subjected to a Levene's test to

determine whether the homogeneity of variances assumption for bivariate correlations was met.

Nonsignificant $p$ values were found, suggesting that variances were statistically equal to satisfy

assumption. In addition, the Brown-Forsythe test for homogeneity of variances on the Median of

each continuous variable was conducted with the same results of nonsignificant $p$ values

emerging. Scatterplots between predictor and criterion variables and residual regression plots

Table 5
*Means, Standard Deviations, Median, Minimum Values and Maximum Values for All Measures for PP Group*

| Measures    N = 37 | M | SD | Md | Range | Min. | Max. |
|---|---|---|---|---|---|---|
| EPDS | 16.92 | 4.20 | 17 | 0 - 30 | 9 | 27 |
| BDI | 25.30 | 8.57 | 25 | 0 - 63 | 9 | 40 |
| SCC | 29.38 | 9.53 | 27 | 1 - 60 | 15 | 57 |
| PSPNondisplay | 48.31 | 12.03 | 50 | 1 - 70 | 15 | 70 |
| PSPNondisclosure | 24.59 | 9.92 | 25 | 1 - 49 | 7 | 45 |
| PSPSelfpromotion | 43.48 | 11.57 | 43 | 1 - 70 | 22 | 70 |
| MAQ | 10.20 | 4.94 | 10 | 0 - 28 | 2 | 21 |
| STATE | 50.28 | 11.40 | 50 | 20 - 80 | 26 | 70 |
| TRAIT | 56.65 | 9.96 | 56 | 20 - 80 | 33 | 78 |
| DEQDEP | 48.20 | 7.73 | 48.50 | 1 - 70 | 35 | 66 |
| DEQRELATE | 41.45 | 7.42 | 43 | 1 - 56 | 23 | 55 |
| DEQSC | 43.07 | 8.69 | 44 | 1 - 63 | 26 | 58 |
| DEQSE | 38.23 | 6.65 | 39 | 1 - 56 | 26 | 49 |
| DAS | 102.50 | 15.60 | 103 | 0 - 151 | 75 | 128 |
| RAS | 22.30 | 7.96 | 24 | 1 - 35 | 7 | 35 |
| BOND | 3.84 | 3.93 | 3.84 | 0 - 24 | 0 | 16 |
| Life Event # | 14.60 | 7.30 | 14 | 0 - 81 | 5 | 45 |
| Life Event Impact | 1.98 | .53 | 2.04 | 0 - 3 | .79 | 2.90 |
| General Loss | 2.44 | 1.25 | 2.3 | 0 - 6 | 0 | 5.20 |
| Interpersonal Loss | 9.76 | 5.28 | 9.57 | 0 - 30 | .29 | 23.20 |
| Independent Loss | 9.60 | 5.98 | 7.70 | 0 - 30 | .14 | 23.20 |
| MCSDS | 13.20 | 4.38 | 13 | 0 - 33 | 3 | 26 |

*Note*. EPDS = Edinburgh Postnatal Depression Scale, BDI = Beck Depression Inventory, SCC = Self-Concept Clarity Scale, MAQ = Unrealistic Expectations or Attitudes, STATE  = State Anxiety, TRAIT = Trait Anxiety, Towards Motherhood, DEQDEP = Dependency, DEQRELATE = Relatedness, DEQSC = Self-Criticism, DEQSE = Self-Efficacy, DAS = Dyadic Adjustment with Partner, RAS = Relationship with Mother, BOND = Bonding with Baby, MCSDS = Marlowe-Crowne Social Desirability Scale
MD = Median, Range = Plausible Range for Measure

Life Event and Perception of Loss values based on average scores

Table 6

*Means, Standard Deviations, Median, Minimum Values and Maximum Values for All Measures for NPP Group*

| Measures        N =30 | M | SD | Md | Range | Min. | Max. |
|---|---|---|---|---|---|---|
| EPDS | 14.87 | 4.07 | 15 | 0 - 30 | 7 | 21 |
| BDI | 24.00 | 6.37 | 23 | 0 - 63 | 12 | 36 |
| SCC | 31.03 | 6.52 | 32 | 1 -60 | 19 | 41 |
| PSPNondisplay | 48.70 | 9.65 | 48 | 1 - 70 | 33 | 66 |
| PSPNondisclosure | 25.80 | 8.11 | 25.50 | 1 - 49 | 13 | 49 |
| PSPSelfpromotion | 43.52 | 9.40 | 42.50 | 1 - 70 | 28 | 65 |
| MAQ | 7.73 | 4.31 | 7 | 0 - 28 | 1 | 18 |
| STATE | 49.40 | 10.73 | 51 | 20 - 80 | 28 | 74 |
| TRAIT | 53.80 | 7.81 | 51.50 | 20 - 80 | 40 | 68 |
| DEQDEP | 45.10 | 8.80 | 44 | 1 - 70 | 30 | 63 |
| DEQRELATE | 38.93 | 6.37 | 38 | 1 - 56 | 26 | 53 |
| DEQSC | 42.23 | 7.35 | 40 | 1 -63 | 30 | 59 |
| DEQSE | 36.95 | 5.88 | 38 | 1 - 56 | 25 | 49 |
| DAS | 92.80 | 24.40 | 99 | 0 - 151 | 29 | 128 |
| RAS | 22.97 | 8.38 | 23.50 | 1 - 35 | 7 | 35 |
| Life Event # | 14.20 | 5.70 | 14 | 0 - 81 | 4 | 28 |
| Life Event Impact | 2.00 | .39 | 2 | 0 -3 | .50/1.3 | 2.60 |
| General Loss | 2.42 | 1.15 | 2.42 | 0 - 6 | .85 | 4.90 |
| Interpersonal Loss | 9.60 | 5.30 | 8.70 | 0 - 30 | 2.4 | 24 |
| Independent Loss | 8.44 | 6.20 | 7.80 | 0 - 30 | 0 | 21.20 |
| MCSDS | 12.40 | 4.79 | 13.50 | 0 - 33 | 3 | 20 |

*Note*. EPDS = Edinburgh Postnatal Depression Scale, BDI = Beck Depression Inventory, SCC = Self-Concept Clarity Scale, TRAIT = Trait Anxiety, STATE = State anxiety, MAQ = Unrealistic Expectations or Attitudes Towards Motherhood, DEQEP = Dependency, DEQRELATE = Relatedness, DEQSC = Self-Criticism, DEQSE = Self Efficacy, DAS = Dyadic Adjustment with Partner, RAS = Relationship with Mother, BOND = Bonding with Baby, MCSD = Marlowe-Crowne Social Desirability Scale

Md = Median, Range = Plausible Range for Measure, Life Event and Perception of Loss values based on average scores

between residuals of predictors and criterion scores in each group were examined for

homoscedasticity. Multicollinearity was examined with correlational analysis for ANOVAs

(described below) and examining Variance Inflation Factor (VIF) values for multiple regression,

to ensure low to moderate correlations and low VIF values, respectively. No scores were

eliminated and variables remained as created in multiple regression analyses. Thus, necessary

assumptions of (multivariate) normality, independence of variables, homogeneity of variance

(homoscedasticity), and independence of residuals (linearity) for correlations, multiple

regression, and Analysis of Variance (ANOVAs) were examined and ensured.

        **Life Events**. An important component of the study hypotheses was to examine the role of

perceived loss in the etiology of depression and relationship maladjustment based on life events

identified. In order to gather this data, participants initially endorsed whether they had

experienced life events in the past year in multiple categories (Table 7). The most commonly

reported categories of life events were Health (20%), followed by Personal and Social (19.9%),

Love and Marriage (15.5%), Work (11%), Parenting (9%), Family and Close Friends (6.7%),

Financial (6.5%), Residence (4.9%), Other (2.9%), School (2.6%), and Crime and Legal Matters

(1.2%). PP women endorsed considerably more life events in Health, Residence, Love and

Marriage, Family and Close Friends, and Parenting categories. Additional life events (i.e., Other

category) endorsed by participants included events related to loss, family, parenting, concern for

partner, childbirth, and motherhood. See Appendix W.

Table 7

*Type, Number, and Frequency of Life Events Endorsed by PP and NPP Groups*

| Type of Event | Total Sample ($N = 67$) Number (Freq.) | PP ($n = 37$) Number (Freq.) | NPP ($n = 30$) Number (Freq.) |
|---|---|---|---|
| Health | 192 (20%) | 118 (12.3%) | 74 (7.6%) |
| Personal & Social | 191 (19.9%) | 95 (9.9%) | 96 (10%) |
| Love & Marriage | 149 (15.5%) | 89 (9.3%) | 60 (6.2%) |
| Work | 104 (11%) | 53 (5.5%) | 51 (5.3%) |
| Parenting | 87 (9%) | 50 (5.2%) | 37 (3.8%) |
| Family & Close Friends | 64 (6.7%) | 45 (4.7%) | 19 (2%) |
| Finance | 63 (6.5%) | 34 (3.5%) | 29 (3%) |
| Residence | 47 (4.9%) | 30 (3.1%) | 17 (1.8%) |
| Other | 28 (2.9%) | 19 (2%) | 9 (0.9%) |
| School | 25 (2.6%) | 10 (1.04%) | 15 (1.6%) |
| Crime & Legal | 12 (1.2%) | 6 (0.6%) | 6 (0.6%) |
| Total | 962 | 549 (57%) | 413 (43%) |

*Note*. Freq. = Frequency endorsed by group in particular category
PP participants endorsed more events overall and more events in Health, Love & Marriage, Parenting, Family & Close Friends, Finance, Residence, and Other categories

**Testing Group Differences: Demographic Variables.** Chi square tests on categorical demographic variables and independent t-tests on continuous demographic variables were conducted to determine whether differences in means between the PP and NPP group variables would emerge. All tests revealed nonsignificant *p* values, therefore no demographic variables were controlled for in subsequent mean difference analyses, that is ANOVAs were conducted as proposed as opposed to ANCOVAs. Correlations between demographic variables and these variables and psychosocial variables were subsequently conducted to determine whether to include them as control variables in regression analyses and provide descriptive data. See Appendix X for description.

**Correlations Between Psychosocial Variables.** Bivariate correlations between variables of interest based on psychosocial measures were conducted to examine relationships between constructs and address the multicollinearity assumption (Table 8 -13). Four groupings of theoretically associated variables were examined. Specifically, depression and anxiety variables (BDI, EPDS, STAI), relationship variables (DAS, RAS), stressors (Life Events and Perceptions of Loss), and cognitive vulnerability variables (PSPS, STAI, SCC, DEQ, and ATM/MAQ) were grouped together as conceptually related. Overall, small to moderate correlations were found. The strongest correlations emerged for the stress/loss group of variables (i.e., *r* = .82), however, a moderate average correlation (*r* = .47) emerged between all variables, demonstrating a moderate association overall in this group of variables. As mentioned, further examination of the nature of variables, scatterplots, in addition to moderate correlations, determined final grouping of variables and appropriate statistical tests.

Table 8
*Bivariate Correlations Between all Measures/Variables of Interest for PP Group*

| Measures | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. | 16. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. EPDS | - | | | | | | | | | | | | | | | |
| 2. BDI | .64** | | | | | | | | | | | | | | | |
| 3. SCC | - .09 | - .39* | - | | | | | | | | | | | | | |
| 4. TRAIT | .54** | .60** | -.39* | - | | | | | | | | | | | | |
| 5. STATE | .67** | .56** | -.08 | .61** | - | | | | | | | | | | | |
| 6. NDISPL | - .11 | .19 | -.48** | .32 | .04 | - | | | | | | | | | | |
| 7. NDISC | .10 | .20 | -.37* | .13 | .26 | .34* | - | | | | | | | | | |
| 8. SP | - .08 | .11 | -.39* | -.02 | -.04 | .41* | .61** | - | | | | | | | | |
| 9. MAQ | .48** | .52** | -.25 | .47** | .42** | .07 | .15 | .13 | - | | | | | | | |
| 10. DEPEND | .26 | .28 | -.13 | .45** | .38* | -.03 | -.11 | -.08 | .24 | - | | | | | | |
| 11. RELATE | .09 | .28 | -.06 | .18 | .25 | -.02 | .15 | .23 | .27 | .60** | - | | | | | |
| 12. SC | .41* | .71** | -.69** | .69** | .49** | .37* | .47** | .40* | .56** | .29 | .16 | - | | | | |
| 13. SE | .07 | -.08 | .45** | -.29 | -.05 | -.23 | -.35* | -.12 | .05 | .03 | .12 | -.38* | - | | | |
| 14. DAS | .16 | -.25 | .21 | -.35* | -.04 | -.42** | -.07 | -.19 | -.20 | .24 | .14 | -.40* | .12 | - | | |
| 15. RAS | -.05 | .02 | -.16 | .05 | .03 | -.20 | -.24 | -.23 | .09 | .15 | .03 | .04 | .07 | .10 | - | |
| 16. BOND | .06 | .15 | .07 | - .03 | -.02 | .10 | .05 | .28 | .60** | -.10 | .11 | .14 | .07 | -.27 | -.23 | - |

*Note*. EPDS = Edinburgh Postnatal Depression Scale, BDI = Beck Depression Inventory, SCC = Self-Concept Clarity Scale, TRAIT = Trait Anxiety, STATE = State anxiety , NDISPL = Nondisplay of Imperfection, NDISC = Nondisclosure of Imperfection, SP = Perfectionistic Self-Promotion, MAQ = Unrealistic Expectations or Attitudes Towards Motherhood, DEPEND = Dependency, RELATE = Relatedness, SC = Self-Criticism, SE = Self-Efficacy, DAS = Dyadic Adjustment with Partner, RAS = Relationship with Mother, BOND = Bonding with Baby

*n* = 37, * *p* < .05, ** *p* < .01

Table 9

*Bivariate Correlations Between all Measures/Variables of Interest and Life and Perception of Loss Measures for PP Group*

| Measures | LE# | LEIMPACT | GENLOSS | INTERPERSONAL | INDEPENDENT |
|---|---|---|---|---|---|
| 1. EPDS | .12 | .28 (.10) | .45** | .31 (.07) | .44** |
| 2. BDI | .27 | .28 (.10) | .42* | .35* | .37* |
| 3. SCC | - .01 | .10 | - .29 (.08) | - .34* | - .20 |
| 4. TRAIT | - .10 | .22 | .50** | .44** | .59** |
| 5. STATE | .09 | .39* | .58** | .41* | .43** |
| 6. NDISPL | .23 | - .01 | .15 | .06 | .01 |
| 7. NDISC | .33* | - .01 | .08 | .08 | - .28 (.09) |
| 8. SP | .32 (.05) | -.19 | .03 | - .01 | - .20 |
| 9. MAQ | .25 | .09 | .60** | .61** | .55** |
| 10. DEPEND | .02 | .51** | .49** | .24 | .51** |
| 11. RELATE | .23 | .93* | .37* | .21 | .27 (.11) |
| 12. SC | .22 | .13 | .46** | .41* | .31 (.06) |
| 13. SE | .19 | .07 | - .00 | .01 | .12 |
| 14. DAS | .01 | .10 | - .05 | - .22 | - .10 |
| 15. RAS | - .07 | - .03 | .04 | - .04 | .19 |
| 16. BOND | .37* | - .15 | .29 (.08) | .26 (.12) | .17 |

*Note.* EPDS = Edinburgh Postnatal Depression Scale, BDI = Beck Depression Inventory, SCC = Self-Concept Clarity Scale, TRAIT = Trait Anxiety, STATE = State anxiety , NDISPL = Nondisplay of Imperfection, NDISC = Nondisclosure of Imperfection, SP = Perfectionistic Self-Promotion, MAQ = Unrealistic Expectations or Attitudes Towards Motherhood, DEPEND = Dependency, RELATE = Relatedness, SC = Self-Criticism, SE = Self-Efficacy, DAS = Dyadic Adjustment with Partner, RAS = Relationship with Mother, BOND = Bonding with Baby, LE# = Number of Life Events, LEIMPACT = Life Event Impact, GENLOSS = General Loss, INTERPERSONAL = Interpersonal Loss, INDEPENDENT = Independent Loss
$n = 37$, * $p < .05$, ** $p < .01$

Table 10

*Bivariate Correlations Between Life Event and Perception of Loss Variables for PP Group*

| Measures | LE# | LEIMPACT | GENLOSS | INTERPERSONAL | INDEPENDENT |
|---|---|---|---|---|---|
| LE# | - | | | | |
| LEIMPACT | .19 | - | | | |
| GENLOSS | .38* | .55** | - | | |
| INTERPERS | .33* | .28 | .76** | - | |
| INDEPEND | .05 | .42** | .79** | .75** | - |

*Note*. LE# = Number of Life Events, LEIMPACT = Life Event Impact, GENLOSS = General Loss, INTERPERS/INTERPERSONAL = Interpersonal Loss,  INDEPEND/INDEPENDENT = Independent Loss
$n = 37$, * $p < .05$, ** $p < .01$

Table 11

*Bivariate Correlations Between all Measures/Variables of Interest for NPP Group*

| Measures | 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. | 10. | 11. | 12. | 13. | 14. | 15. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. EPDS | - | | | | | | | | | | | | | | |
| 2. BDI | .54** | - | | | | | | | | | | | | | |
| 3. SCC | .03 | -.34 | - | | | | | | | | | | | | |
| 4. TRAIT | .39* | .76** | -.38* | - | | | | | | | | | | | |
| 5. STATE | .45* | .51** | -.30 | .57** | - | | | | | | | | | | |
| 6. NDISPL | .05 | .49** | -.27 | .46* | .31 | - | | | | | | | | | |
| 7. NDISC | .03 | .38* | -.08 | .20 | .14 | .55** | - | | | | | | | | |
| 8. SP | -.05 | .18 | .03 | .20 | .32 | .51* | .35 | - | | | | | | | |
| 9. MAQ | -.20 | .22 | -.30 | .34 | .17 | .48** | .22 | .50** | - | | | | | | |
| 10. DEPEND | .20 | .32 | -.16 | .47** | .49** | .29 | -.12 | .42* | .46** | - | | | | | |
| 11. RELATE | .29 | .12 | -.05 | .14 | .34 | .04 | -.02 | -.06 | .02 | .31 | - | | | | |
| 12. SC | .26 | .59** | -.35 | .56** | .53** | .64** | .33 | .31 | .28 | .45* | .35 | - | | | |
| 13. SE | .06 | -.33 | .16 | -.33 | -.24 | -.22 | -.15 | -.11 | -.29 | -.39* | -.13 | -.56** | - | | |
| 14. DAS | -.17 | -.18 | .23 | .05 | -.32 | .03 | .13 | .05 | .03 | -.18 | -.26 | -.26 | .19 | - | |
| 15. RAS | -.10 | -.20 | .17 | .04 | .03 | -.19 | -.21 | -.01 | .04 | .17 | -.37* | -.21 | .08 | -.18 | - |

*Note.* EPDS = Edinburgh Postnatal Depression Scale, BDI = Beck Depression Inventory, SCC = Self-Concept Clarity Scale, TRAIT = Trait Anxiety, STATE = State anxiety , NDISPL = Nondisplay of Imperfection, NDISC = Nondisclosure of Imperfection, SP = Perfectionistic Self-Promotion, MAQ = Unrealistic Expectations or Attitudes Towards Motherhood, DEPEND = Dependency, RELATE = Relatedness, SC = Self-Criticism, SE = Self-Efficacy, DAS = Dyadic Adjustment with Partner, RAS = Relationship with Mother

*n* = 30, * *p* = < .05, ** *p* = < .01

Table 12

*Bivariate Correlations Between all Measures/Variables of Interest and Life and Perception of Loss Measures for NPP Group*

| Measures | LE# | LEIMPACT | GENLOSS | INTERPERSONAL | INDEPENDENT |
|----------|-----|----------|---------|---------------|-------------|
| 1. EPDS | .25 | .23 | .54** | .56** | .50** |
| 2. BDI | .36 (.06) | .34 (.07) | .30 (.11) | .36 (.05) | .26 |
| 3. SCC | - .14 | - .27 | .14 | .08 | .15 |
| 4. TRAIT | - .05 | .13 | .01 | .02 | - .01 |
| 5. STATE | .17 | .30 | .22 | .32 (.10) | .19 |
| 6. NDISPL | - .12 | .10 | .02 | .22 | .05 |
| 7. NDISC | .17 | .02 | - .02 | .08 | .11 |
| 8. SP | - .08 | - .13 | - .12 | - .12 | - .16 |
| 9. MAQ | .04 | - .02 | - .21 | - .10 | - .26 |
| 10. DEPEND | .11 | - .09 | .04 | .11 | - .06 |
| 11. RELATE | .15 | .24 | .28 | .46* | .45* |
| 12. SC | .08 | .10 | .15 | .33 (.09) | .13 |
| 13. SE | .00 | .26 | .07 | .01 | .05 |
| 14. DAS | - .24 | - .34 (.06) | - .35 (.07) | - .50** | - .29 |
| 15. RAS | .02 | - .16 | - .15 | - .22 | - .30 |

*Note*. EPDS = Edinburgh Postnatal Depression Scale, BDI = Beck Depression Inventory, SCC = Self-Concept Clarity Scale, TRAIT = Trait Anxiety, STATE = State anxiety , NDISPL = Nondisplay of Imperfection, NDISC = Nondisclosure of Imperfection, SP = Perfectionistic Self-Promotion, MAQ = Unrealistic Expectations or Attitudes Towards Motherhood, DEPEND = Dependency, RELATE = Relatedness, SC = Self-Criticism, SE = Self-Efficacy, DAS = Dyadic Adjustment with Partner, RAS = Relationship with  Mother, BOND = Bonding with Baby
DAS is reflected variable.

$n = 30$, * $p < .05$, ** $p < .01$

Table 13

*Bivariate Correlations Between Life Event and Perception of Loss Variables for NPP Group*

| Measures | LE# | LEIMPACT | GENLOSS | INTERPERSONAL | INDEPENDENT |
|---|---|---|---|---|---|
| LE# | - | | | | |
| LEIMPACT | .39* | - | | | |
| GENLOSS | .27 | .41* | - | | |
| INTERPERS | .32 | .38* | .87** | - | |
| INDEPEND | .20 | .41* | .93** | .87** | - |

*Note.* LE# = Number of Life Events, LEIMPACT = Life Event Impact, GENLOSS = General Loss, INTERPERS/INTERPERSONAL = Interpersonal Loss, INDEPEND/INDEPENDENT = Independent Loss

$n = 37$, * $p < .05$, ** $p < .01$

**Social Desirability Bias.** Bivariate correlations between the MCSDS and all variables representing measures were conducted in order to address Hypothesis 5. Several significant correlations at the .05 or .01 level emerged. Women in the PP group exhibiting more social desirability bias reported better relationship adjustment with partner, lower reported tendency to engage in nondisplay of imperfection (i.e., hide imperfection), and higher self-efficacy, an adaptive independent orientation. Specifically, social desirability had a moderate positive association with the DAS ($r = .37$, $p < .05$), and the DEQ facet Self-Efficacy ($r = .45$, $p < .01$), and a negative association with the PSPS facet Nondisplay of Imperfection ($r = - .43$, $p < .01$). Women in the NPP group exhibiting more social desirability bias reported greater depression, greater impact from life events, and greater perceived loss of all three types assessed. Specifically, social desirability had a moderate positive correlation with depression as measured

by the EPDS ($r = .37$, $p < .05$), Interpersonal Loss ($r = .53$, $p < .01$), Life Event Impact ($r = .45$,

$p < .05$), and Independent Loss ($r = .52$, $p < .01$). Significant correlations for social desirability

bias are presented in Table 14. In order to follow up on significant correlations with the MCSDS,

partial correlations controlling for social desirability bias (MCSDS), one-way Analysis of

covariance tests (ANCOVAs) treating social desirability bias as a covariate in between subjects

comparisons, and hierarchical multiple regressions with social desirability bias entered at step 1

were conducted. As no changes to significant findings were demonstrated,[1] only analyses

conducted without controlling for the MCSDS will be reported.

Table 14
*Significant Correlations Between MCSDS and Measures for PP and NPP Groups*

| Measures | PP  (N=37) | NPP  (N=30) |
| --- | --- | --- |
| DAS | .37* | - |
| PSPSNONDISPLAY | - .43** | - |
| DEQSE | .45* | - |
| EPDS | - | .37* |
| Interpersonal Loss | - | .53** |
| Independent Loss | - | .52** |
| General Loss | - | .53** |
| Life Event Impact | - | .45* |

*Note*. MCSDS = Marlowe-Crowne Social Desirability Scale, DAS = Dyadic Adjustment Scale,
PSPNONDISPLAY = Perfectionistic Self-Presentation Nondisplay of Imperfection Facet,
DEQSE = Depressive Experiences Questionnaire Self-Efficacy Facet, EPDS = Edinburgh
Postnatal Depression Scale

* $p < .05$, ** $p < .01$

**Primary Analyses**

**Testing the Distinction Hypothesis: Comparison of Groups**

**Overview/Hypotheses.** A between subjects comparison between women with PPD and NPP women with MDD was conducted to examine the primary hypothesis of the study. The between subjects analyses were designed to provide preliminary evidence regarding the question of how to conceptualize PPD as a construct, including its unique etiology and manifestation in women during the PP period. Namely, the analyses were chosen to address the distinction hypothesis by examining whether women with PPD differ from NPP women with MDD in particular dispositional cognitive styles, perceptions of stress, and the depression experience (e.g., relationship maladjustment). To this end, predicted between-group differences in means for relevant variables were examined. A subsequent comparison with NPP women using a CDS model was examined to provide additional data for the nature of PPD etiology, with similarities between best fit models for groups suggesting a lack of unique quality of PPD, and differences supporting the distinction hypothesis. See Appendix AB for summary of hypotheses and results.

To test the first and second hypotheses, two different statistical tests were used; One-way ANOVAs and the Kruskal Wallis H test, a nonparametric ANOVA-based test on ranks, were performed in order to analyze the predicted group differences on relevant variables. Group variable with 4 levels (PP, NPP, PP conservative, and NPP conservative) was the independent variable. Dependent variables were thematically grouped together. The purpose of this grouping strategy was to conceptually organize the reporting of the analyses based on the four theoretically similar and moderately correlated constructs (described above in the correlational analysis). Levene's Tests and Box's M statistics revealed that the equal variances assumption was met for all variables for between subjects comparison (subjected to ANOVA and Kruskal Wallis

H). Due to some variables being transformed initially to meet assumptions, ANOVAs were conducted for variables with the same scale for each group, and Kruskal Wallis H, a more robust nonparametric test of differences, was performed for variables whose distribution did not meet assumptions and therefore had a different scale for each group. Results for Fisher's Least Significant Difference (LSD) are reported and presented in Table 15. See Appendix Y for description of corroborating tests.

The ANOVA for the first grouping, including depression and anxiety variables, was conducted, revealing an overall significant mean difference for the EPDS with $F$ (3, 114) = 2.77, $p$ = .04, partial eta squared = .07, a medium effect size, and accounting for 7% of the variance associated with group, supporting Hypothesis 2. Post hoc comparisons specifically revealed a significant mean difference of 2.05, $p$ = .04 between PP ($M$ = 16.9) and NPP ($M$ = 14.9) groups. The mean difference remained significant when comparing the NPP group with more conservative PP group (i.e., participant inclusion based on stricter criteria), and in fact a slightly larger mean difference of 2.46 emerged ($M$ = 17.3, $p$ = .02). The direction of difference was the same between both conservative groups with stricter criteria, with NPP women exhibiting a mean score of 15.10, creating a mean difference of 2.20 and $p$ = .06. Therefore, women in both PP groups had higher depression scores measured by the EPDS than women in the NPP groups.[1] Although the other variables in this group did not display a significant difference in means, trait anxiety was higher in the PP group ($M$ = 57) than the NPP group ($M$ = 54) in the expected direction, with PP women exhibiting greater anxiety.

An item analysis of the EPDS was conducted. Comparison of item means between groups revealed that PP women endorsed each item higher than women in the NPP group. Therefore, closer examination of differences at the item level revealed that symptom severity was

consistently reported higher by the PP group. The highest and lowest means for both groups were the same. Namely, the highest item means were found for item #4, referring to anxiety or worry "for no good reason" and item #3, referring to self-blame "when things went wrong." Therefore, the two highest means for items endorsed by each group were similarly related to being anxious or worried and blaming self, respectively. The next highest endorsed item was related to being "scared or panicky" for the PP group, and an item representing feeling overwhelmed (i.e., "things have been getting on top of me.") Item #10 assessing ideation related to self-harm was the lowest mean for both groups. A significant mean difference for item #4 (highest rated) emerged.

The second grouping of variables was focused on relationship satisfaction/adjustment. Relationship with mother (RAS) and relationship with partner (DAS) were included in this group. No significant differences between groups were found for mother relationship satisfaction. The Kruskal Wallis test was conducted for the DAS measuring partner relationship satisfaction. The results revealed that contrary to hypothesis, PP women reported higher levels of relationship satisfaction with their partner (*Mrank* = 36.96) than did NPP women (*Mrank* = 30.35). The difference did not, however, reach significance with a Chi Square (2) = 1.91, *p* = .17, and therefore, combined with findings related to the RAS, did not support Hypothesis 1 (i).

The third grouping of variables was focused on life events/stressors and loss and tested Hypothesis 1 (h). Number of life events, life event impact, general loss, interpersonal loss, and independent loss were included in this group. Transformed variables met assumptions for each participant group. Therefore, all variables were subjected to ANOVA. Mean differences were in the expected direction with PP women displaying greater loss of both types (i.e., interpersonal and independent) than NPP women. Mean differences did not demonstrate significance for this group of variables.

Table 15

*Means for Between Subjects Comparisons using ANOVAS and Kruskal Wallis Tests (Mean and Median)*

| Groups | EPDS | MAQ | TRAIT | SCC | Depend | Relate | DAS | Interpersonal | Independent |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Variables | | | | | |
| PP | 16.90* | 10.20* | 57 | 55.20+ | 48.20 | 41.50 | 36.96+ | 9.80 | 9.60 |
| Median | | | | (14)* | | | | | |
| NPP | 14.90* | 7.70* | 54 | 66.70+ | 45.10 | 38.90 | 30.35+ | 9.60 | 8.40 |
| Median | | | | (20)* | | | | | |
| PP C | 17.30* | 10.30* | 57 | 55.70+ | 47.4 | 40.90 | | 9.00 | 9.10 |
| Median | | | | (12)* | | | | | |
| NPP C | 15.10* | 7.10* | 56 | 62.50 | 45.9 | 38.50 | | 8.70 | 7.60 |
| | | | | (13) | | | | | |

*Note*. EPDS = Edinburgh Postnatal Scale, MAQ = Maternal Attitudes Questionnaire, TRAIT = Trait Anxiety, SCC = Self-Concept Clarity, Depend = Dependency, Relate = Relatedness, DAS = Dyadic Adjustment Scale, Interpersonal = Interpersonal Loss, Independent = Independent Loss

Fisher's LSD, Tukey HSD, and Bonferroni Correction used for pairwise comparisons

+ = mean rank scores

Median Rank Scores for DAS for all 4 groups: PP = 64.50, NPP = 52.90, PP Conservative = 61.90, NPP Conservative = 56.60

DAS was only mean difference in opposite to predicted direction

Mean differences remain significant controlling for social desirability (MCSDS)

*$p < .05$

The fourth and final grouping of variables focused on cognitive vulnerability variables and tested Hypotheses 1 (c) through (g).  Specifically, perfectionism (PSPS and MAQ), goal orientation (dependency, relatedness, self-criticism, and self-efficacy), and self-concept clarity means or medians were compared. All variables, with the exception of Self-Concept Clarity, had the same scale for both groups and met assumptions. These variables were subjected to ANOVAs. Self-Concept Clarity was examined with Kruskal Wallis H test.

Between subjects effects for the ANOVA revealed a significant difference for the MAQ with $F$ (3, 114) = 3.46, $p$ = .02, partial eta squared = .08, a medium effect size, with 8.3% of the variance in unrealistic expectations being accounted for by group. Pairwise comparisons revealed that, as predicted, PP women had more unrealistic expectations for motherhood supporting Hypothesis 1 (d). The largest mean difference was found between the conservative PP group ($M$ = 10.3) and conservative NPP group ($M$ = 7.1) with a mean difference = 3.17, $p$ = .02. Although slightly smaller in size, comparison of the same conservative PP group with the complete NPP group revealed a mean difference = 3.08, $p$ = .02 in the same direction, as did the comparison between the complete PP group ($M$ = 10.2) and complete NPP group ($M$ = 7.7), with mean difference = 2.5, $p$ = .03. All comparisons were significant at the .05 level with LSD. As predicted, PP groups were lower in Self-Concept Clarity across tests with the largest mean difference = 1.7, supporting Hypothesis 1 (e). Specifically, PP women had a mean score of 29.4 and a mean rank of 55.2, and NPP women had a mean score of 31 and a mean rank of 66.7. Another comparison of self-concept clarity using a median Kruskal Wallis H test revealed a significant result with Chi Square (3) = 8.9, $p$ = .03 and a median rank score of 14 for PP group and 20 for NPP group.

No significant mean differences were found between other variables in the final

grouping. However, mean differences in Relatedness were in the predicted direction, identified

in Hypothesis 1 (g), with PP women demonstrating a higher score with the largest mean

difference (3.0) found between PP complete group and NPP conservative group. PP women were

similarly higher on Dependency than NPP women (mean difference = 3.1), contrary to

Hypothesis 1 (f). Therefore, PP women were higher on both facets (i.e., adaptive and

maladaptive) of interpersonal goal orientation. A mean difference (1.4) was found for

Nondisclosure of Imperfection (PSPS) with the NPP group being higher on this facet.[2] See

Appendix Y for t-Tests corroborating findings.

**Examining the Match Hypothesis: Predicting Depression From Interactions between Goal**

**Orientation and Type of Loss**

**Overview.** According to the match hypothesis, congruence (i.e., a match) between goal

orientation (either independent/self-definition or interpersonal) and the type of loss one has

experienced (either independent or interpersonal) is predicted to be associated with higher levels

of depression. In order to test the match hypothesis identified in Hypothesis 3, a hierarchical

multiple regression with both the PP and NPP groups was performed. Specifically, three-way

interactions for both the adaptive and maladaptive types of each of the two goal orientations with

each of the two types of perceived loss and group were examined. This analysis was performed

to determine whether a match (between type of orientation and type of loss) would emerge and

whether the interaction with having PPD or (NPP) MDD (i.e., group) would add additional

variance to predicting greater depression, supporting the differential effect of group on the ability

of a match to predict depression. Eight multiple regressions were performed to test each type of

match/nonmatch with each measure of depression (i.e., BDI and EPDS) as criterion variable.

**Step 1: Significant Demographic Variables.** As mentioned previously, correlations between demographic variables and outcome/criterion variables were examined prior to regression analyses. Demographic variables that demonstrated significant correlations with criterion variables were included in the regression analyses. Depression history was significantly correlated with depression as measured by the BDI in the NPP group and number of months postpartum was significantly correlated with depression as measured by the EPDS in the PP group. These variables were entered at Step 1 and controlled for in the regression analyses for their respective groups. In order to attempt to reduce the number of degrees of freedom used in the analysis, the contribution of each category of months PP to predicting EPDS scores was examined. The 3 month category contributed the greatest amount of variance to depression and was the only significant variable, with little additional variance added by the other categories, and therefore was the only category used in subsequent analysis. The model with 3 months PP entered alone had an $R = .32$, $R^2 = .10$, Adjusted $R^2 = .08$, accounting for 8% of the variance in depression, and the model was near significant with $F (1, 40) = 4.05$, $p = .05$. In the NPP group, the model including depression history at Step 1 accounted for 3.8% of the variance in depression, with $R = .20$, Adjusted $R^2 = .02$, and was nonsignificant. Demographic variables did not correlate significantly with the BDI in the PP group or the EPDS in the NPP group.

**Three-Way Interaction Effect Between Goal Orientation, Loss, and Group.** Three-way interaction regression models with cognitive vulnerability, loss (interpersonal or independent), and group as moderator were examined to test the (non)match hypothesis, Hypothesis 3. Therefore, both groups were examined together in one regression, that is, the entire sample. The EPDS and BDI were each used separately as criterion. With respect to the match hypothesis prediction, a significant three-way interaction effect was found when

predicting depression with the BDI. Namely, self-criticism (maladaptive, independent

orientation) showed an effect with group and independent loss. Results are presented in Table 16.

The three-way interaction between self-criticism, independent loss, and group contributes

additional prediction value over the previous separate variable and interaction models (4.7%

criterion variance explained) with an $R = .75$, $R^2 = .56$, Adjusted $R^2 = .50$, and is significant with

$F$ change $(1, 57) = 6.12$, $p = .02$.

Table 16
*Hierarchical Regression Analysis Predicting Depression (BDI) from Self-Criticism and Independent Loss with Group as Moderator: 3 Way Interaction Effects.*

| Model/Order | R/R² | R²Δ | F Δ | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| Step 1 | .20 | .04 | 2.52 | 1, 64 | .12 | .19 | 2.13 | .04* | .20 | .27 |
| MDD History | | | | | | | | | | |
| | | | | | | | | | | |
| Step 2 | .50 | .46 | 18.5 | 3, 61 | .00** | | | | | |
| MDD History | | | | | | | | | | |
| Group | | | | | | | | | | |
| Self-Criticism | | | | | | .63 | 6.68 | .00** | .67 | .65 |
| Independent | | | | | | | | | | |
| | | | | | | | | | | |
| Step 3 | .56 | .05 | 6.12 | 1, 57 | .02* | | | | | |
| MDD History | | | | | | | | | | |
| SC x I2 x Grp | | | | | | 2.44 | 2.47 | .02* | .11 | .31 |
| Independent | | | | | | 1.83 | 2.55 | .02* | .30 | .32 |
| Group | | | | | | 2.47 | 2.67 | .01* | - .08 | .33 |
| Self-Criticism | | | | | | 1.20 | 5.13 | .00** | .67 | .56 |
| SC x Grp | | | | | | - 2.56 | - 2.7 | .01* | -.00 | - .34 |
| SC x Independent | | | | | | - 1.87 | - 2.41 | .02* | .43 | - .30 |
| Grp x Independent | | | | | | - 2.41 | - 2.45 | .02* | .04 | - .31 |

*Note*. MDD History = History of nonpostpartum depression, SC = Self-Criticism, I2/Independent = Independent Loss, Grp = Group
Self-Efficacy, Independent Loss, and Group Model is near significant with F change = .11

* p < .05 level, **p < .01 level

*Figure 3 a).* BDI depression scores as a function of Group (PP and NPP) and Self Criticism (Maladaptive, Independent Goal Orientation)
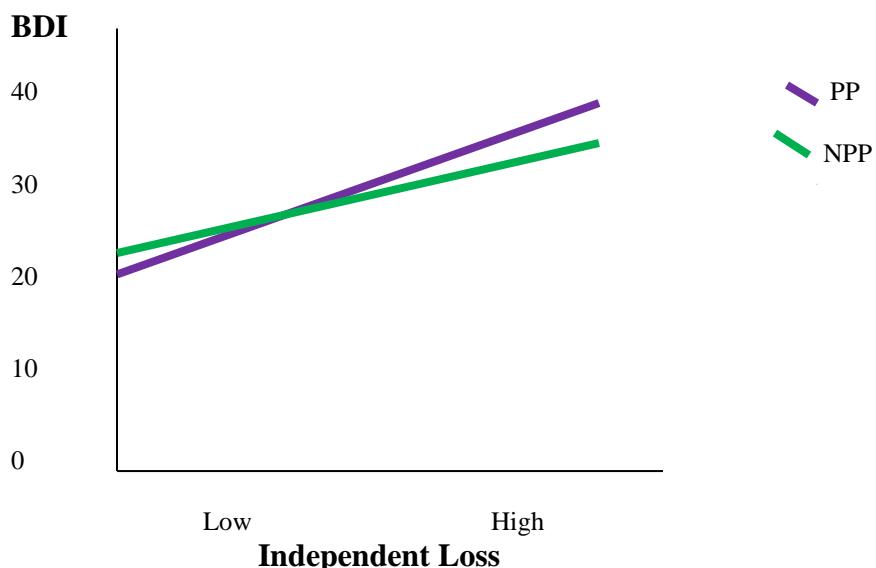


*Figure 3 b).* BDI depression scores as a function of Group and Independent Loss
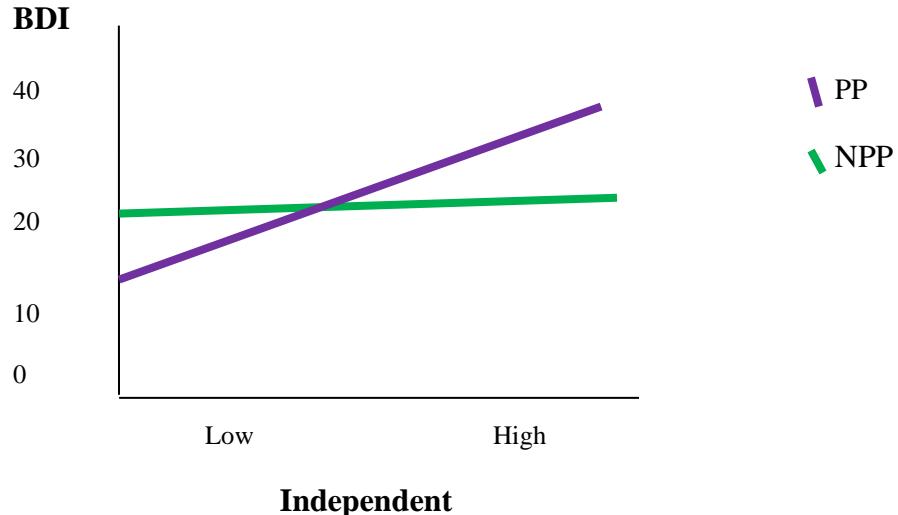
*Figure 4 a).* BDI depression scores as a function of Group (PP and NPP) and Independent Loss for Women Low on Self Criticism (Maladaptive, Independent Goal Orientation)
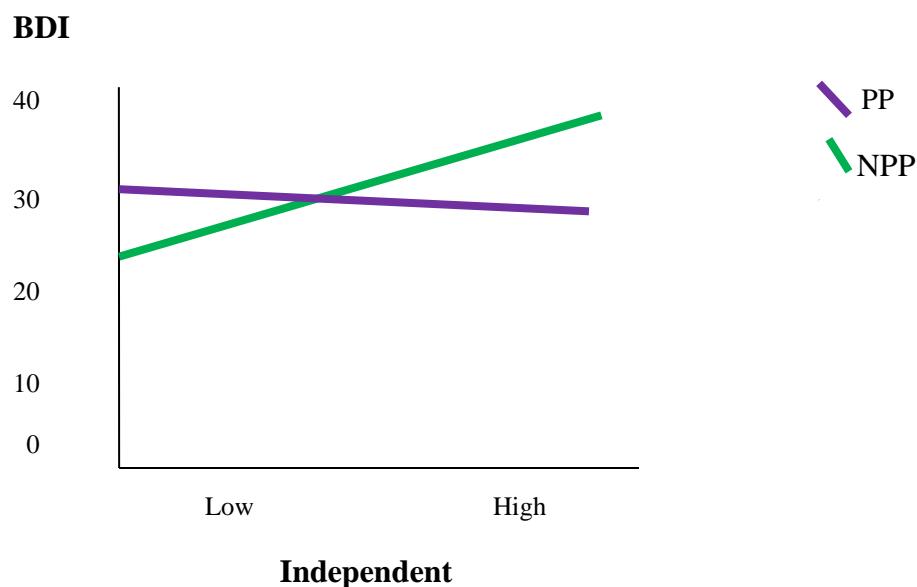


*Figure 4 b).* BDI depression scores as a function of Group (PP and NPP) and Independent Loss for Women High on Self Criticism (Maladaptive, Independent Goal Orientation)

The results are shown in Figure 3 a) and further illustrate that the slopes for the interaction

between self-criticism, loss, and depression differ across groups, with the PP group experiencing

a wider range of depression severity, and self-criticism in PP participants having a larger impact

on predicting depression than in the NPP group. Namely, (compared to NPP women), PP women

who were low on self-criticism had lower depression and PP women who were higher on self-

criticism had much greater depression. When variables from this model are examined

independently, all variables contributing to the model are significant. For example, the

interaction between self-criticism and independent loss has a $\beta = - 1.87$, $t = - 2.41$, $p = .02$, $r =$

.43, partial $r = - .30$. The results for independent loss are shown in Figure 3 b) and again

demonstrate a moderating effect of group as the slopes for the interaction between loss and

depression differ across groups. Namely, in addition to experiencing greater range of depression

severity, women in the PP group experienced greater overall and range of loss than women in the

NPP group. While less loss predicted lower depression scores and greater loss predicted greater

depression for both groups, the effect of loss on depression was stronger for PP women. Figures

4 a) and b) demonstrate the effect of loss on depression for each group for women low versus

high on self criticism. Namely, for the PP group the relationship between loss and depression

was stronger when self criticism was low, but no such difference is evident when self criticism is

high. Conversely, for the NPP group the relationship is stronger when self-criticism is high. The

nature of the interaction for each group will be discussed further below in two-way interactions,

which mirror these findings.

　　　A near significant three-way match effect for self-efficacy, the adaptive independent

orientation and independent loss also emerged. No three-way interactions emerged for the EPDS.

All main effect models at Step 2, which included the separate variables (goal orientation, one

type of loss, and group) significantly predicted EPDS and BDI variance.

Table 17
*Hierarchical Regression Analysis Predicting Depression (BDI or EPDS) from Cognitive Vulnerability
and Loss as Moderator in PP and NPP Group: Two-Way Interaction Effects*

_____

| Model/Order | $R^2$ | $R^2\Delta$ | $F\Delta$ | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| **PP - EPDS as Criterion** | | | | | | | | | | |
| Step 1 | .32 | .10 | 4.05 | 1, 35 | .05 | | | | | |
| 3 months PP | | | | | | | | | | |
| Step 2 | .35 | .24 | 6.08 | 2, 33 | .01* | | | | | |
| 3 months PP | | | | | | | | | | |
| Self-Criticism | | | | | | .29 | 1.93 | .06 | .41 | .32 |
| Independent Loss | | | | | | .32 | 2.18 | .04* | .44 | .36 |
| Step 3 | .41 | .06 | 3.47 | 1, 32 | .07 | | | | | |
| 3 months PP | | | | | | | | | | |
| SC x Independent | | | | | | - 1.79 | - 1.86 | .07 | .48 | - .31 |
| Self Criticism | | | | | | 1.09 | 2.40 | .02* | .41 | .39 |
| Independent | | | | | | 1.68 | 2.26 | .03* | .44 | .37 |
| **NPP - BDI as Criterion** | | | | | | | | | | |
| Step 1 | .55 | .31 | 11.89 | 1, 27 | .00** | | | | | |
| MDD History | | | | | | | | | | |
| Step 2 | .53 | .22 | 5.96 | 2, 25 | .01* | | | | | |
| MDD History | | | | | | | | | | |
| Self-Efficacy | | | | | | - .43 | - 3.12 | .01* | - .35 | - .53 |
| Independent Loss | | | | | | | | | | |
| Step 3 | .63 | .10 | 6.69 | 1, 24 | .02* | | | | | |
| MDD History | | | | | | | | | | |
| SE x Independent | | | | | | - 2.10 | - 2.59 | .02* | .14 | - .47 |
| Independent | | | | | | 2.23 | 2.83 | .01* | .26 | .50 |

_____

*Note*. EPDS = Edinburgh Postnatal Depression Scale, 3 months PP = demographic category/variable of
mothers in the three month postpartum period, SC = Self-Criticism, Independent = Independent loss, BDI
= Beck Depression Inventory, SE = Self-Efficacy
*p < .05 level, **p < .01 level

**Two-Way Interaction Effects: Goal Orientation and Loss.** Follow up multiple

regressions, which included two-way interactions between goal orientation and type of loss for

each of the PP and NPP groups separately, were subsequently performed. Specifically, the

adaptive and maladaptive types of independent orientation that produced significant and near

significant findings in the three-way interaction models were examined. Previous results were

confirmed with regressions with separate groups and the function of degree of loss and level of

goal orientation was elucidated further. For example, contrary to the prediction in Hypothesis 3

(c), the nonmatch effect predicted for the PP group did not emerge.

Goal orientation (independent or interpersonal) and perceptions of loss (independent or

interpersonal) were entered at step 2, and combinations of two-way interactions (goal orientation

x type of loss; independent and interpersonal) were entered at step 3. Results are shown in Table

17. The model (Step 1) including depression history has an $R = .55$, $R^2 = .31$ showing that

depression history accounts for 31% of variance alone. Adjusted $r = .28$ and is significant with $F$

$(1, 27) = 11.89$, $p < .001$. In the NPP group, an interaction effect for self-criticism and

independent loss emerged (match) with the model at Step 2 (i.e., separate variables entered)

having an overall $R = .77$, $R^2 = .59$, Adjusted $R^2 = .54$, and $R^2$ change $= .28$, reflecting an

additional 28% of criterion variance explained above depression history. The model is significant

with $F$ change $(2, 25) = 8.65$, $p = .00$. The two-way interaction model (self-criticism x

independent loss) provides additional predictive value with an overall $R = .80$, $R^2 = .65$, Adjusted

$R^2 = .59$, $R^2$ change $= .06$, and is near significant with $F$ change $(1, 24) = 3.83$, $p = .06$. The

interaction term has a $\beta = 1.42$, $t = 1.96$, $p = .06$, $r = .41$, partial $r = .37$. The interaction effect is

shown in Figures 5 a) and b). When NPP women with high versus low self-criticism are

examined, women with high self-criticism are more sensitive to degree of loss experienced with

a wider range of depressive severity than women with low self-criticism. Specifically, women

with high self-criticism had much higher levels of depression with greater loss than women with

high self-criticism who experienced less loss, supporting Hypotheses 3 (a), (b), and (d). In other

words, compared to women with low self-criticism, women with high self-criticism showed a

much stronger negative effect of loss on depression. An interaction effect is also found for self-

efficacy and independent loss, revealing a match effect, supporting Hypotheses 3 (a), (b), and

(d). Figure 6 shows this interaction. As would be expected, higher self-efficacy is associated with

lower depression supporting Hypothesis 3 (d).



*Figure 5 a)*. BDI depression scores as a function of Self Criticism (Independent Maladaptive
Orientation) and Independent Loss (Match) for NPP group

When NPP women with high versus low self-efficacy are examined, women with low self-

efficacy are much more sensitive to degree of loss experienced with a wider range of depressive

severity than women with high self-efficacy, whose scores exhibit a very small range across

degree of loss. That is, the effect of independent loss on depression is small for women with high

self-efficacy, but increases with greater loss for women with low self-efficacy.
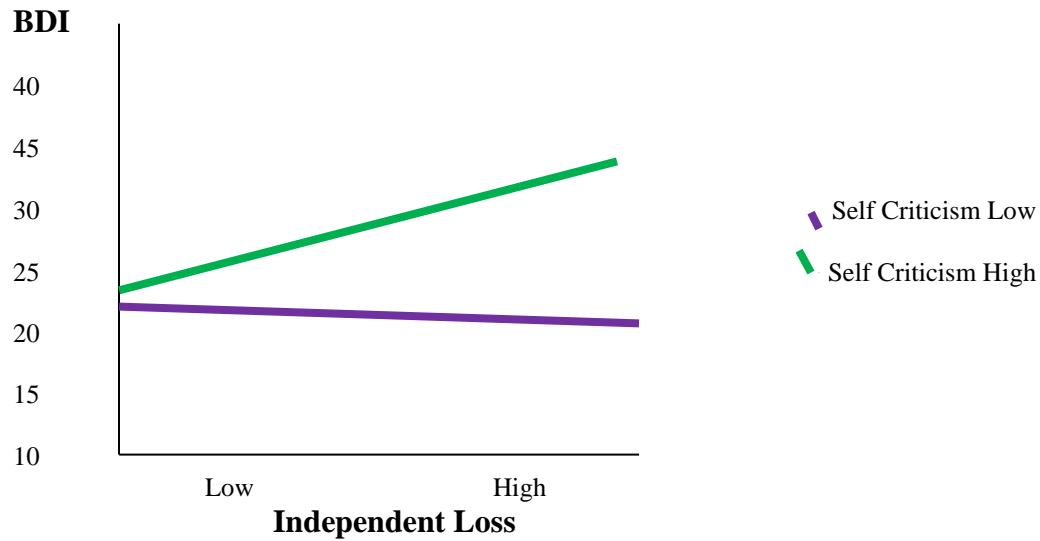
*Figure 5 b).* BDI depression scores as a function of Independent Loss and Self Criticism (Independent Maladaptive Orientation) for NPP group (Match)
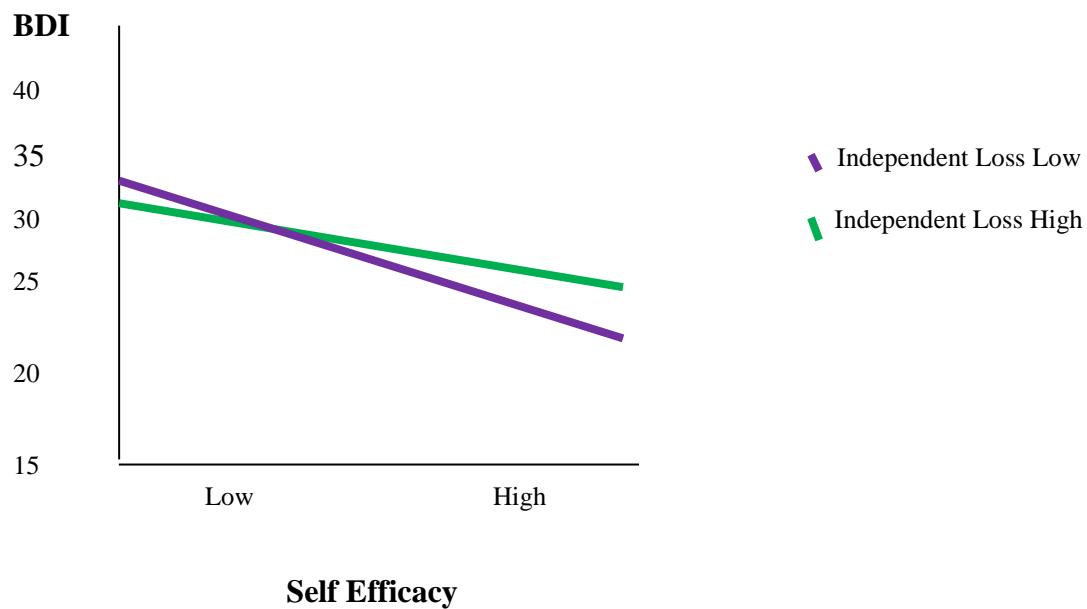


*Figure 6 a).* BDI depression scores as a function of Self Efficacy (Independent Adaptive Orientation) and Independent Loss (Match)

**BDI**
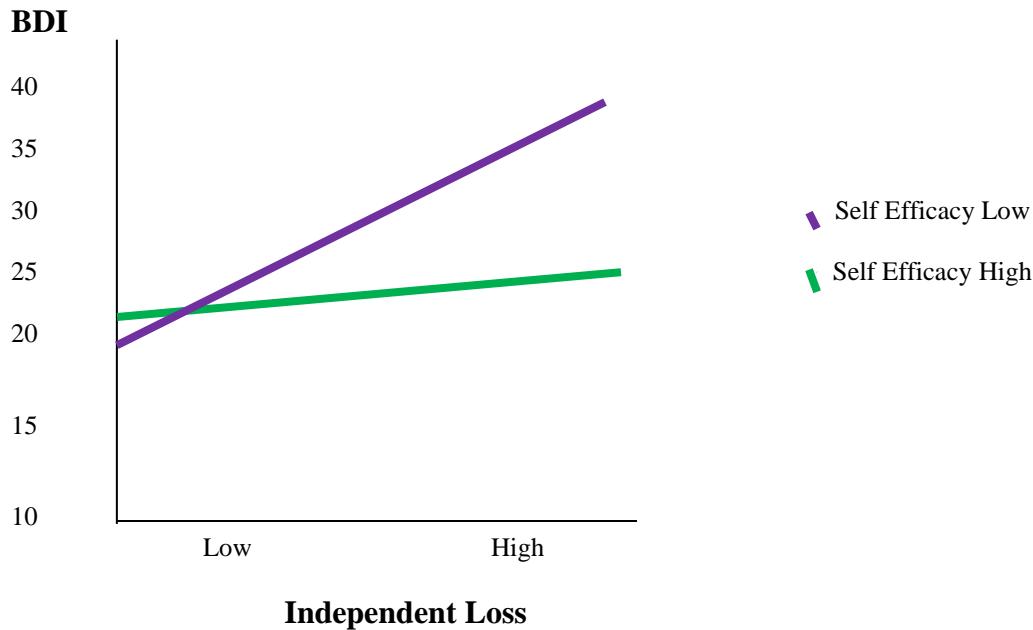


*Figure 6 b).* BDI depression scores as a function of Independent Loss (Match) and Self Efficacy (Independent Adaptive Orientation)

In the PP group, when the first variable, 3 months postpartum is entered, the model has an $R = .32$, $R^2 = .10$, Adjusted $R^2 = .08$, $F (1, 35) = 4.05$, $p = .05$, contributing 10% to predicting criterion variance (EPDS) and is near significant. Consistent with one component of the nonmatch hypothesis, identified in Hypothesis 3 (g), both types of loss, that is, independent and interpersonal, significantly predicted depression as measured by either the EPDS or BDI for the PP group.

An interaction effect is also found for self-criticism and independent loss in the PP group, supporting Hypothesis 3 (a) and (e). The model at Step 2 consisting of variables entered separately (i.e., main effects) has an overall $R = .59$, $R^2 = .35$, Adjusted $R^2 = .29$, and $R^2$ change = .24, reflecting an additional 24% of criterion variance explained above months pp alone. The model is significant with $F$ change $(2, 33) = 6.08$, $p = .01$. The two-way interaction model (self criticism x independent loss) provides additional predictive value with an overall $R = .64$, $R^2 = $

.41, Adjusted $R^2 = .34$, $R^2$ change $= .064$ contributing 6.4% of additional criterion variance to prediction, and is near significant with $F$ change $(1, 32) = 3.47$, $p = .07$.

When examined further both self-criticism and independent loss independently contribute significantly to predicting depression (Table 17). The interaction between self-criticism and independent loss in the PP group is shown in Figures 7 a) and b), demonstrating a stronger moderating effect of greater loss and supporting Hypothesis 3 (b). Namely, in contrast to the NPP group, a stronger moderating effect of high independent loss was evident such that the impact of self-criticism on depression was stronger for women who experienced high loss, compared to women who experienced low levels of loss. When PP women with high versus low self-criticism are further examined, women low on self-criticism experienced a wider range of depressive severity, demonstrating that they were considerably more sensitive to degree of loss than women with high self-criticism, who had relatively stable depression scores. Specifically, women low on self-criticism had the lowest (and highest) depression severity overall, whereas women with high-self criticism experienced high levels of depression, irrespective of degree of independent loss experienced, supporting Hypothesis 3 (d) and (e). Therefore, compared to women who were high on self-criticism, the effect of loss on depression was stronger for women low on self-criticism.

**Interpersonal Orientation.** Exploratory regressions of two-way interactions were performed with both adaptive and maladaptive interpersonal goal orientation to test Hypotheses 3 (d) and (f). No significant two-way interaction effects were found for relatedness and dependency. In the PP group, main effects revealed that both greater dependency and greater relatedness predicted greater depression severity, however the amount of variance accounted for by relatedness was negligible for the EPDS.
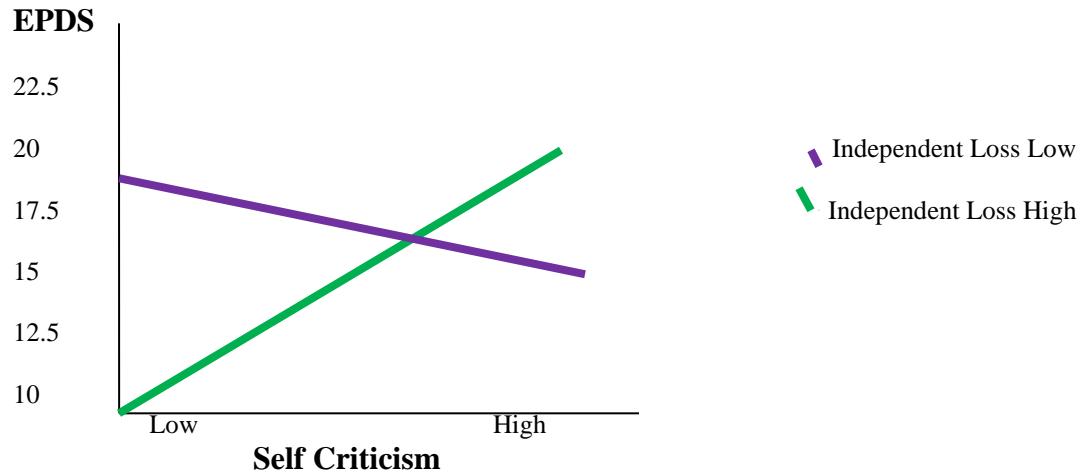
*Figure 7 a).* EPDS depression scores as a function of Self-Criticism (Independent Maladaptive Orientation) and Independent Loss (Match) for PP group
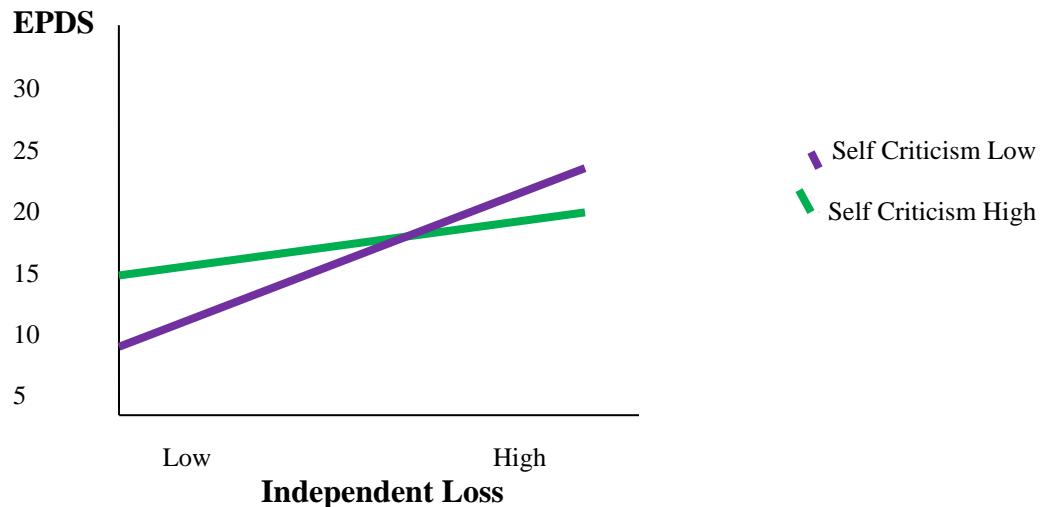


*Figure 7 b).* EPDS depression scores as a function of Independent Loss (Match) and Self Criticism (Independent Maladaptive Orientation)  for PP group

**Summary: Match Hypothesis.** Both the NPP and PP groups demonstrate a match effect, whereby self-criticism, the maladaptive independent orientation, and independent loss contribute jointly to predicting variance in depression as measured by the BDI and EPDS, respectively. However, the effect of levels of cognitive style and moderating effect of independent loss functioned differently for each group and depression measure. Namely, a stronger vulnerability effect of high self-criticism, compared to low self-criticism, manifested for the NPP group, whereas a stronger resilience effect of low self-criticism, and a moderating effect of high loss as vulnerability manifested more strongly for the PP group, compared to high self-criticism and low loss, respectively.

For the NPP group, a significant match effect was also found for the adaptive facet of independent orientation, self-efficacy, and independent loss. The direction of this prediction was as would be expected, with overall lower self-efficacy predicting greater depression scores. Moreover, the effect of loss on depression was much stronger when self-efficacy was low, which again seems to represent a vulnerability effect for the NPP group. Low loss also had a stronger moderating effect than high loss, such that women who are high on self-efficacy and experienced low loss had the lowest depression scores overall, whereas women who are low on self-efficacy and also experienced low loss had much greater depression scores.

In addition, exploratory analyses were conducted between adaptive and maladaptive interpersonal goal orientation (i.e., Dependency and Relatedness) and each type of loss (i.e., Interpersonal and Independent). No significant interaction effects emerged.[3]

**Examining the CDS Model for PP and NPP Groups in Predicting Depression: Main effects of Predictor Variables and Interaction Effects with Loss**

**Overview.** In order to evaluate Hypothesis 4 which proposes that the remaining cognitive vulnerabilities will contribute to PPM, and to explore the nature of contributing variables to the etiology of NPP major depression, a hierarchical multiple regression analysis was performed for each cognitive vulnerability and each measure of depression (i.e., EPDS and BDI) for the PP and NPP groups separately. Cognitive vulnerabilities identified in Hypothesis 4 (a) as risk factors for PPD, namely low self-concept clarity (SCC), more unrealistic expectations for motherhood (MAQ), higher trait anxiety (STAI) and higher perfectionistic self presentation (PSP), that is nondisplay and nondisclosure facets, were all predicted to emerge as significant predictors of depression. Different variables for each group, that is, PP and NPP, were expected to predict depression as identified in Hypothesis 4 (c). The proposed model identified in Hypothesis 4 (b) included an interaction with perceptions of loss, which was expected to demonstrate added variance to the prediction. Once again, both types of loss were expected to predict depression for the PP group. The interactions between high cognitive vulnerability and high loss were expected to demonstrate a vulnerability effect, whereas the interactions between low cognitive vulnerability and low loss were expected to demonstrate a resilience effect in predicting depression. Relationship maladjustment was also examined in regression analyses as criterion with three variables: relationship with mother (RAS), partner relationship (DAS), and Bonding with Baby (MIBS; only PPD group). The CDS models including these were proposed in Hypothesis 4 (d) to be significant, particularly for the PP group, demonstrating the importance of these variables to PPM. Lastly, three-way interactions including both types of loss and each

cognitive vulnerability were performed as exploratory analysis to identify any added variance

explained by the more inclusive model with loss.

**Main Effects for Depression.** Demographic variables were again entered at Step 1 in

regression, namely 3 months PP and depression history, for models using the EPDS and BDI as

criterion variables, respectively. Initially, a regression model with all cognitive vulnerabilities

(self-concept clarity, perfectionistic self presentation, unrealistic expectations for

motherhood/attitudes towards motherhood and anxiety) entered at Step 2 was performed (Table

18). The model was significant in both groups demonstrating that together as a set the cognitive

vulnerabilities contributed to predicting depression variance. However, different independent

variables contributed the most and significantly in each group as proposed in Hypothesis 4 (c).

In the PP group, greater state anxiety and more unrealistic expectations for motherhood

predicted greater depression independently, showing main effects. The overall model had an $R =$

.80, $R^2 = .64$, Adjusted $R^2 = .53$, $R^2$ change $= .53$, reflecting an additional 53% of the variance in

depression (as measured by the EPDS) accounted for by the cognitive vulnerability variables

over and above months PP. The model had an $F$ change $(7, 28) = 5.81$, $p < .001$. State anxiety ($\beta$

$= .54$, $t = 3.25$, $p < .001$, $r = .67$, partial $r = .52$) and Attitudes towards motherhood ($\beta = .30$, $t =$

$2.09$, $p = .05$, $r = .48$, partial $r = .37$) each independently provided a significant contribution.

In the NPP group, greater trait anxiety and greater nondisclosure of imperfection

predicted greater depression, showing main effects. The overall model had an $R = .91$, $R^2 = .84$,

Adjusted $R^2 = .77$, $R^2$ change $= .54$, reflecting an additional 54% of the variance in depression (as

measured by the BDI) accounted for by the cognitive vulnerability variables over and above

depression history. The model had an $F$ change $(7, 21) = 9.93$, $p < .001$. Trait anxiety ($\beta = .41$, $t$

= 3.16, $p$ = .01, $r$ = .76, partial $r$ = .57) and Nondisclosure of imperfection ($\beta$ = .36, $t$ = 3.24, $p$

=.00, $r$ = .38, partial $r$ = .58) each provided an independent significant contribution.

Table 18
*Hierarchical Regression Analysis Predicting Depression (BDI or EPDS) from Cognitive Vulnerability*
*Variables in PP and NPP Group*

| Model/Order | $R/R^2$ | $R^2\Delta$ | $F\Delta$ | df | $p$ | $\beta$ | $t$ | $p$ | $r$ | partial $r$ |
|---|---|---|---|---|---|---|---|---|---|---|
| **PP - EPDS as Criterion** | | | | | | | | | | |
| Step 1 | .32 | .10 | 4.05 | 1, 35 | .05 | | | | | |
| 3 months PP | | | | | | -.33 | -2.5 | .02 | -.32 | -.43 |
| | | | | | | | | | | |
| Step 2 (R = .80) | .64 | .53 | 5.81 | 7, 28 | .00** | | | | | |
| 3 months PP | | | | | | | | | | |
| State Anxiety | | | | | | .54 | 3.25 | .00** | .67 | .52 |
| Trait Anxiety | | | | | | | | | | |
| Self-Concept Clarity | | | | | | | | | | |
| MAQ | | | | | | .30 | 2.09 | .05 | .48 | .37 |
| Self-Promotion | | | | | | | | | | |
| Nondisclosure | | | | | | | | | | |
| Nondisplay | | | | | | | | | | |
| | | | | | | | | | | |
| **PP - BDI as Criterion** | | | | | | | | | | |
| Step 2 | .71 | .50 | 4.11 | 7, 29 | .00** | | | | | |
| State Anxiety | | | | | | .31 | 1.65 | .11 | .56 | .29 |
| | | | | | | | | | | |
| **NPP - BDI as Criterion** | | | | | | | | | | |
| Step 1 | | | | | | | | | | |
| MDD History | .55 | .30 | 11.63 | 1, 28 | .00** | | | | | |
| | | | | | | | | | | |
| Step 2 (R = .91) | .84 | .54 | 9.93 | 7, 21 | .00** | | | | | |
| MDD History | | | | | | | | | | |
| State Anxiety | | | | | | | | | | |
| Trait Anxiety | | | | | | .41 | 3.16 | .01* | .76 | .57 |
| Self-Concept Clarity | | | | | | | | | | |
| MAQ | | | | | | | | | | |
| Self-Promotion | | | | | | -.21 | -1.67 | .11 | .18 | -.34 |
| Nondisclosure | | | | | | .36 | 3.24 | .00** | .38 | .58 |
| Nondisplay | | | | | | | | | | |

**NPP - EPDS as Criterion:** ns (Model $p$ = .11, State anxiety, $p$ = .09)

*Note*. EPDS = Edinburgh Postnatal Depression Scale, 3 months PP = demographic category/variable of
mothers in the three month postpartum period, MAQ = Maternal Attitudes Questionnaire, BDI = Beck
Depression Inventory,  MDD History = History of nonpostpartum depression
*$p$ < .05 level, ** $p$ < .01 level

Table 19

*Hierarchical Regression Analysis Predicting Depression (BDI) from Cognitive Vulnerability and Loss as Moderator in PP Group, Main Effects and Two-Way Interactions*

| Model/Order | $R^2$ | $R^2 \Delta$ | $F \Delta$ | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| **Criterion Variable: BDI** | | | | | | | | | | |
| **A. Moderator: Interpersonal Loss** | | | | | | | | | | |
| Step 1 ($R$ = .52) | .27 | - | 6.36 | 2, 34 | .01* | | | | | |
| MAQ Interpersonal | | | | | | .49 | 2.63 | .02* | .52 | .41 |
| Step 2 ($R$ = .58) | .34 | .07 | 3.44 | 1, 33 | .07 | | | | | |
| MAQ x I1 | | | | | | - 1.01 | - 1.86 | .07 | .40 | - .31 |
| Step 1 ($R$ = .45) | .20 | - | 4.24 | 2, 34 | .02* | | | | | |
| SCC Interpersonal | | | | | | - .78 | - 2.29 | .03* | - .38 | - .37 |
| Step 2 ($R$ = .51) | .26 | .06 | 2.62 | 1, 33 | .12 | | | | | |
| SCC x I1 | | | | | | 2.26 | 1.62 | .12 | .31 | .27 |
| **B. Moderator: Independent Loss** | | | | | | | | | | |
| Step 1 (R = .53) | .28 | - | 6.63 | 2, 34 | .00** | | | | | |
| MAQ | | | | | | 1.27 | 2.81 | .01* | .52 | .44 |
| Independent Loss | | | | | | .65 | 2.03 | .05 | .37 | .33 |
| Step 2 (R = .60) | .35 | .07 | 3.76 | 1, 33 | .06 | | | | | |
| MAQ x I2 | | | | | | - 1.22 | - 1.94 | .06 | .45 | - .32 |
| Step 1 ($R$ = .48) | .23 | - | 5.14 | 2, 34 | .01* | | | | | |
| SCC | | | | | | - 1.21 | - 2.62 | .01* | - .38 | - .42 |
| Independent | | | | | | .31 | 1.99 | .06 | .37 | .32 |
| Step 2 ($R$ = .56) | .32 | .09 | 4.18 | 1, 33 | .05 | | | | | |
| SCC x Independent | | | | | | 2.87 | 2.05 | .05 | .29 | .34 |

*Note.* BDI = Beck Depression Inventory, MAQ = Maternal Attitudes Questionnaire, SCC = Self Concept Clarity, I1 = I1/Interpersonal Loss, I2/Independent = Independent Loss
* $p$ < .05 level, ** $p$ < .01

**Two-Way Interactions.** Regressions with models examining two-way interactions between each cognitive vulnerability variable and each type of loss (Interpersonal or Independent) were performed. Demographic/descriptive variable was entered at Step 1, cognitive vulnerability and loss were entered at Step 2, and product/interaction term between cognitive vulnerability and loss was entered at Step 3. None of the two-way interaction models between cognitive vulnerability and either type of loss was significant in the PP group when using the EPDS as criterion. The same regression analyses were performed with the BDI as criterion (described below). Results are presented in Table 19. Demographic variables did not correlate significantly with the BDI and therefore variables of interest (i.e., cognitive vulnerability and loss) were entered at Step 1.

A different pattern emerged for the NPP group, compared to the PP group, with two-way interactions between cognitive vulnerability and loss demonstrating significant models for predicting depression with BDI as criterion, supporting Hypothesis 4 (e). Specifically, while several variables exhibited significant main effects, two-way interactions between cognitive vulnerability and loss were also significant for state anxiety and two facets of perfectionistic self-presentation (i.e., nondisclosure and nondisplay) variables for each type of loss, interpersonal and independent. Perfectionistic self-promotion did not exhibit any significant main or interaction effects (Table 20). Overall, greater cognitive vulnerability and greater loss predicted greater depression. For example, for the model with nondisclosure and interpersonal loss, higher nondisclosure predicts greater depression and the interaction with loss contributes additional variance to the prediction. The initial model including both variables entered separately had an $R$ = .76, $R^2$ = .58, Adjusted $R^2$ = .53, and was significant with $F$ change $(2, 25) = 8.1$, $p < .001$, contributing an additional 27% to criterion variance over and above depression history.

Table 20

*Hierarchical Regression Analysis Predicting Depression (BDI) from Cognitive Vulnerability and Loss as Moderator in NPP Group, Two-Way Interactions*

| Model/Order | R/R² | R²Δ | F Δ | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| Step 1 | .55 | .31 | 11.89 | 1, 27 | .00** | | | | | |
| MDD History | | | | | | | | | | |
| | | | | | | | | | | |
| a. Step 2  (R = .69) | 48 | .17 | 4.04 | 2, 25 | .03* | | | | | |
| MDD History | | | | | | | | | | |
| State Anxiety | | | | | | .36 | 2.29 | .03* | .51 | .42 |
| Interpersonal Loss | | | | | | | | | | |
| | | | | | | | | | | |
| Step 3 (R = .77) | .60 | .12 | 7.25 | 1, 24 | .01* | | | | | |
| MDD History | | | | | | | | | | |
| State x I1 | | | | | | 2.49 | 2.69 | .01* | .48 | .48 |
| Interpersonal | | | | | | - 1.97 | - 2.46 | .02* | .34 | - .45 |
| | | | | | | | | | | |
| b. Step 2 (R = .76) | .58 | .27 | 8.10 | 2, 25 | .00** | | | | | |
| MDD History | | | | | | | | | | |
| Nondisclose | | | | | | .47 | 3.56 | .00** | .38 | .58 |
| Interpersonal | | | | | | | | | | |
| | | | | | | | | | | |
| Step 3 (R = .85) | .72 | .14 | 12.02 | 1, 24 | .00** | | | | | |
| MDD History | | | | | | | | | | |
| Nondisc x I1 | | | | | | 1.61 | 3.47 | .00** | .53 | .58 |
| Interpersonal | | | | | | - 1.09 | - 2.80 | .01* | .34 | - .50 |
| | | | | | | | | | | |
| **EPDS as criterion** | | | | | | | | | | |
| Step 1 (R = .63) | | | | | | | | | | |
| Trait | .40 | .40 | 8.57 | 2, 26 | .00** | .39 | 2.54 | .02* | .38 | .45 |
| Independent Loss | | | | | | .50 | 3.30 | .00** | .50 | .54 |
| | | | | | | | | | | |
| Step 2 (R = .69) | | | | | | | | | | |
| Trait x I2 | .47 | .07 | 3.40 | 1, 25 | .08 | - 1.49 | - 1.84 | .08 | .52 | - .35 |

*Note*. MDD History = Nonpostpartum depression history, I1/Interpersonal = Interpersonal Loss, I2 = Independent Loss, Nondisc(lose) = Nondisclosure of Imperfection,  Trait = Trait anxiety

Significant two-way interaction effect for Independent Loss a) State anxiety, b) Nondisplay of Imperfection, c) Nondisclosure  of imperfection

Same results were found for two-way interactions with Independent Loss

* *p* < .05 level, ** *p* < .01

The interaction model had an $R = .85$, $R^2 = .72$, Adjusted $R^2 = .67$, and $R^2$ change $= .14$,

accounting for 14% of the criterion variance over and above depression history and the

perfectionism and loss variables entered separately. The model had an $F$ change $(1, 24) = 12.02$,

$p < .001$. The variable representing an interaction between nondisclosure and loss had a $\beta = 1.61$,

$t = 3.47$, $p < .001$, $r = .53$, and partial $r = .58$, retaining the strength of effect when other variables

were controlled.

With regards to the impact of degree of loss, examination of visual representation of the

interaction in Figure 8 a) illustrates a stronger moderating effect for low interpersonal loss,

whereby women low on nondisclosure of imperfection and who experienced low loss had

markedly lower depression than women higher on nondisclosure of imperfection who

experienced low loss. Having high loss did not moderate the impact of this type of perfectionism

as strongly, that is higher nondisclosure and high loss resulted in similar depression scores as

lower nondisclosure and high loss. The same moderating effect of low loss was found with

independent loss for both nondisclosure (Figure 9) and nondisplay of imperfection (Figure 10),

and self-concept clarity (Figure 13) with both types of loss (i.e., interpersonal and independent),

which were nearly identical when represented visually (discussed below). In contrast, a stronger

moderating effect of high loss was demonstrated for nondisplay of imperfection and

interpersonal loss (Figure 11) and state anxiety and independent loss (Figure 12), such that the

impact of both vulnerabilities was stronger at high levels of loss than at low levels of loss.

Specifically, PP women with lower anxiety had lower depression despite experiencing high loss,

whereas women with greater anxiety and high loss had markedly greater depression. Low loss

did not have a moderating impact on depression scores, regardless of degree of anxiety

experienced by women, resulting in a much smaller range (i.e., no change evident) of depression

scores than found with high loss. Therefore, strength of moderating effects of degree of loss and type of loss varied dependent on type of cognitive vulnerability.

With regards to degree of cognitive vulnerability, when NPP women with high versus low nondisclosure are further examined, women with high nondisclosure are more sensitive to degree of loss experienced, exhibiting a wider range of depressive severity than women with low nondisclosure. In other words, the negative effect of loss on depression is stronger with high nondisclosure compared to low nondisclosure. Visual representation is presented in Figure 8 b). Specifically, women with high nondisclosure had much higher levels of depression with greater loss than women with high nondisclosure who experienced less loss. This phenomenon was found with both interpersonal and independent loss. The same pattern emerged for the other significant maladaptive predictors of depression. That is, the negative effect of state anxiety and nondisplay of imperfection on depression is low for women low on these vulnerabilities, and high for women high on these vulnerabilities, increasing with higher levels of loss. However, whereas a large effect similar to nondisclosure is found for state anxiety, a much smaller effect is found for nondisplay of imperfection. Overall, a vulnerability effect of all the significant cognitive variables identified, combined with loss, on depression was demonstrated. See Figures 8 -13 b) for visual representations of differential effects of high versus low vulnerabilities on depression.

**BDI**
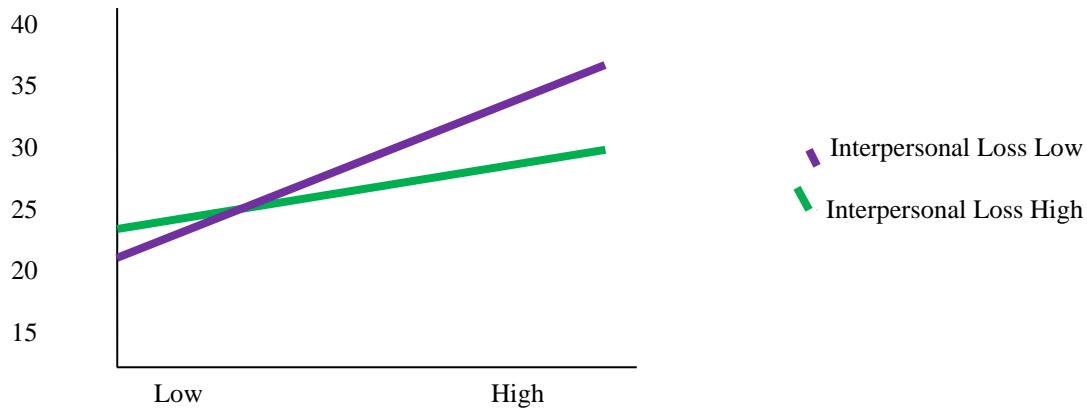


**Nondisclosure of Imperfection**

*Figure 8 a).* BDI depression scores as a function of Nondisclosure of Imperfection
(Perfectionistic Self Presentation, Maladaptive) and Interpersonal Loss

**BDI**
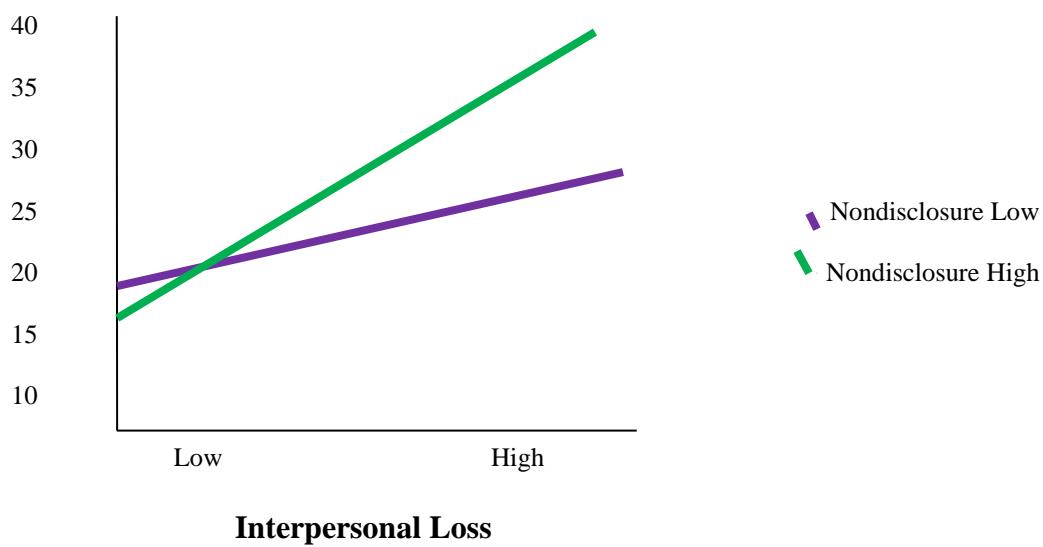


**Interpersonal Loss**

*Figure 8 b).* BDI depression scores as a function of Interpersonal Loss
and Nondisclosure of Imperfection (Perfectionistic Self Presentation, Maladaptive)

**BDI**
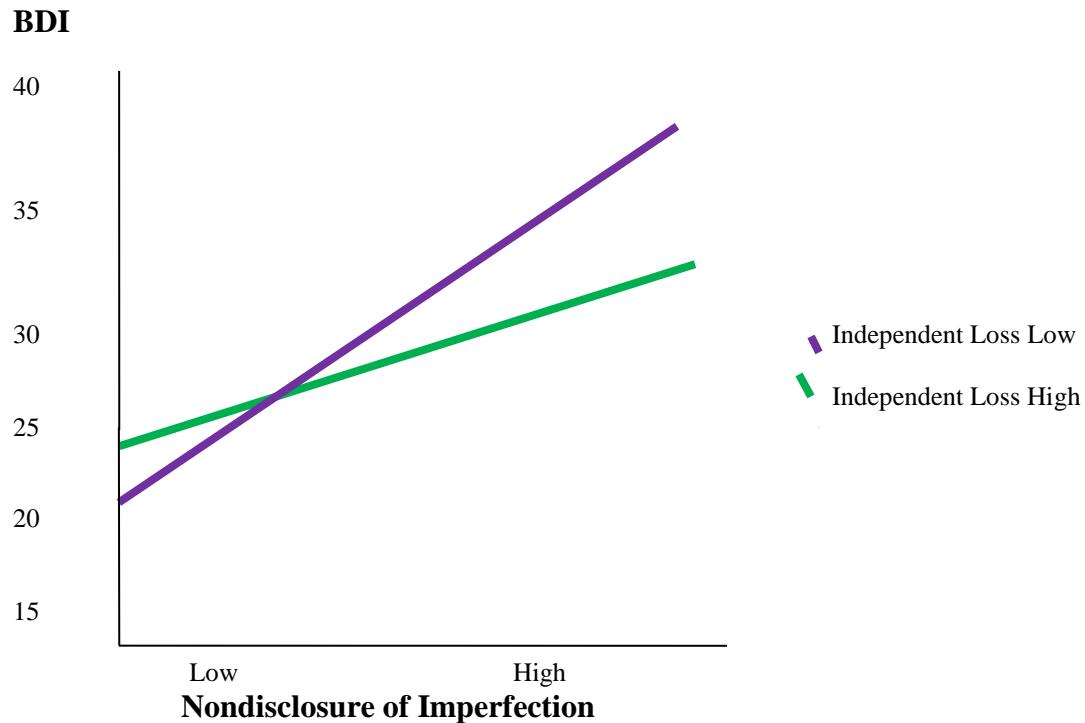


*Figure 9 a).* BDI depression scores as a function of Nondisclosure of Imperfection (Perfectionistic Self Presentation, Maladaptive) and Independent Loss

**BDI**
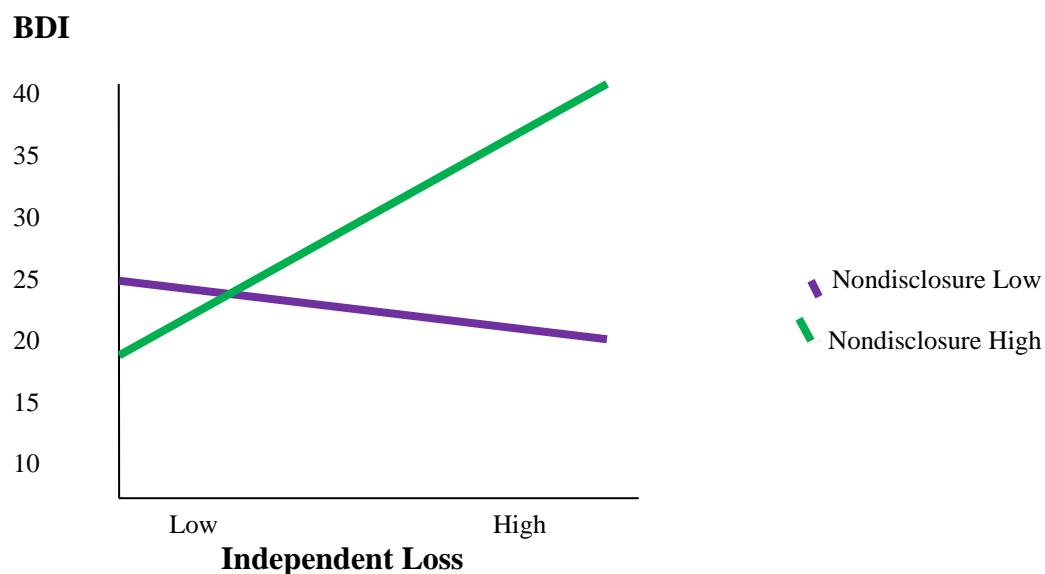


*Figure 9 b).* BDI depression scores as a function of Independent Loss and Nondisclosure of Imperfection (Perfectionistic Self Presentation, Maladaptive)

**BDI**
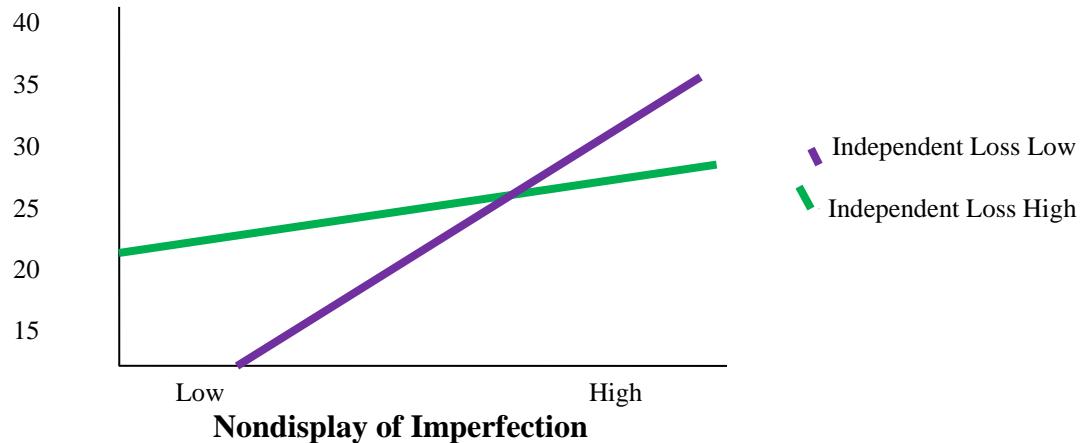


*Figure 10 a).* BDI depression scores as a function of Nondisplay of Imperfection (Perfectionistic Self Presentation, Maladaptive) and Independent Loss

**BDI**
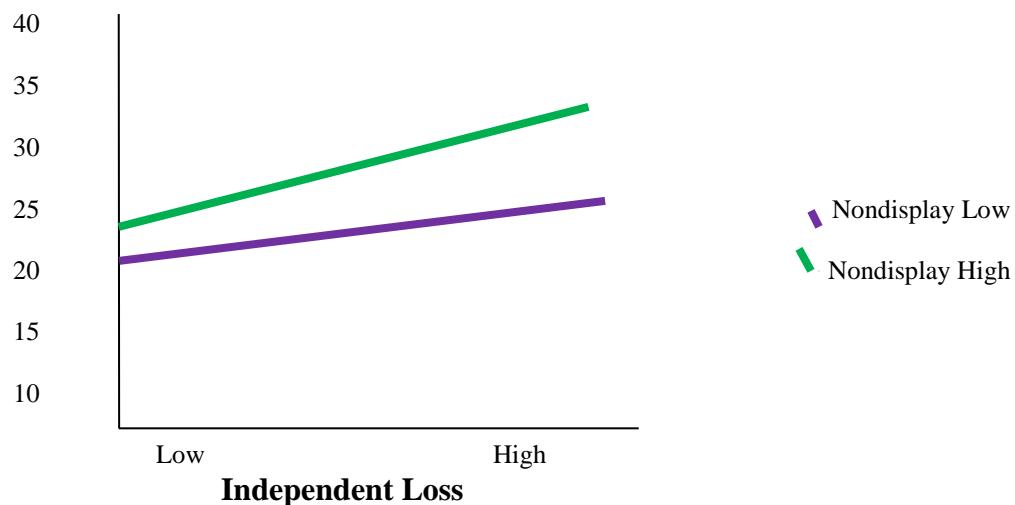


*Figure 10 b).* BDI depression scores as a function of Independent Loss and Nondisplay (Perfectionistic Self Presentation, Maladaptive)

**BDI**
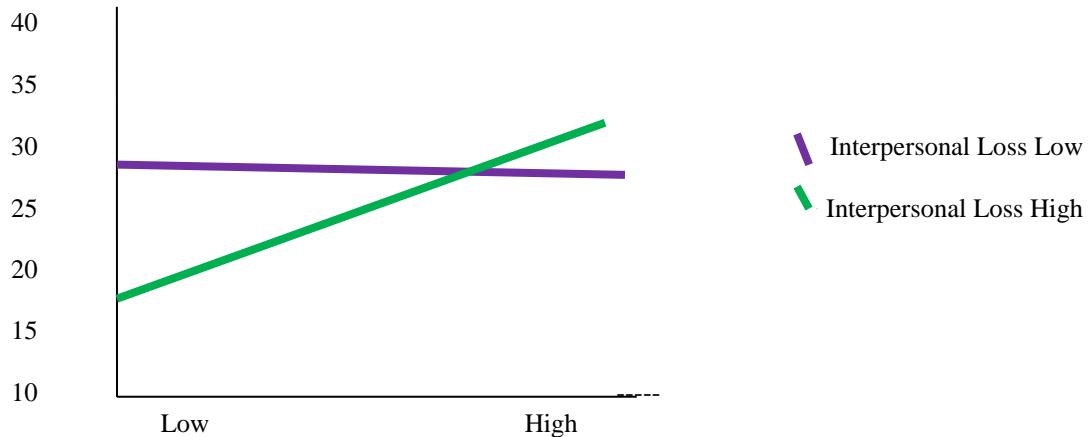


**Nondisplay of Imperfection**

*Figure 11 a).* BDI depression scores as a function of Nondisplay of Imperfection (Perfectionistic Self Presentation, Maladaptive) and Interpersonal Loss

**BDI**
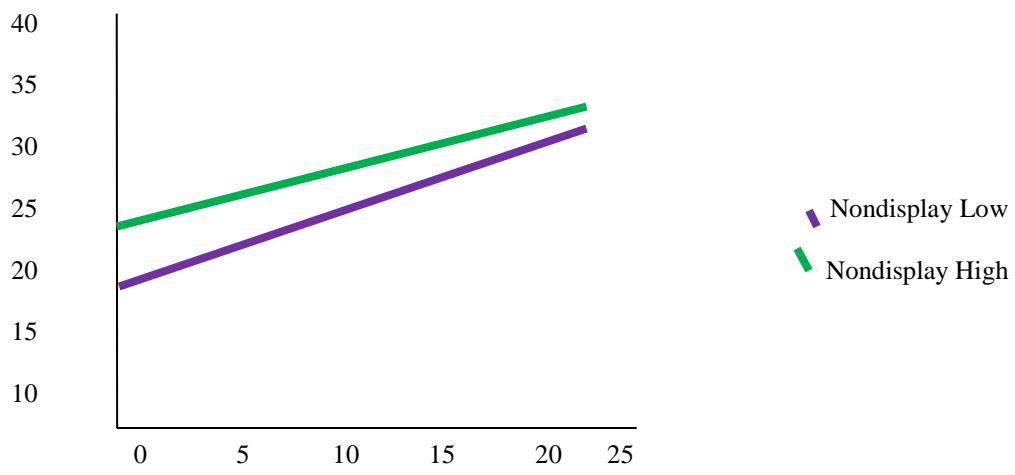


**Interpersonal Loss**

*Figure 11 b).* BDI depression scores as a function of Interpersonal Loss and Nondisplay (Perfectionistic Self Presentation, Maladaptive)

**BDI**
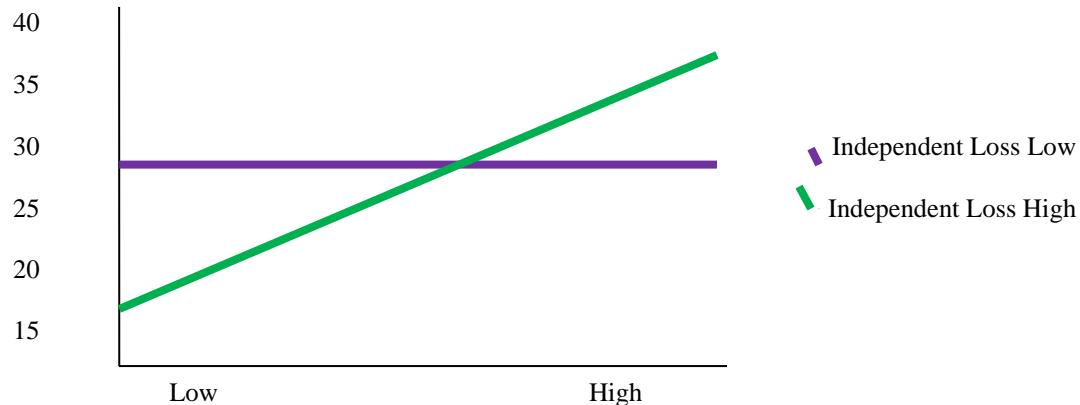


**State Anxiety**

*Figure 12 a).* BDI depression scores as a function of State Anxiety and Independent Loss

**BDI**
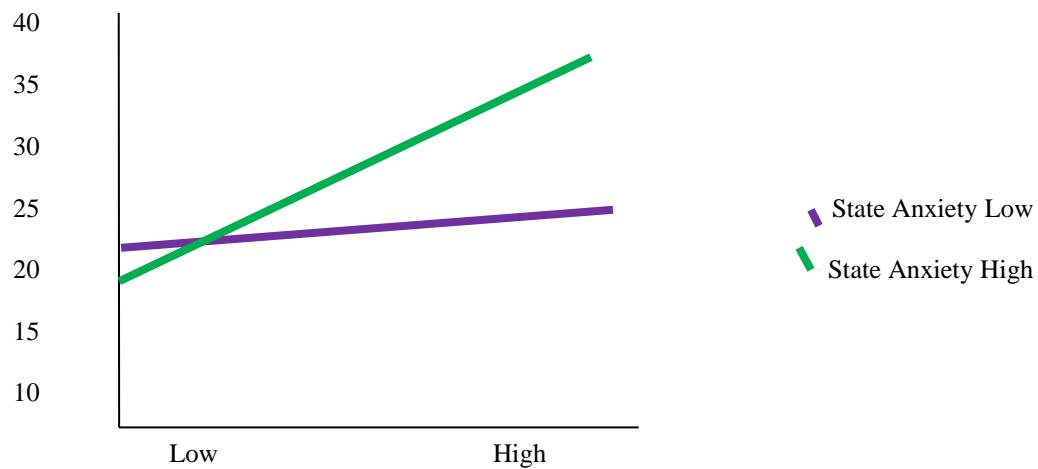


**Independent Loss**

*Figure 12 b).* BDI depression scores as a function of Independent Loss
and State Anxiety

**Three-Way Interactions: Cognitive Vulnerability, Interpersonal Loss, and**

**Independent Loss.** A three-way interaction between each cognitive vulnerability variable and both types of loss was examined to explore whether the combination of both interpersonal and independent loss (and cognitive vulnerability) would significantly contribute any additional variance to predicting depression (criterion). Demographic variables were entered at Step 1 (depression history), cognitive vulnerability (e.g., SCC), interpersonal loss, and independent loss were entered separately as a set at Step 2, two-way interactions between each pair of variables, resulting in three variables, were entered at Step 3 (e.g., SCC x interpersonal loss, SCC x independent loss, and independent loss x interpersonal loss), and a three-way interaction variable was created and entered at Step 4 (e.g., SCC x interpersonal loss x independent loss).

In the NPP group, a significant three-way interaction effect was exhibited for SCC and both types of loss (Table 21). Specifically, when all three variables were entered separately as a set (Step 2) the model had an $R = .72$, $R^2 = .51$, Adjusted $R^2 = .43$, contributing an additional 21% ($R^2$ change $= .21$) of accounted for criterion variance above depression history, with an $F$ change $(3, 24) = 3.39$, $p = .03$. The three-way interaction model provided additional predictive value with an overall $R = .83$, $R^2 = .69$, Adjusted $R^2 = .57$, accounting for an additional 10% of criterion variance. The three-way interaction model (Step 4) was significant with $F$ change $(1, 20) = 6.62$, $p = .02$. When independent variables were examined further, the two-way interaction between interpersonal and independent loss was significant with $\beta = 7.33$, $t = 2.59$, $p = .02$, $r = .27$, and partial $r = .50$. The variable representing the interaction between SCC, interpersonal loss, and independent loss was also significantly contributing to the prediction with $\beta = -7.55$, $t = -2.57$, $p = .02$, $r = .16$, and partial $r = -.50$. Therefore, both of these interaction variables showed an increase in strength of effect when other variables were controlled.

 Visual representations of one of these variables, the interaction between SCC and

independent loss, are found in Figures 13 a) and b). As SCC is an adaptive style, as expected, the

relationship with depression was in the opposite direction as the maladaptive vulnerabilities, with

greater SCC predicting lower depression severity, irrespective of degree of loss. Moreover, when

NPP women with high versus low SCC are further examined, as expected (i.e., Hypothesis 4 a)

the nature of the interaction with loss also demonstrated an opposite effect compared to the

maladaptive styles. That is, women with low SCC are more sensitive to degree of independent

loss, exhibiting a wider range of depressive severity than women with high SCC. Specifically,

women with low SCC had much higher levels of depression with greater loss than women with

high SCC who also experienced high loss. In other words, the effect of SCC on depression is

small for women with high SCC, but increases with greater loss for women with low SCC. For

the PP group, no three-way interactions emerged with the EPDS or BDI as criterion.
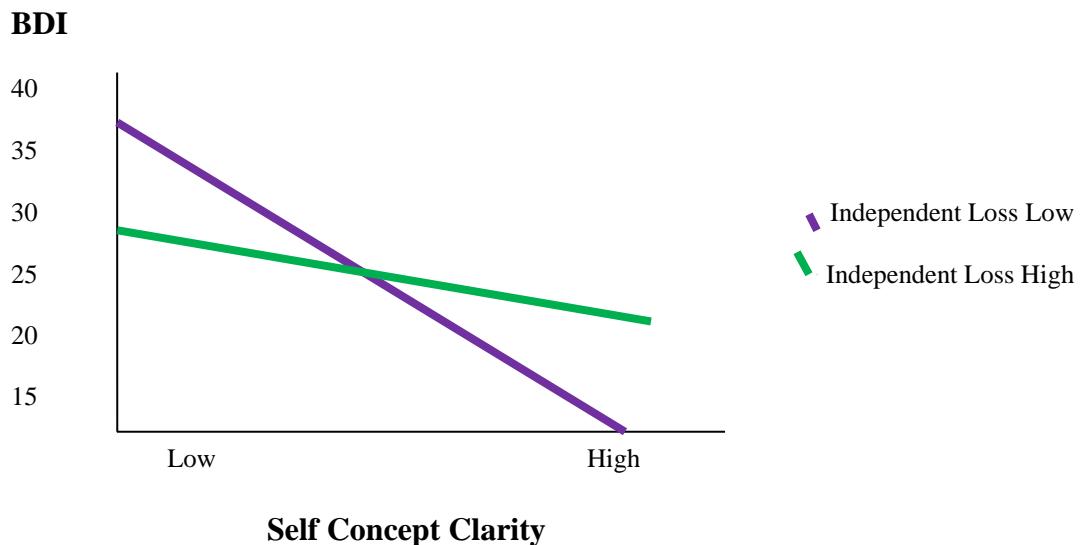


*Figure 13 a).* BDI depression scores as a function of Self Concept Clarity and Independent Loss

**BDI**
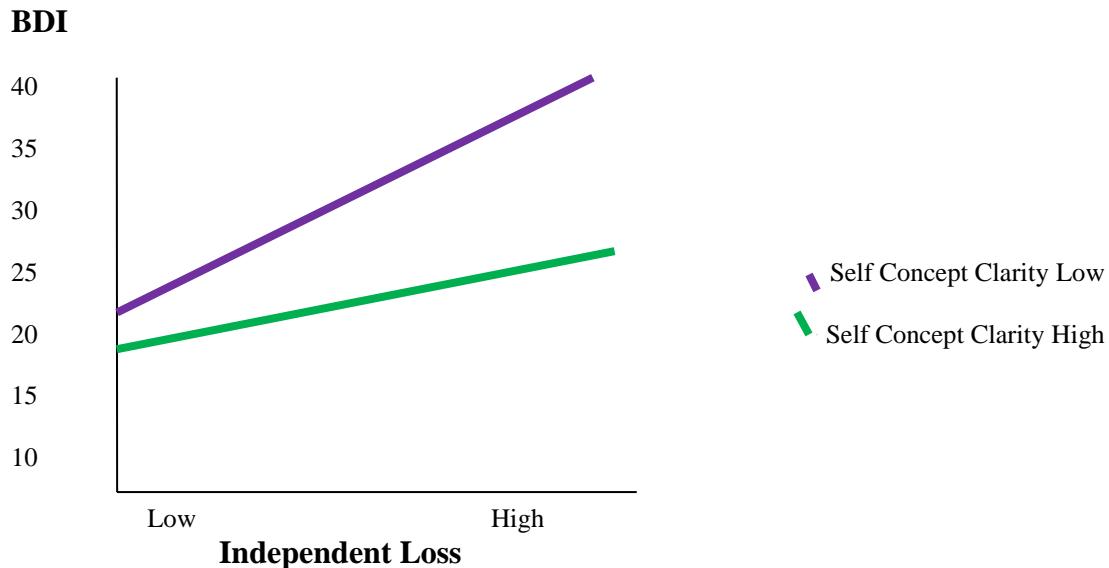


*Figure 13 b).* BDI depression scores as a function of Independent Loss
and Self Concept Clarity

*Different Measures for Depression Criterion.* Regression analyses to explore significant

two-way interaction effects were performed for each participant group with the other depression

measure that was not initially predicted as outcome variable. No significant interaction effects

were found. Results are presented in Tables 19 and 20 for the PP and NPP group, respectively.

**Examining the CDS Model for PPD and (NPP) MDD Predicting Relationship**

**Maladjustment: Main effects of Predictor Variables and Interaction Effects**

**Overview.** Relationship adjustment variables were also used as criterion variables for the

analysis of the CDS model. Specifically, regression analyses were conducted to examine the

impact of cognitive vulnerability and loss on relationship maladjustment and address Hypotheses

4 (a), (b), and (d). Relationship adjustment with partner and mother were examined for both

groups, PP and NPP. Bonding with baby was examined in the PP group only.

Table 21

*Hierarchical Regression Analysis Predicting Depression (BDI) from Cognitive Vulnerability and Loss as Moderator in NPP Group, Three-Way Interaction Effects*

| Model/Order | $R$ | $R^2$ | $F$ | $df$ | $p$ | $\beta$ | $t$ | $p$ | $r$ | partial $r$ |
|---|---|---|---|---|---|---|---|---|---|---|
| **NPP** | | | | | | | | | | |
| Step 1 | .55 | .31 | 11.89 | 1, 27 | .00** | | | | | |
| MDD History | | | | | | .55 | 3.45 | .00* | .55 | .55 |

| Model/Order | $R^2$ | $R^2\Delta$ | $F\,\Delta$ | $df$ | $p$ | $\beta$ | $t$ | $p$ | $r$ | partial $r$ |
|---|---|---|---|---|---|---|---|---|---|---|
| Step 2  ($R = .72$) | .51 | .21 | 3.39 | 3, 24 | .03* | | | | | |
| MDD History | | | | | | | | | | |
| Self-Concept Clarity | | | | | | - .36 | - 2.50 | .02* | - .34 | - .45 |
| Interpersonal Loss | | | | | | | | | | |
| Independent Loss | | | | | | | | | | |
| Step 3 | | | | | | | | | | |
| MDD History | | | | | | | | | | |
| SCC x I1 | | | | | | | | | | |
| SCC x I2 | | | | | | | | | | |
| I1 x I2 | | | | | | | | | | |
| Step 4  ($R = .83$) | .69 | .10 | 6.62 | 1, 20 | .02* | | | | | |
| MDD History | | | | | | | | | | |
| SCC x I1 x I2 | | | | | | - 7.55 | - 2.57 | .02* | .16 | - .50 |
| I1 x I2 | | | | | | 7.33 | 2.59 | .02* | .27 | .50 |

*Note*. MDD History = Nonpostpartum depression history, SCC = Self-concept clarity, I1 = Interpersonal Loss, I2 = Independent Loss
* $p = .05$ level, ** $p = .01$ level

The same predictions of cognitive vulnerabilities outlined for depression were expected for the

prediction of relationship maladjustment, with unrealistic expectations for motherhood,

perfectionism, anxiety, and SCC predicting PPM. In particular, greater perfectionism, greater

anxiety, and lower SCC were expected to predict worse adjustment (i.e., greater maladjustment)

in relationship with mother and partner and poorer bonding with baby. Lastly, models predicting

relationship maladjustment were also expected to be a better fit for the PP group than the

depression model.

**Controlling for Demographic Variance and Order.** Demographic/descriptive variables

demonstrating significant correlations with relationship adjustment were again controlled in the

appropriate regression analyses. Significant correlations were found previously with the DAS

(partner relationship) and MIBS (Bonding with Baby). No significant correlations were found for

the RAS (mother relationship). Specifically, in the PP group, when Bonding with Baby was the

criterion variable, Education, Number of Children, and Number of Children in Care were entered

at Step 1. Similar to the months PP variable (controlled in previous analyses with the EPDS), in

order to minimize the number of additional variables used in analyses, categories for education

were examined to determine the categories that contributed the most variance and a significant

model. High school was identified as contributing the most variance with 19%, was the only

significant variable contributing to the model with $t = 2.89$, $p = .01$, $r = .44$, partial $r = .45$, and

was therefore entered in subsequent regressions with Bonding with Baby as the criterion

variable. The model including all three demographic variables had an $r = .52$, accounting for

27% of the variance in depression (Adjusted $R^2 = .20$) and was significant with $F (3, 33) = 3.98$,

$p = .02$. Gestational age of baby was entered with the DAS as criterion and had an $R = .34$,

accounted for 12% of the variance in partner relationship adjustment (Adjusted $R^2 = .09$) and the

model was near significant with $F$ (1, 33) = 4.33, $p$ = .05. In the NPP group, the only significant

correlation with DAS (partner relationship adjustment) was Number of Children, which was

entered at Step 1 in analyses and demonstrated an $R$ = - .46, accounting for 21% of the variance

in relationship adjustment (Adjusted $R^2$ = .18), with $F$ (1, 28) = 7.23, $p$ = .01.

Cognitive vulnerability variables were each subsequently examined separately with both

types of loss to determine the ability to predict different aspects of relationship maladjustment

and the interaction effects of both types of loss (i.e., interpersonal and independent) and

vulnerability. In order to examine the unique predictive validity and moderating effect of each

type of loss, interpersonal and independent loss were also examined independently in the CDS

model predicting relationship adjustment. Both types of loss were hypothesized to predict

maladjustment for the PP group. Cognitive vulnerability predictor variables were entered at Step

2, perceptions of loss was entered at Step 3 as a moderating variable, and two-way interactions

between cognitive styles and loss were entered at Step 4 in order to test the proposed CDS

model.

**CDS Model and Relationship Satisfaction with Mother in PP and NPP Women**

**Main Effects.** Main effects of cognitive vulnerability variables predicting satisfaction

with mother relationship in each participant group with the RAS as criterion were examined to

test Hypothesis 4 (a). SCC was identified as significantly contributing to the prediction in the PP

group. Namely, SCC had a negative correlation with satisfaction with mother relationship,

demonstrating that higher SCC predicted lower satisfaction. Therefore, the relationship was in

the opposite direction than predicted. A significant main/direct effect was demonstrated for self

promotion in a two-way interaction model with interpersonal loss. No other significant main or

interaction effects emerged.

**CDS Model and Partner Relationship Adjustment in PP and NPP Groups**

A regression model including cognitive vulnerability predictor variables, loss (moderator) and partner relationship adjustment as criterion was examined for main effects, and two-way and three-way interaction effects for each participant group, PP and NPP. Results are presented in Table 22.

**Main Effects for Predicting Partner Relationship Adjustment.** In the PP group, SCC and nondisplay of imperfection were significant predictors. In the NPP group, state anxiety was a significant predictor of partner relationship maladjustment. Therefore, different variables for each group predicted poorer relationship adjustment with partner, supporting Hypothesis 4 (c). Lower SCC, higher nondisplay of imperfection, and higher state anxiety each predicted greater maladjustment, as proposed in Hypothesis 4 (a).

**Three-Way Interactions.** Another facet of perfectionism, self promotion, demonstrated a significant three-way interaction effect. Both greater self promotion and greater perceived loss predicted lower relationship satisfaction. The model is significant with $R = .68$, accounting for 47% of the criterion variance, adjusted $R^2 = .30$, $R^2$ change $= .10$ indicating that the three-way model provides an additional 10% of variance explained over the two-way interactions (variables) with $F$ change $(1, 26) = 4.96$, $p = .04$ (Table 22). Independent variables that reached significance in their contribution were interpersonal loss ($\beta = - 8.82$, $t = - 2.33$, $p = .03$, $r = -.196$, partial $r = - .42$), and the interactions between both types of loss ($\beta = 11.7$, $t = 2.45$, $p = .02$, $r = - .06$, partial $r = .43$), self promotion and interpersonal loss ($\beta = 9.43$, $t = 2.13$, $p = .04$, $r = -.32$, partial $r = .39$) and the three-way interaction between self promotion and both types of losses ($\beta = - 11.52$, $t = - 2.23$, $p = .04$, $r = -.21$, partial $r = - .40$).

Table 22

*Hierarchical Regression Analysis Predicting Relationship Satisfaction with Partner from Cognitive Vulnerability and Loss as Moderator in PP Group, Three-Way Interaction Effects*

| Model/Order | R | R² | F | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| **Step 1** | .34 | .12 | 4.33 | 1,33 | .05 | | | | | |
| Gestation age baby | | | | | | - .26 | -1.50 | .15 | - .34 | - .26 |

| | R² | R²Δ | F Δ | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| **Step 2** | .24 | .12 | 1.56 | 3, 30 | .22 | | | | | |
| Gestation age baby | | | | | | | | | | |
| Self Promotion | | | | | | | | | | |
| Independent Loss | | | | | | | | | | |
| Interpersonal Loss | | | | | | | | | | |
| **Step 3** | .37 | .13 | 1.84 | 3, 27 | .16 | | | | | |
| Gestation age baby | | | | | | | | | | |
| SP x Independent | | | | | | | | | | |
| SP x Interpersonal | | | | | | | | | | |
| Independent x Interpersonal | | | | | | | | | | |
| **Step 4** | .47 | .10 | 4.96 | 1, 26 | .04* | | | | | |
| Gestation age baby | | | | | | | | | | |
| SP x I1 x I2 | | | | | | - 11.52 | - 2.23 | .04* | - .21 | - .40 |
| Independent Loss | | | | | | - 3.83 | - 1.74 | .10 | - .08 | - .32 |
| Interpersonal Loss | | | | | | - 8.82 | - 2.33 | .03* | - .20 | - .42 |
| Self-Promotion | | | | | | - 3.22 | - 1.92 | .07 | - .25 | - .35 |
| *Interpersonal x Independent* | | | | | | *11.70* | *2.45* | *.02\** | *- .06* | *.43* |
| Self-Promotion x Interpersonal | | | | | | 9.43 | 2.13 | .04* | - .32 | .39 |
| Self-Promotion x Independent | | | | | | 4.19 | 1.61 | .12 | - .27 | .30 |

*Note.* Gestation age of baby = Gestational age of baby at birth (months and weeks),
I1/Interpersonal = Interpersonal Loss, I2/Independent = Independent Loss, SP/Self-Promotion = Perfectionistic Self-Promotion (PSPS)
\* $p < .05$

Results for interactions between each type of loss and SP are shown in Figure 14 a) and

b) and support Hypotheses 4 (a) and (b). A stronger moderating effect for high independent loss,

compared to low independent loss and interpersonal loss, is demonstrated. Specifically, the

negative effect of self promotion on adjustment was stronger for women who experienced high

levels of loss, increasing with greater self promotion, such that women who reported high

independent loss and high SP had the worst adjustment with partner, compared to other

interactions. The interaction between both types of loss are shown in Figure 14 c) and d). Higher

interpersonal loss predicts lower relationship maladjustment overall, compared to low

interpersonal loss, demonstrating a vulnerability effect. Moreover, with regards to the interaction

effects, the effect of interpersonal loss on relationship maladjustment is very strong when

independent loss was low, predicting much lower relationship satisfaction at high levels of

interpersonal loss and much higher satisfaction at low levels of interpersonal loss. The effect of

low versus high self promotion at different levels of interpersonal loss is shown in Figure 14 e).

The largest effect is for women who exhibit high self promotion. Namely, the effect of self

promotion on partner relationship adjustment at different levels of loss is minimal for women

low on self promotion, but increases (negatively and) markedly with greater loss for women high

on self promotion. Namely, women with high self promotion and low interpersonal loss

demonstrated the highest adjustment with partner, whereas women with high SP and high

interpersonal loss demonstrated the lowest and markedly lower adjustment. This interaction

effect appears to reflect a powerful vulnerability effect of both high SP and high interpersonal

loss. The vulnerability effect is confirmed in figures 14 f) and g). A resilience effect of high

adjustment in partner relationship for women who were low on self promotion and experienced

high independent loss combined with high interpersonal loss is also demonstrated in figure 14 g).

**DAS**
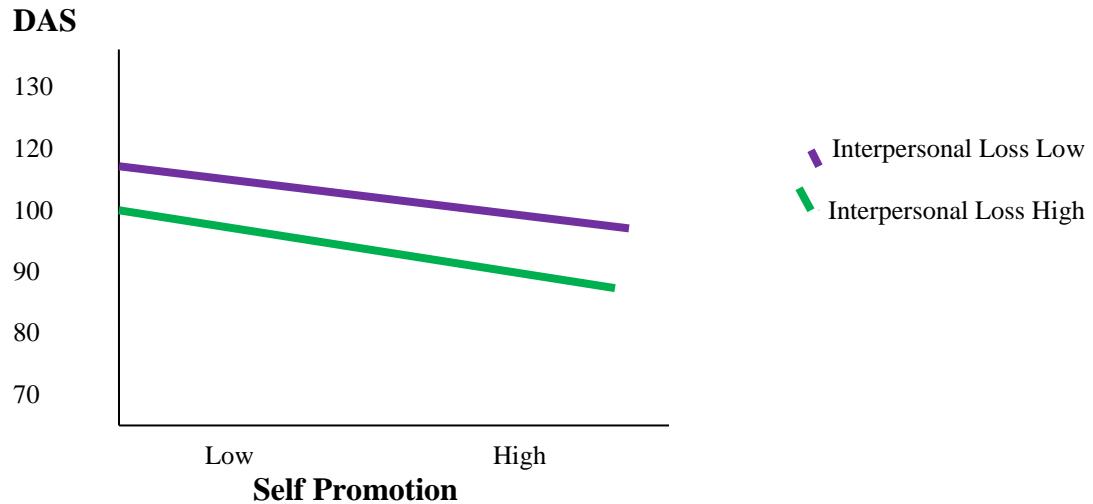


*Figure 14 a).* DAS scores as a function of Self Promotion and Interpersonal Loss

**DAS**
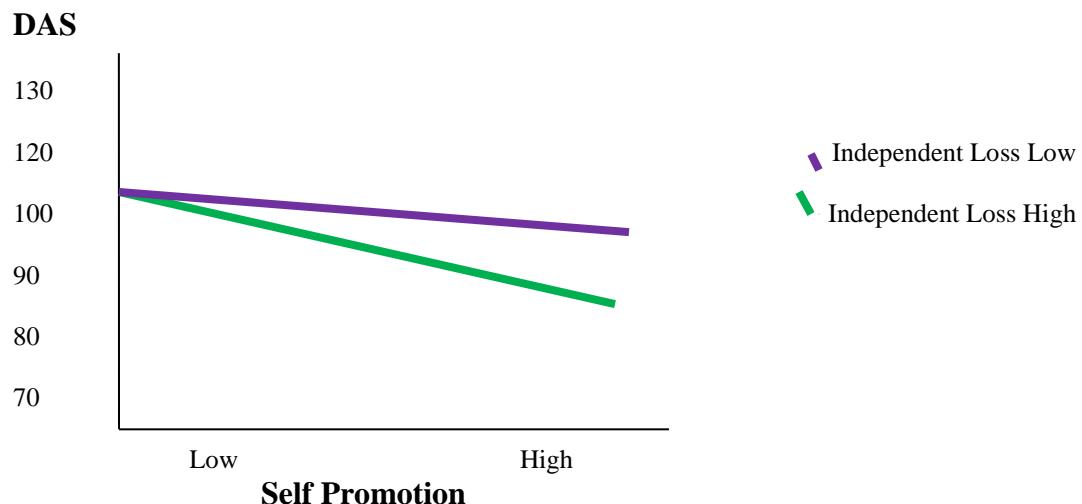


*Figure 14 b).* DAS scores as a function of Self Promotion and Independent Loss
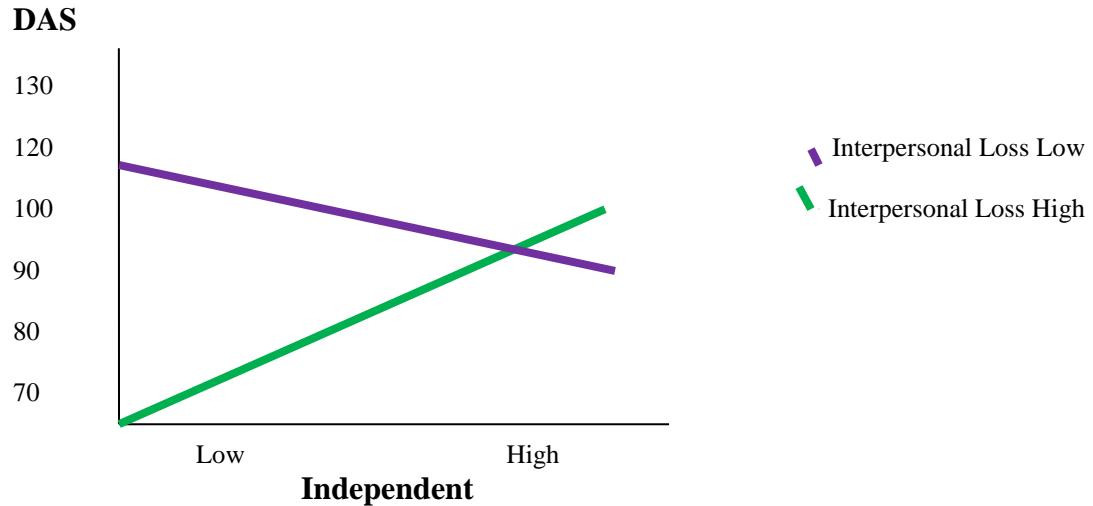
*Figure 14 c).* DAS scores as a function of Independent Loss and Interpersonal Loss
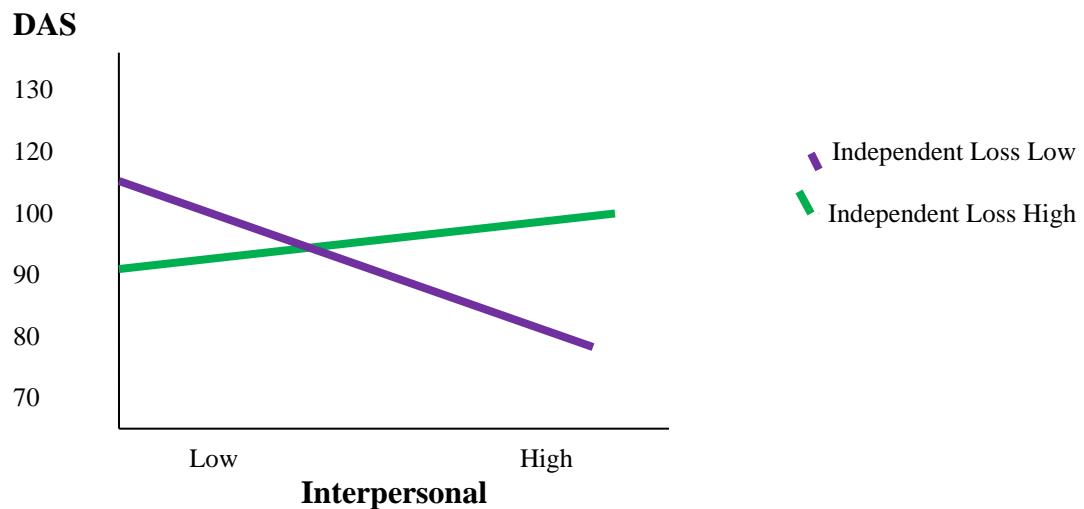


*Figure 14 d).* DAS scores as a function of Interpersonal Loss and Independent Loss
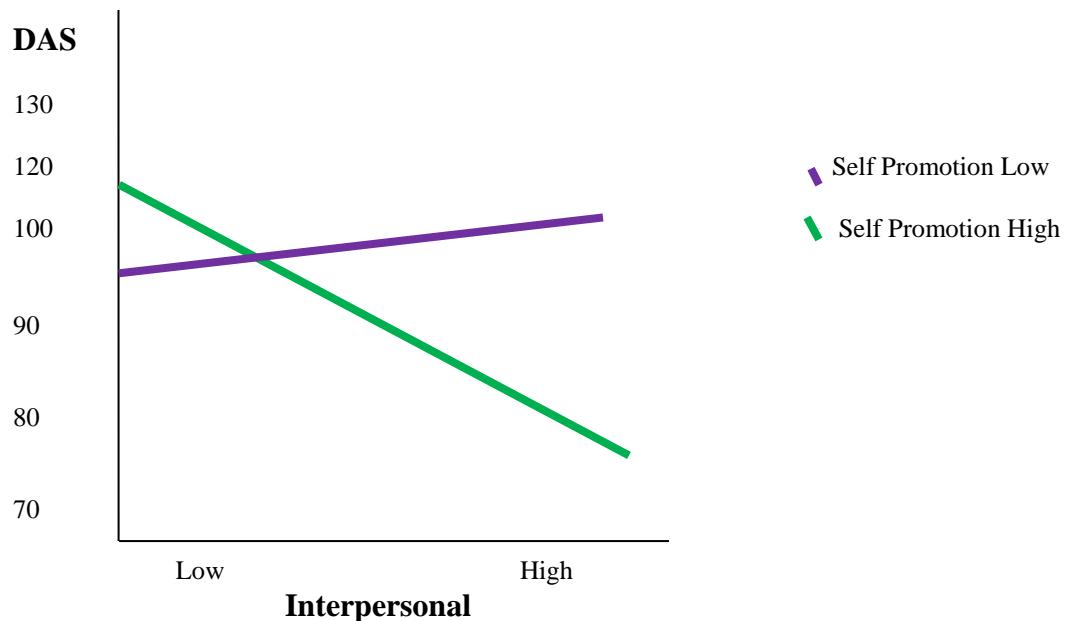
*Figure 14 e).* DAS scores as a function of Interpersonal Loss and Self Promotion
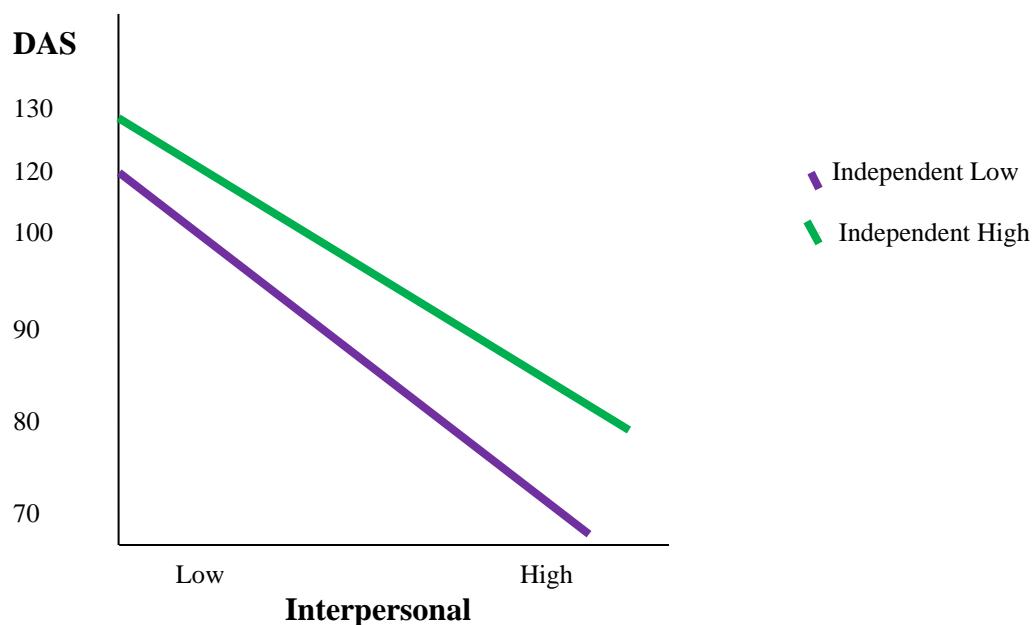


*Figure 14 f).* DAS scores as a function of Interpersonal Loss and Independent Loss for Women High on Self Promotion
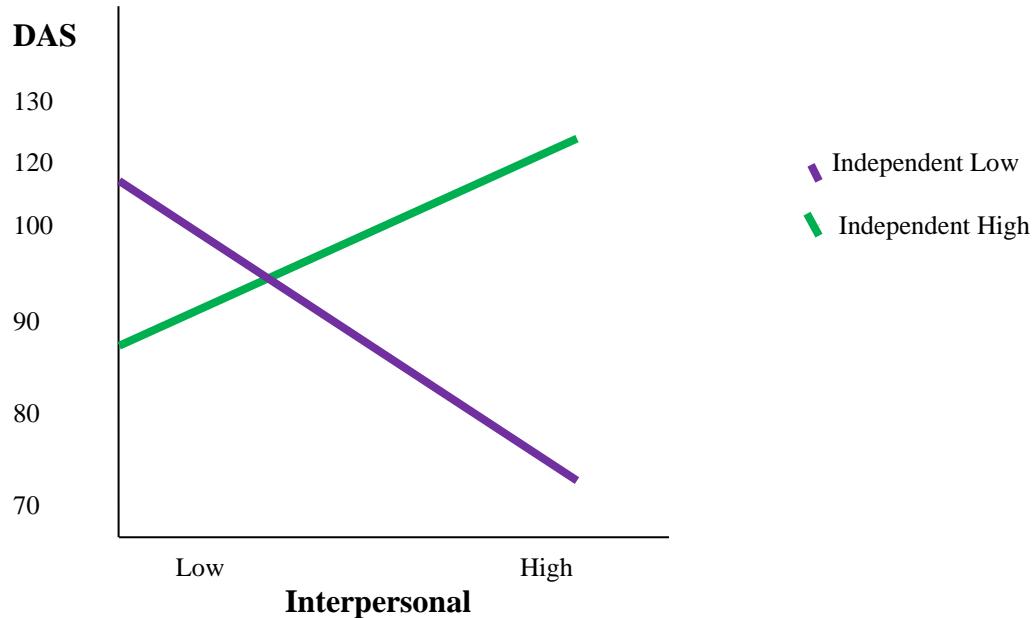
*Figure 14 g).* DAS scores as a function of Interpersonal Loss and Independent Loss for Women Low on Self Promotion

**NPP Women.** A regression model including cognitive vulnerability variables, loss, and partner relationship adjustment as criterion was also examined for main effects, two-way, and three-way interaction effects in the NPP group. See Appendix Y for description and presentation of results. Overall, interpersonal loss was consistently a significant contributing variable to the prediction of partner relationship adjustment.

**CDS Model and Predicting Bonding with Baby in Postpartum Women**

**Main Effects.** Bonding with baby was examined only for the PP group as the last relationship maladjustment criterion variable. Specifically, a regression model including cognitive vulnerability variables, loss, and bonding with baby as criterion was examined for main effects and two-way and three-way interaction effects for PP women in order to address

Hypotheses 4 (a), (b), and (d). The model including all cognitive vulnerability variables significantly predicted bonding over demographic variables with $F$ change $(7, 28) = 3.90$, $p = .01$, $R = .77$, $R^2$ change $= .40$, (Adjusted $R^2 = .47$), accounting for 59% of the variance in bonding, along with education and number of children/in care. SCC with $t = 2.18$, $p = .04$, $r = .5$, partial $r = .38$ and Unrealistic Expectations for Motherhood (MAQ) with $t = 3.77$, $p < .001$, $r = .60$, partial $r = .58$ each contributed significantly to the model and prediction of bonding. Therefore, cognitive vulnerability, and particularly more unrealistic expectations and higher SCC, emerged as predicting poorer bonding with baby, supporting Hypothesis 4 (a) for perfectionism, and contradicting the proposed direction of relationship for SCC. Interaction models were examined to further identify the nature of the relationship between these variables and loss in predicting bonding.

**Three-Way Interaction Effects for Bonding.** A significant three-way interaction effect was found for SCC, supporting Hypotheses 4 (a), (b), and (d). Namely, when independent variables were examined, interpersonal loss, interpersonal X independent, SCC X interpersonal, and the three-way interaction including SCC and both types of loss were all significant contributors to the prediction equation with $p < .001$. The interaction between SCC and interpersonal loss demonstrates the strongest effect with $\beta = - 18.54$, $t = - 3.31$, $p < .001$, $r = .31$, partial $r = - .55$. The remaining variables each demonstrate a similar size of effect with $r = > .20$ and partial $r = > .53$. The interaction model with SCC, including both types of loss is significant with $R = .75$, accounting for 56% of variance in bonding (including previous models), Adjusted $R^2 = .39$, $R^2$ change $= .18$, $F$ change $(1, 26) = 10.83$, $p < .001$. Significant Three-way Interaction effects for Bonding with Baby are presented in Table 24.

Table 24

*Hierarchical Regression Analysis Predicting Bonding with Baby from Cognitive Vulnerability and Loss as Moderator in PP Group: Interaction Effects*

| Model/Order | R | R² | F | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| **Step 1** | .52 | .27 | 3.98 | 3, 33 | .02 | | | | | |
| High School | | | | | | .32 | 1.71 | .10 | .44 | .30 |
| # of Children | | | | | | | | | | |
| # of Children in Care | | | | | | | | | | |

| | R² | R² Δ | F Δ | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| **Step 2** | | | | | | | | | | |
| High School | | | | | | | | | | |
| # of Children | | | | | | | | | | |
| # of Children in Care | | | | | | | | | | |
| SCC | .59 | .32 | 7.91 | 3, 30 | .00** | | | | | |
| Interpersonal | | | | | | | | | | |
| Independent | | | | | | | | | | |
| **Step 3** | | | | | | | | | | |
| High School | | | | | | | | | | |
| # of Children | | | | | | | | | | |
| # of Children in Care | | | | | | | | | | |
| SCC x Interpersonal | | | | | | | | | | |
| SCC x Independent | | | | | | | | | | |
| Interpersonal x Independent | | | | | | | | | | |
| **Step 4** | | | | | | | | | | |
| High School | | | | | | | | | | |
| # of Children | | | | | | | | | | |
| # of Children in Care | | | | | | | | | | |
| SCC x I1 x I2 | .56 | .18 | 10.83 | 1, 26 | .00** | 17.83 | 3.29 | .00** | .25 | .54 |
| Interpersonal | | | | | | 19.4 | 3.27 | .00** | .26 | .54 |
| I1 x I2 | | | | | | -18.73 | -3.2 | .00** | .21 | -.53 |
| SCC x Interpersonal | | | | | | -18.55 | -3.31 | .00** | .31 | -.55 |

*Note.* High School = High School Education Achieved, # of Children = Number of Children, # of Children = Number of Children in Mother's Direct Care, SCC = Self-Concept Clarity, I1/Interpersonal = Interpersonal Loss, I2/Independent = Independent Loss
* *p* < .01

The moderating effect of degree of loss on SCC in predicting bonding is shown in Figure 15 a), illustrating a vulnerability effect of interpersonal loss. Specifically, the negative effect of high loss on bonding increases with greater SCC, which seems to represent a cognitive vulnerability at high levels, combined with loss, when predicting bonding. Moreover, the negative effect of SCC on bonding is stronger with high loss compared to low loss. Low interpersonal loss combined with a high degree of SCC predicted the best bonding scores, whereas experiencing high loss predicts the poorest bonding, despite women having high SCC. The interactions between interpersonal loss and independent loss are shown in Figure 15 b) and c) mirroring the statistical findings that high interpersonal loss in particular appears to have the strongest moderating effect on predicting poor bonding, overriding (the potential protective) effect of low independent loss. Namely, the combined effect of both low interpersonal and independent loss demonstrates a resiliency effect of predicting better bonding, which drastically changes to predict poorer bonding with increasingly higher levels of interpersonal loss. Lastly, the interaction between SCC and interpersonal loss at different levels of cognitive vulnerability is illustrated in Figure 15 d) highlighting that (compared to low SCC), high SCC is much more sensitive to loss. Namely, women with high SCC reported markedly poorer bonding with greater interpersonal loss, than with less perceived loss, and the poorest bonding overall. In contrast, women with low SCC exhibit a much smaller range in bonding scores, and markedly less sensitivity to loss. Therefore, the effect of SCC on bonding is small for women low on SCC, but increases with greater loss for women high on SCC, demonstrating a vulnerability effect for high SCC when combined with loss. See Appendix AA for visual representations of the interaction of interpersonal and independent loss for low versus high SCC.

**BOND Poor**
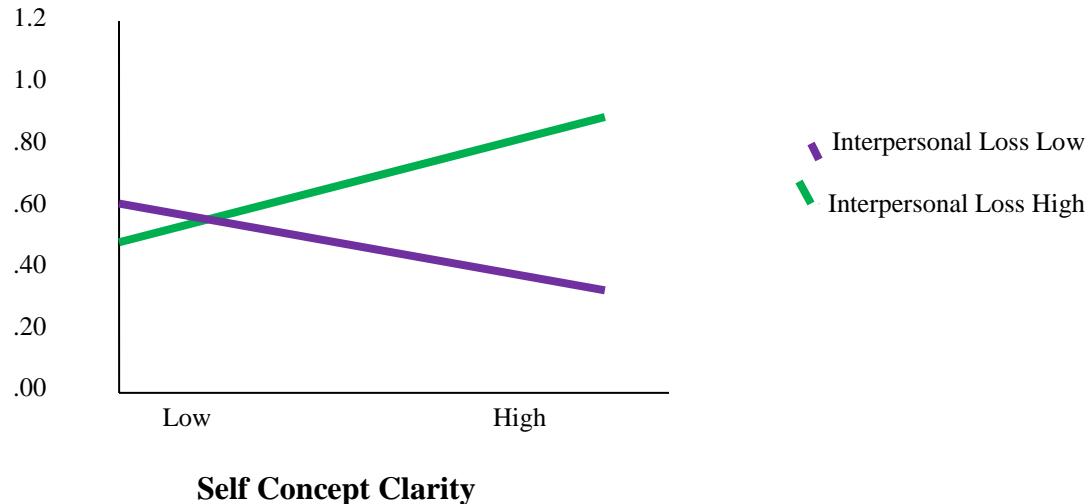


*Figure 15 a).* Bonding with Baby as a function of Self Concept Clarity and Interpersonal Loss
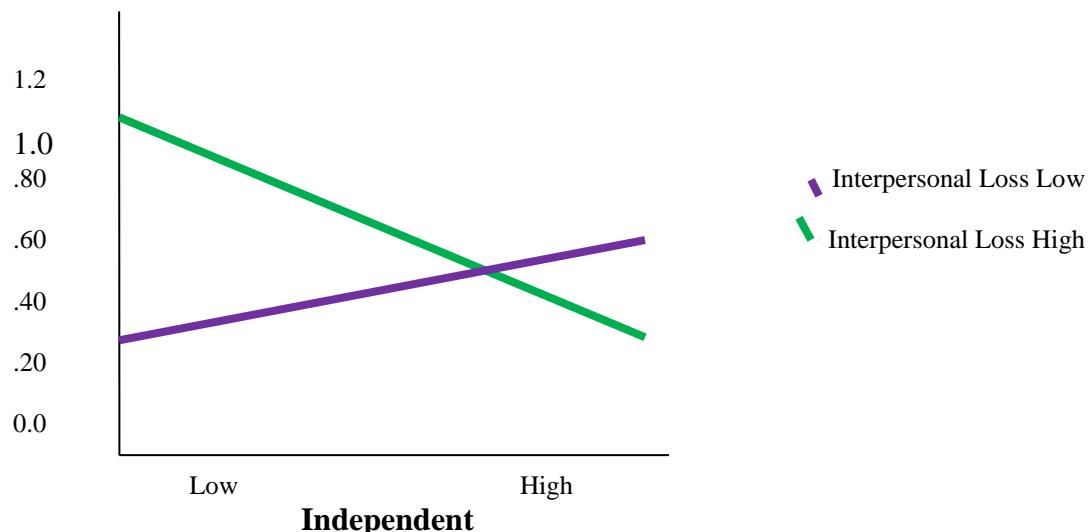
**BOND**



*Figure 15 b).* Bonding with Baby scores as a function of Independent Loss and Interpersonal Loss
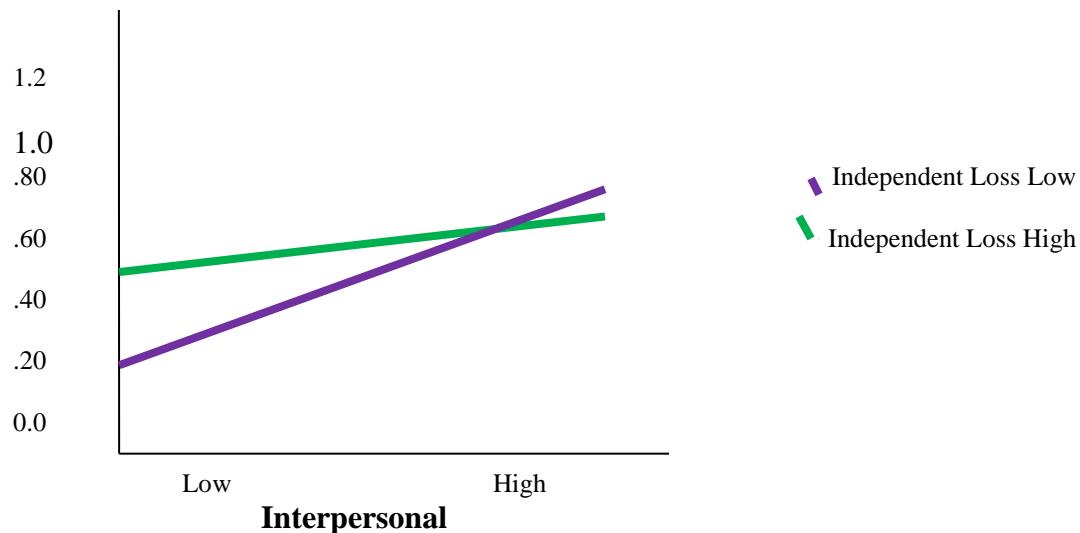
**BOND**



*Figure 15 c).* Bonding with Baby scores as a function of Independent Loss and Interpersonal Loss
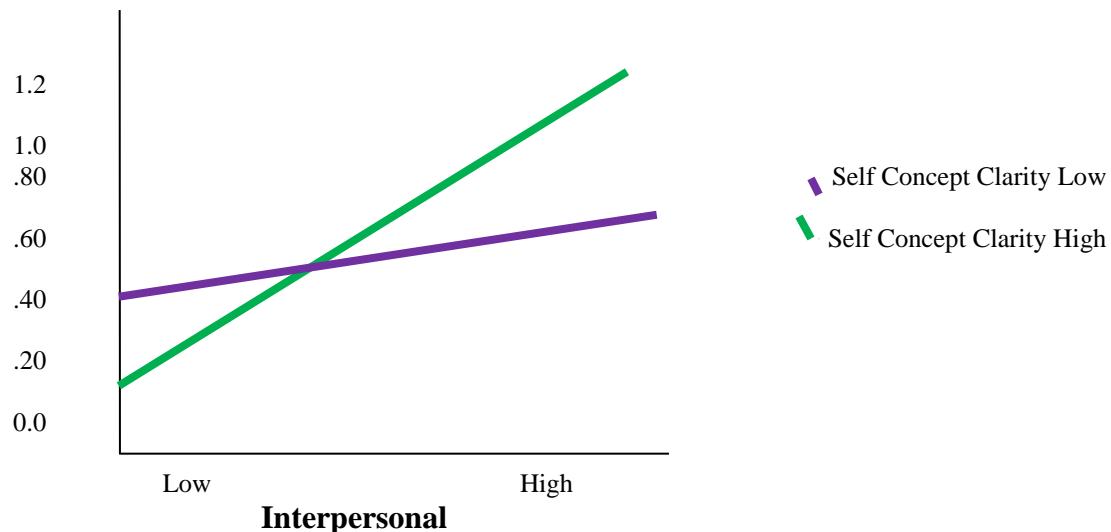
**BOND**



*Figure 15 d).* Bonding with Baby scores as a function of Interpersonal Loss and Self-Concept Clarity

**Discussion**

The main purpose of this research study was to test the distinction hypothesis, that is, to identify whether perceptions, etiology, and outcomes of maladjustment are unique for women experiencing depression in the PP period, compared to depression experienced by mothers at other time periods. The study also attempted to identify a cognitive-diathesis stress (CDS) model for postpartum depression (PPD), with an emphasis on cognitive styles specific to PP women's risk of postpartum maladjustment (PPM; defined as depression and relationship maladjustment), and perceptions (of loss) as moderator. A model for MDD in nonpostpartum (NPP) mothers was further examined with the expectation that the predictors of depression and other aspects of interpersonal maladjustment would be different for the two groups of mothers. With the use of the CDS, the match versus nonmatch hypothesis was tested. Namely, a comparison of the power of congruency between type of goal orientation as predictor and type of loss as moderator, versus an incongruent combination of orientation and loss in predicting depression was examined, with the expectation of a nonmatch effect emerging for PP women. Three levels of analysis were enlisted to address these goals and derive evidence to support or reject hypotheses in order to illuminate the questions of interest: a) association between relevant variables (correlational), b) mean comparisons on relevant variables (between groups), and c) predictor model testing (regression).

Collectively, the findings painted a picture detailing the unique qualities of PPD compared to NPP major depression. With regards to the distinction hypothesis, in comparison to NPP mothers, PP mothers' reported experiences were marked by higher depression severity, more unrealistic expectations for motherhood, and lower self-concept clarity, matching several hypotheses proposed by the study. Means were in directions consistent with hypotheses for some

additional variables, namely dispositional anxiety, tendency to value adaptive interpersonal

goals, and loss associated with both relational and self-definitional needs, however statistically

robust findings did not emerge for these or remaining hypothesized differences/variables.

Similarly, the proposed predictive power of each type of loss with different types of incongruent

goal orientation, the nonmatch hypothesis, for PPD was not demonstrated. With regards to the

CDS model, models of prediction confirmed the variables identified in between subjects

comparisons as important to women with PPD, along with perfectionistic self-presentation

(PSP), as cognitive vulnerabilities, revealing risk and resilience contributors to maladjustment.

As predicted, both types of loss were vulnerabilities, and combinations of loss and cognitive

vulnerability demonstrated interaction effects in the prediction of PPM. The model of best fit

was in the prediction of relational maladjustment and self-concept clarity was the most consistent

significant predictor in these models. A new, unexpected, and unique finding to PPD of high

self-concept clarity predicting lower relationship satisfaction with mother and poorer bonding

with baby emerged, as well as a resilience effect of high levels of loss for women low on self

promotion. Unrealistic expectations for motherhood emerged as the best predictor of PP

symptomatology. Specific recommendations for tailored outreach, prevention, and intervention

approaches based on study findings are discussed. See Appendix AC for summary of treatment

implications.

**The Distinction Hypothesis: Direct Group Comparisons**

      **Overview.** The distinction hypothesis proposes the existence of unique qualities in the

etiology and phenomenology of PPD compared to NPP depression in mothers. Between group

comparisons were examined directly in order to elucidate whether variables identified as

relevant, based on extant theory and research, differed between groups, and in turn contributed to

providing evidence for the distinction hypothesis. Proposed differences in Hypotheses 1 and 2

were confirmed with women with PPD having higher depression scores/severity on the EPDS,

more unrealistic expectations for motherhood, lower self-concept clarity, higher trait anxiety,

higher relatedness, and greater loss. Although all of these variables were in the hypothesized

direction, only relative differences in depression as measured by the EPDS, unrealistic

expectations for motherhood, and self-concept clarity were statistically significant. Contrary to

expectation, women with PPD had higher dependency, were less likely to engage in

nondisclosure of imperfection, exhibited no difference in anxiety and relationship satisfaction

with mother, and had slightly better relationship adjustment with partner. However, these

findings were not statistically robust. The implication for each of these variables contributing to

supporting (or failing to support) the distinction hypothesis are discussed below.

**Depression Severity and the EPDS.** Previous research has recognized the lack of

sensitivity of the BDI to identifying PPM (Harrington & Greene-Harrington, 2007; Whiffen &

Gotlib, 1993). Consequently, the EPDS was designed to assess symptoms relevant to PPM (Cox

et al., 1987) and is the most widely used tool for screening, extensively studied, and

internationally validated measure in PP research (Boyd et al., 2005, Gibson et al., 2009; Parsons

et al., 2011). The current study followed this precedent and used the EPDS as an outcome

measure of PPD and as a screening measure, distinguishing between women with PPD and

(NPP) MDD at the initial stage of identifying participants. Study findings following group

comparison analysis including the EPDS demonstrated that the measure served to contribute to

supporting the distinction hypothesis (Hypothesis 2) by further differentiating between

depressive severity and symptoms characteristic of NPP major depression and those of PPM.

The higher depression severity found in women with PPD as measured by the EPDS in the current study contributes to the larger, yet small body of previous research demonstrating more severe symptomatology in PPD than NPP MDD (Hendrick et al., 2000; O'Hara et al., 1990). These combined findings contradict research with opposing findings of evidence of greater NPP MDD symptom severity (Cooper et al., 1988; Whiffen & Gotlib, 1993). Of note, it is interesting that this finding emerged in the current study despite the similarity in the PP sample to the sample used in the contradictory study (Whiffen & Gotlib, 1993), with respect to severity of psychological maladjustment, namely low suicidal ideation and hopelessness. The conclusion provided in the previous study led to the notion of less severe maladjustment in the PP period. In the current sample, suicidal ideation was endorsed the lowest among items representing symptoms by both PP and NPP mothers. Moreover, PP women ranged from mild to moderate depression, as did the NPP sample. However, PP mothers still reported greater depression severity. The highest item endorsed by both groups demonstrated a significant difference. Moreover, PP women consistently endorsed every item higher across items on the EPDS, (compared to NPP women). This observed finding suggests higher severity of overall maladjustment captured by the EPDS, while also implying that a wider symptom profile, as opposed to one type of item or symptom, resonated for PP women. In support of this proposition, both PP and NPP women endorsed two symptoms the highest, related to being anxious or worried and self blame, respectively. Thus, certainly, anxiety was a differentiating symptom between groups with PP women exhibiting higher reported anxiety. The latter symptom arguably represents a classic general depression symptom, (rather than anxiety), suggesting that anxiety alone, although historically emphasized in the discourse in the distinction hypothesis, does not wholly explain the distinction between PPD and NPP MDD presentation. Instead, the current

finding provides one piece of evidence to confirm the distinction hypothesis with respect to symptom profile. Moreover, particular symptoms representing depression severity and overall severity of depression may both be key differentiators between PP and NPP depression in mothers. That is, the emphasis on a distinct set of symptoms and a continuous measure is required to identify the presence and severity of PPD. The slightly larger difference that emerged in comparisons with conservative samples, created based on stricter inclusion criteria, further substantiates the value/validity of a particular symptom profile to identify PPM.

The current study also differs from O'Hara and colleagues' study (1990) with consistent findings, in that depression was assessed with the EPDS, a measure with less reliance on somatic or sexual symptoms. Symptoms that tend to be inherent, that is, naturally and frequently occurring in the early stage of motherhood, are generally recognized as providing little sensitivity to identifying true PPM (Kammerer et al., 2009; Yonkers et al., 2009). Specifically, due to the drastic  physiological//hormonal and physical changes and demands, physical symptoms such as fatigue/energy, sleep disturbance, and low libido may be the least differentiating between adjustment and maladjustment (Yonkers et al., 2009). For example, evidence shows that loss of appetite is not a valid symptom of PPD (Kammerer et al., 2009). Cognitive (i.e., concentration and attention) and anxiety related symptoms that capture excessive worry appear to be more valid symptoms (Dipietro et al., 2007). Greater focus on anxiety and general mood represented in the EPDS appears to capture these relevant symptoms. Associations with other constructs in the study, such as dispositional (trait) and situational (state) anxiety, reflect this inclusion of anxiety related symptoms. For the PP group, additional relevant constructs, such as self-criticism and expectations for motherhood, were also associated with the EPDS. There was also some indication that the EPDS is more sensitive to loss, a key aspect of

general PP experience and maladjustment. Current findings with cognitive vulnerabilities as predictors of EPDS symptomatology will be discussed to broaden appreciation for this distinction.

Based on the current study and previous research, the EPDS provides greater accuracy of identifying women with PPD, compared to generic measures of depression such as the BDI. The EPDS also differentiated between mothers with PPD and NPP MDD, lending credence to conceptualizing these groups differently at the stage of screening and assessment. Longer treatment response and recovery for women with PPD, compared to NPP mothers (Hendrick et al., 2000), underscores the importance of identifying PPM early and monitoring relevant symptoms accurately. Therefore, using a measure specific to the distinctive symptom profile of PPD seems crucial to the accuracy of research on PPD and identifying the need for clinical treatment. Past research and the use of the EPDS for future research and clinical use is supported.

**Expectations for Motherhood/Maternal Attitudes.** Attempts to best conceptualize PPD, and recognition of the possibility of the distinction hypothesis, have led to identifying the important role of maladaptive attitudes unique to (risk for) PPM. Specifically, qualitative and quantitative methods have been enlisted to understand perinatal women's expectations for motherhood (Beck, 2002; Church et al., 2005; Mills et al., 1995; Phillips et al., 2009; Robakis et al., 2015). For example, the archetype of the "Perfect/Good Mother," and conflict between the mother a woman wants to be, and the realities of the mother she experiences being, emerge in narratives. With the development of the MAQ, which assesses maternal specific attitudes, relatively recently (Warner et al., 1997), the ability/opportunity to gain knowledge on the role of maladaptive expectations related to motherhood has expanded. To this end, studies of comparison groups including subtypes of PP women with current, de novo, and previous history

of PPD, and healthy controls has examined the differential role of dysfunctional maternal

specific attitudes, finding differences between these groups (Church et al., 2005; Phillips et al.,

2010). The importance of this construct to women has been further supported by these

endeavours. Specifically, women with recurrent depression, compared to women experiencing

their first episode of PPD, have more general psychological vulnerability, including maternal

specific negative attitudes (i.e., unrealistic expectations for motherhood). Moreover, only these

maternal specific attitudes differentiated these groups, while no difference in general negative

attitudes was observed, establishing the differentiating role both between adjustment and

maladjustment and general attitudes and maternal specific attitudes. However, the conclusions of

other research examining comparison groups of mothers with respect to negative attitudes has

been to reject the distinction hypothesis (Jones et al., 2010), resulting in inconsistent findings on

the importance of negative attitudes towards motherhood. The current study differs from these

research investigations in two important ways; both maternal specific attitudes, as opposed to

general dysfunctional attitudes (Jones et al., 2010), were examined, and mothers with NPP

MDD, as opposed to euthymic mothers with a history of MDD (Phillips et al., 2010), were

included as a comparison group.

The current study followed previous inquiry and findings, and expands on past research.

Specifically, the study used the MAQ, developed to examine expectations as a cognitive

vulnerability, and as expected, found that women with PPD are particularly susceptible to

negative maternal attitudes. The current finding that women with PPD have unrealistic

expectations for motherhood corroborates extant research on this construct (Beck, 2002; Church,

2005; Mills et al., 1995; Phillips et al., 2009; Phillips et al., 2010; Robakis et al., 2015; Warner et

al., 2007). Additionally, the comparison with NPP women with MDD initiates a new line of

investigation, to the researcher's knowledge, and begins to contribute to this inquiry by directly

speaking to the distinction hypothesis. That is, the finding newly expands this research to apply

to the differences between comparison groups of mothers with current PPD and current NPP

MDD, and clarifies that, as predicted in Hypothesis 1 (d), women with PPD have more

unrealistic expectations for motherhood than women with NPP MDD. The slightly larger mean

difference found between conservative groups of mothers confirms that the stronger the initial

distinction between groups, the clearer this differential role emerges. Further to this point,

unrealistic expectations towards motherhood had different associations with other constructs in

the study for each group of mothers. In the PP group, unrealistic maternal expectations were

associated with greater depression, both dispositional and situational anxiety, higher self-

criticism, and poorer bonding with baby, whereas in the NPP group, unrealistic expectations for

motherhood were associated with higher maladaptive interpersonal orientation, dependency.

Thus, in the current study, unrealistic expectations for motherhood contributes to supporting the

distinction hypothesis. Moreover, maternal attitudes appear to play a key contributing role to

PPD, and therefore are an ideal target for prevention and treatment.

       **Conceptualizing the Role of Unrealistic Expectations.** The tendency for women with

PPD to have (more) unrealistic expectations for motherhood corroborated in this study is not

surprising. One explanation for women's susceptibility to unrealistic maternal expectations

suggests that in light of the way that contemporary society and prominent culture respond to life

changes, such as motherhood, uncertainty surrounding the experiences of childbirth and

motherhood may be inevitable (Harkness, 1987). The emphasis on medicalization, deemphasis

on community, that is, the proverbial village, may contribute to restricting open communication

about certain aspects of motherhood and promote greater uncertainty or erroneous upward

comparisons to other mothers. Mothers who have older children (i.e., NPP women with MDD) appear to have less of the unrealistic expectations associated with the early stage of motherhood, presumably having developed more congruence between their expectations and reality through time and experience. Unfortunately, multiparous women, despite similar experience, may not have an advantage over new mothers. Each pregnancy, childbirth, and child may be significantly different, positioning the early stage of motherhood as one primed for uncertainty and triggering the development of an imagined experience, seemingly natural for human beings with higher cognitive functions. The association with trait anxiety and self-criticism suggests that women who are predispositionally high on these tendencies are even more susceptible to struggling with their unfulfilled expectations for motherhood.

   **Etiology: Unrealistic Expectations for Motherhood and Postpartum Maladjustment.** The role of unrealistic expectations in the development of maladjustment has also been directly identified and supported in quantitative research. Specifically, previous studies have looked at the MAQ in mediational models between depression history or vulnerabilities and depression (Church et al., 2005; Phillips et al., 2010) and found that maternal specific attitudes predict PPD in women with recurrent depression (Phillips et al., 2010). Unrealistic expectations also appear to place mothers as susceptible to different outcomes of maladjustment. The need to elucidate the particular relationship of expectations with aspects of maladjustment, namely, depression versus bonding with baby, has been noted (Robakis et al., 2015). Women with PPD are at risk for poorer bonding with baby (Mills et al., 1995). The decrease in bonding from pregnancy to PP (Figueiredo & Costa, 2009) poses the question of what changes during this transition. The relationship of unrealistic negative attitudes with depression and with having a difficult baby has been documented (Church, 2005) and suggests some direction. Narratives of women further fill

out this direction with the loss of the imagined experience of motherhood associated with

bonding with baby (Mauthner, 1999). The current study examined this relationship in models of

PPD etiology. Namely, both depression and relationship maladjustment etiology, including

bonding with baby, were examined to contribute to this unresolved question. Therefore, the

current study provides another expansion of the MAQ and maternal attitudes in a model of PP

etiology. Namely, the MAQ was examined as a cognitive vulnerability in a model with

perceptions of loss, another cognitive variable related to stress, as moderator. Examination and

findings of maternal attitudes in the prediction of bonding with baby in the current study will be

discussed further. The role of unrealistic expectations in predicting bonding with baby, and other

aspects of maladjustment, further expands the knowledge base on the etiology of PPM.

  **Support Seeking and Treatment Implications for Maternal Attitudes.** There is some

evidence that "silencing the self," a phenomenon that may directly interfere with needed support

seeking (Beauboeuf-Lafontant, 2007; Beck, 2002), is associated with the struggle to resolve the

incongruity between expectations and realities of the experience of motherhood. This

relationship between maladjustment and recovery underscores the pivotal role of negative

maternal attitudes and provides some insight into a bridge to recovery and healing. Research

supports this notion. In one study, well adjusted PP women had lower maternal specific negative

attitudes than other PP women, signifying the protective role of less unrealistic expectations for

motherhood. Optimistic outlook also protects against depression symptoms PP (Robakis, 2015).

The implications of this research and treatment recommendations for unrealistic expectations for

motherhood are delineated further when models of prediction and etiology of PPM are discussed.

  **Self-Concept Clarity.** Although very high levels of self-concept clarity (SCC) may be

too rigid for positive integration of new aspects of the self, an optimal level is considered

adaptive (Johnson & Nozick, 2011; Leight & Kuiper, 2008; Reich et al., 2008). Previously,

higher SCC has been shown to be adaptive with association with high self-esteem, whereas

lower SCC is maladaptive and associated with maladjustment, such as neuroticism, maladaptive

rumination, depression, low self-esteem, passive coping styles, and borderline personality

disorder (Ayduk et al., 2009; Campbell et al., 1996; Roepke et al., 2011). Becoming a mother

naturally positions women at a time of transition when the self is highlighted and more

specifically requires redefining the self (Besser et al., 2008; Manzi et al., 2010; Mauthner, 1999;

Reich et al., 2008). Hence, it is not surprising that themes of identity and self-concept are

examined in the context of the transition to motherhood (Leite & Kuiper, 2008; Manzi et al.,

2010; Reich et al., 2008). Self-congruence and consistency leads to psychological well-being and

may be a resiliency factor amidst the changes of motherhood. In fact, achieving a desired self-

concept in the face of motherhood related challenges to self, such as unplanned pregnancy, acts

as a resiliency factor against depression (Manzi et al., 2010). Women in the early stage of

motherhood are faced with a multitude of these challenges of self-redefinition in their

employment status, relationship roles, sexual identity, body image, goals, and measures of

success. Women with PPD struggle the most with these losses and experience maladjustment.

Therefore, it was expected, as proposed in Hypothesis 1 (e), that women with PPD in particular

would have lower SCC, and this was supported.

The introduction of the inclusion of a measure of individual differences in self-concept

structure in this study is new to PP research. This study is also the first to confirm the

maladaptive function of different levels of SCC as a cognitive style for women with PPD. In the

current study, lower SCC was associated with higher self-criticism and lower self-efficacy,

suggesting the coherence of the cognitive construct with adaptive and maladaptive facets of

another orientation related to the self in women with PPD. Moreover, SCC emerged as a

differentiating style between depression in mothers in the PP period as compared to mothers with

older children experiencing major depression. This finding contributes to identifying specific

cognitive vulnerabilities uniquely important to women with PPD, and thereby clarifying the

nature of the distinction hypothesis.

Leite and Kuiper (2008) explicate implications for the recovery process through

psychotherapy for people with low SCC in the general population, which serves to highlight the

significant unique challenge that women with PPD face. The authors frame SCC as a construct of

uncertainty related to the self. For women who are struggling with the anxiety considered

characteristic of PPD, (narrowly related to their own and infant's well being and decision

making, and more broadly a host of other matters or simply free-floating), this sense of

uncertainty is compounded further with the chronic instability of the structure of their self-

concept. The inevitable need for change in order to recover and heal, albeit in progressive and

often iterated stages from consideration moving towards conviction and action (Prochaska &

DiClemente, 1983), seems like a monumental task for women who are in the throes of multiple,

simultaneous, and difficult changes already. Moreover, low SCC is proposed to generally

interfere with the ability to assess the self, including thoughts and beliefs, as well as expectations

of others (Leite & Kuiper, 2008). The association between low SCC and chronic self-analysis,

while lacking accurate awareness of internal states, may provide some explanation for the

process of interference (Campbell et al., 1996). That is, abilities of productive self-awareness are

presumably crucial to healthy adjustment and support seeking. An alternative perspective posits

that the drastic uncertainty experienced by women in the PP period with an unstable and

inconsistent sense of self-organization may prime them for receiving support, new awareness,

and knowledge, and motivate them towards change that may be of benefit in future. Regardless of the particular perspective adopted, SCC clearly plays a role in the phenomenology of maladjustment for PP women and may play a role in recovery. Therefore, in order to integrate the inherent changes associated with early stages of motherhood and prevent destabilization of self-structure and psychosocial functioning, intervention for women with low SCC seems crucial. Specifically, reducing this cognitive vulnerability to an optimal level is recommended (Johnson & Nozick, 2001; Reich et al., 2008). Moreover, treatment approaches such as acceptance and commitment therapy, which facilitates identifying personal values and living in congruence with these, may be ideal for addressing low SCC.

Findings in the current study identify another particular challenge associated with lower SCC for women with PPD. While lower SCC was associated with greater trait anxiety for both PP and NPP women, only PP women with lower SCC also reported the tendency to engage in all three facets of perfectionistic self-presentation. This finding suggests that in the PP period women who are struggling and have a more temporally unstable, and less clearly/confidently defined and consistent self-concept also have a tendency to engage in self presentation to promote positive traits and conceal imperfections, with nondisplay or nondisclosure of these perceived negative qualities. Considering that self-concept is relational, subject to interpersonal feedback (Ayduk et al., 2009; Bell et al., 2007; Cross et al., 2003), and women with PPD experience relational maladjustment as well, low SCC and the tendency to self-present as positive may have a powerful impact on maladjustment and support seeking from close others and health professionals.

**Nonsignificant Findings and the Distinction Hypothesis**

**Relationship Maladjustment.** Contrary to prediction and research that partner relationships for women with PPD are marked by more maladjustment (Bennett et al., 2007; O'Hara et al., 1991), no difference in relationship adjustment with partner was found compared to NPP mothers with MDD. In fact, women with PPD had slightly better adjustment. Similarly, no difference in maternal relationship satisfaction emerged between mothers with PPD and NPP mothers with MDD. Therefore, the predicted poorer relationships with mother and partner proposed in Hypothesis 1 (i) were not empirically confirmed. It is unclear why these findings did not match prediction.

Regarding partner relationship, the relationship with social desirability bias (SDB) provides some insight. Specifically, PP women who engaged in more socially desirable responding also reported significantly better relationship adjustment with partner. It may be that PP women were motivated to present their partner relationships as well-adjusted. Alternatively, one may speculate that PP women who participated in the study may have been more aware of their maladjustment and informed about PPD. Moreover, they may have been more willing to not only participate in a study where they discuss their PP struggles, but also talk to their partners more openly about them, engendering greater awareness and support from partners. Women with higher SDB also reported having a lower tendency to engage in hiding imperfection, specifically behaviors, through nondisplay of imperfection. Whether SDB represents a relatively adaptive quality in this particular sample of PP women, or along with greater adjustment in partner relationship, a bias towards presenting positively and seeking approval, cannot be reliably deciphered with the evidence collected.

Regarding mother relationship, previous qualitative (Akerjordet & Severinsson, 2010; Besser et al., 2008; Mills et al., 1995) and quantitative studies (Boyce et al., 1991; McLaren et

al., 2007; Matthey et al., 2000; O'Hara, 1985) have cited the instrumental role of maternal

relationship during the PP period. The current study contributes to initial attempts at a

quantitative approach to examining the nature of the role of relationship with mother to PPM

noted by women and theorists. While previous quantitative research looked at both parents and

social support, or retrospective accounts of maternal relationship in childhood, the present

research examined only maternal relationship in the present. Some women had mothers who

were absent, either deceased or presumably not close in proximity. It may be that the complexity

of capturing the representation of one's mother relationship is too challenging for quantitative

methods, another measure, or a larger sample, to identify a unique experience related to maternal

relationship for women with PPD relative to NPP women with MDD is required. Of course, it is

possible that this relationship does not represent an important distinctive quality of

maladjustment for mothers in the PP period. Additional research of current relationships with

mother and partner would be needed to address this question unequivocally. However, the

models of PPD etiology examined in the current research do provide some predictive insight

regarding the association between vulnerabilities and these two types of relationships, with

mother and partner, and will be described.

      **Perfectionistic Self-Presentation.** Another finding contrary to prediction in Hypothesis

1 (c) was that the expectation that PP women would be higher on perfectionistic self presentation

(PSP) was unsupported by the comparison analysis with NPP women. In fact, NPP women had a

slightly higher tendency to engage in nondisclosure of imperfection, related to verbal expression.

Greater nondisclosure was associated with greater depression severity for this group of mothers.

Therefore, the documented relationship between PSP and psychological maladjustment,

including depression (Hewitt et al., 2003; Sherry et al., 2007) is corroborated and extended with

a sample of mothers with depression. However, PSP does not emerge as a noteworthy

contributor to the distinction hypothesis, in the assumed direction.

   **Anxiety.** The presence of anxiety in perinatal women may be the most commonly noted

aspect of the distinction hypothesis (Bloch et al., 2003; Hendrick et al., 2000; Matthey et al.,

2003; Pitt, 1968; Terry, 1991, Van Bussel et al., 2006) leading several researchers to suggest

"depressive neurosis" (Watson et al., 1984), or "postpartum mood disorder " (Matthey, 2003;

Van Bussel et al., 2006) as more accurate descriptors of PPM. In the current study, state anxiety

as a construct, and specifically the STAI also used in previous research on PPD, was presumed to

capture this prominence of anxiety symptoms for women with PPD. However, the unique

experience of transient anxiety for PP women, compared to NPP women, did not emerge as

expected and identified in Hypothesis 1 a). Instead, what did emerge, as expected and identified

in Hypothesis 1 b), was a slight trend for PP mothers to have higher trait anxiety, suggesting that

anxiety as a component of the distinction hypothesis remains worthy of investigation and

consideration. Co-morbidity and previous history of anxiety, namely anxiety disorder, has been

identified as one of the chief risk factors for PPD (Giakoumaki et al., 2009; Matthey et al., 2003;

Monk et al., 2008; Simpson et al., 2003; Van Bussel et al., 2006). The current study examined

anxiety as an individual cognitive vulnerability that may be unique to PPD, applying previous

research more directly focused on PP women's disposition in the context of direct comparison

with NPP mothers. The prominence of anxiety in discourse regarding the distinction hypothesis

and the empirical hint provided in the current findings warrant future inquiry.

   **Stressful Events and Perceptions of Loss.** Stress is known to play a significant role in

the depressive experience in women, and increased number of stressors increases risk for

depression (Brown & Harris, 1986). Women in the PP period, and particularly experiencing

PPM, tend to experience more stressors compared to NPP women (O'Hara et al., 1990).

Interpersonal stressors have been identified as particularly important to PPM (O'Hara et al.,

1990). Therefore, women with PPD would be expected to experience more stressful events than

NPP women with MDD, and particularly more interpersonal stressors, and this trend was

observed.

The importance of examining stressors that are specific to the population of interest has

frequently been emphasized (Monroe & Simons, 1991; Norbeck, 1984; Rode, 2016). Therefore,

in order to identify the most relevant stressors, mothers in the study completed a life event

inventory comprised of a comprehensive collection of stressors for women of childbearing age

(Norbeck, 1984). Indeed, although not a statistically powerful result, women with PPD did

endorse more overall life events than NPP women with MDD. Moreover, they endorsed more

life events related to health and more interpersonally related (i.e., love and marriage; family and

close friends) and parenting related events. Considering the salience of parenting, preoccupation

with health of self and baby, and changes in interpersonal identity and connection, the higher

endorsement of these categories is highly consistent with the inherent experiences for women

with PPD. NPP women with MDD did endorse a considerable number of events, which is also

consistent with previous research on depression in women.

An unexpected finding was that women with PPD also had more residence related

stressful events. It is possible that with a growing family, changes to residence are more common

for PP women and are perceived as a significant stressor amidst all the other simultaneous

changes experienced. Indeed, noninterpersonal stressors can have a negative impact on important

tasks of motherhood. For example, life adversity, including stressors from a variety of sources,

other than children, has been shown to be associated with parenting stress, marked by feeling

overwhelmed cognitively and emotionally, creating "stress spillover" in mothers of young children/toddlers (Williamson, McCabe, O'Hara, Hart, LaPlante, & King, 2013). Negative affect mediates this relationship, suggesting one of the possible processes linking stress to maternal parenting difficulty, and treatment targets for mothers with younger children

The insidious role of events related to loss in depression in women has been documented (Brown & Harris, 1986). Moreover, the meaning of events as representing loss, rather than the mere presence of stressful events, has been recognized as more influential on the relationship between stress and psychological maladjustment (Folkman et al., 1986; Masih et al., 2007; Pakenham et al., 2007). Losses in many areas of life have been identified as significant to PP women as a naturally occurring part of the PP period, and potent for women with PPD in particular (Beck, 2002; Mauthner, 1999). As a result, perceptions of loss of both independent and interpersonal nature, have been given importance in understanding PPD and were expected to be higher for the PP sample in the present investigation. In fact, there was a trend in the hypothesized direction, identified in Hypothesis 1 (h), with women with PPD endorsing more of both perceived independent and interpersonal losses. An even larger difference found between the more conservative groups of mothers confirms this distinction and contributes another empirical hint to elucidating the unique phenomenology of PPD. Accordingly, examining differences in perceptions of loss related to interpersonal and independent needs between groups of PP and NPP mothers should be replicated to determine whether this possible distinction emerges as significant and is confirmed statistically.

**Interpersonal Goal Orientation.** Goal orientation as a style related to prioritized needs of either self-definition/independence or interpersonal goals has been identified as having a relationship to NPP depression (Coyne & Whiffen, 1995). Interpersonal goal orientation, which

is marked by valuing interpersonal needs highly (Blatt et al., 1976), has been identified as playing a unique role for PP women (O'Hara et al., 1991; Vliegen, 2006). Namely, relatedness, the adaptive interpersonal orientation characterized by mature reciprocal attachment is associated with PPD. Dependency, the maladaptive interpersonal orientation, conversely has been proposed to lack association with PPD (Dover, 1992; Vliegen & Luyten, 2009; Vliegen, Luyten, Besser, Casalin, Kempke, & Tang, 2010), or serve as a protective function (Besser et al., 2008; Coyne & Whiffen, 1995). Hypotheses 1 (f) and (g) followed from this, predicting greater relatedness, and no difference or lower dependency in mothers with PPD, compared to NPP mothers with MDD. Instead, both types of interpersonal orientation were higher for women with PPD. Therefore, the potential maladaptive role of relatedness was suggested, however the proposed unique protective function of dependency was not demonstrated. In fact, dependency had a stronger positive association with depression than relatedness, suggesting that contrary to previous research and theory, the typically maladaptive interpersonal orientation may operate the same for PPD as for depression at other time periods. This finding identifies the possible role of highly valued interpersonal needs for women with PPD, namely the apparent maladaptive function of this focus in the PP period. The changes to fulfilling interpersonal needs and necessity of negotiating needs in a new way, with mother, partner, and baby, presumably contributes to the greater impact of an interpersonal orientation on women in the PP period, and their vulnerability to maladjustment. Goal orientation and perceptions of loss are combined in models of predicting depression and maladjustment to further explicate the role of goal orientation in the distinction hypothesis.

**Goal Orientation and Match Hypothesis**

When both type of goal orientation and type of perceived loss with similarly focused needs is experienced in conjunction, that is, both related to either independent/self-definition or

interpersonal/relational needs, the interaction effect is typically considered more powerful,

creating a risk for developing depression (Clark et al., 1992; Coyne & Whiffen, 1995; Hyde et

al., 2008). This phenomenon, the match hypothesis, was tested in Hypothesis 3, with both types

of goal orientation, related to self-definition and interpersonal needs, and both types of loss,

independent and interpersonal. While the match hypothesis holds true for NPP women with

MDD in previous research, a nonmatch phenomenon, between independent goal orientation and

interpersonal loss, has also been found for PP women (Masih et al., 2007). Therefore, both a

match and nonmatch effect was predicted for women with PPD, while only the match effect

between goal orientation and type of loss, was predicted for NPP women with MDD.

   **Independent Goal Orientation.** With regards to goal orientation, while both orientations

contribute to PPD symptoms (Masih et al., 2007), the orientation focused on goals of self-

definition/independence has a stronger relationship with depression (Vliegen et al., 2006;

Vliegen at al., 2010). Self-criticism (SC), the maladaptive facet of this orientation, predictably is

a vulnerability to depression, while self-efficacy (SE), the adaptive facet, is recognized as

playing a protective or resilience role in the PP period. Moreover, SC predicts depression

presence and severity over time (Vliegen et al, 2010). In line with this prior research and theory,

and supporting Hypotheses 3 (d) and (e), in the PP group, SC was the only variable in the study

that had a significant moderate relationship with all other vulnerability and maladjustment

variables in logical directions as a maladaptive construct. However, no association between SC

and bonding with baby in the present research was demonstrated. This finding conflicts with

previous findings that SC has also demonstrated an association with maternal behaviors with

infants, namely poorer interactions/communications (Beebe, Jaffe, Buck, Chen, Cohen, Blatt,

Kaminer, Feldstein, & Andrews, 2007). Thus, the relationship between SC and bonding with

baby found in previous investigations was not confirmed in the present study.

Consistent with expectation and research, the match effect for SC and independent loss

combined predicting depression with the BDI measure was supported for both PP and NPP

mothers, supporting Hypothesis 3 (a). However, a significant interaction with group as

moderator pointed to some differences in the nature of the interaction effect for each group.

Namely, women in the PP group had both higher and lower depression severity moderated by

self-criticism and independent loss. Therefore, there was a larger effect for the PP group of both

variables in the match phenomenon, compared to the NPP group, with higher SC and higher

independent loss representing a stronger vulnerability. With regards to the adaptive independent

orientation, SE, only the NPP group experienced a significant match effect, whereby lower SE

and greater independent loss predicted depression. Therefore, it seems that with respect to the

independent orientation, a vulnerability function was supported for both groups, and somewhat

stronger for the PP women, whereas the protective function emerged more clearly for NPP

women, moderated by greater matched loss. Some indication of the adaptive role of SE emerged

in correlational analysis for the PP group. Namely, higher SE was associated with high self-

concept clarity, an adaptive style, and both lower nondisclosure of imperfection and lower

relatedness, both maladaptive tendencies.

When the variables in the match analysis were examined more closely for each group of

women separately, another difference was found. In the NPP group, women with high SC were

more sensitive to degree of loss experienced, exhibited by a wider range of depressive severity

and much higher levels of depression overall, compared to both women with low SC who

experienced greater loss, and women with high SC, but who experienced less loss. Similarly,

women with low SE were much more sensitive to degree of loss experienced with a wider range

of depressive severity than women with high SE, whose scores exhibit a very small range. That

is, the effect of loss was stronger when SC was high and SE was low. A resiliency effect of high

SE to degree of loss and to depression, seems to be confirmed for NPP women with MDD.

Moreover, the higher level of vulnerability and lower level of protective facet are both most

susceptible to a matched loss, reflecting a moderating effect of orientation functioning as risk for

depression. For both facets of the independent orientation, less perceived loss, compared to more

loss, was a stronger moderator in predicting lower or higher depression severity.

        In contrast to the NPP group, for the PP group, low SC was more sensitive to degree of

loss experienced, such that the impact of loss on depression was stronger for women with low

SC. Women with low SC had a wider range of depressive severity than women with high SC.

Specifically, women low on SC had the lowest and highest depression severity overall,

dependent on degree of perceived loss experienced, while women with high SC experienced

relatively high depression scores, irrespective of changes in degree of independent loss. That is,

depression severity varied more widely with low SC than with high SC. Therefore, lower SC

appears to have an impact on susceptibility to depression, and while not fully representing a

protective function, to some degree is beneficial. Another difference in the interaction effect of

the match phenomenon for PP women is the moderating role of high loss. While depression

severity did not vary considerably at low levels of loss, effect of high loss at different levels of

SC varied markedly.

        Therefore, both independent goal orientation and independent loss predicted depression

in expected directions consistent with prior research and theory. The match hypothesis was

confirmed, with a more robust effect for the NPP group. The nonmatch phenomenon proposed in

Hypothesis 3 (c) did not emerge for the PP group. For PP women, a stronger moderating effect of high independent loss and the importance of low maladaptive self-definition, SC, was implied by the study findings, based on both correlational and regression analyses. The role of greater loss and greater impact of an independent style, individually and combined, for women with PPD is also confirmed, matching Hypotheses 3 (a), (e), and partially (g). For the NPP group, the sensitivity of having low SE, the absence of a protective style, and high SC, greater vulnerability, particularly in the face of loss, was identified. These findings suggest different mechanisms and has implications for treatment for each of these groups. Dependency, did not demonstrate a protective role against depression, rather demonstrated no significant association in the current study for PP women, as proposed in Hypothesis 3 (f). In fact, both facets of interpersonal orientation were positively associated with depression. Therefore, the maladaptive effect of relatedness in PP women as proposed in Hypothesis 1 (g) and 3 (f) is somewhat corroborated by these findings. However, the possible role of interpersonal goal orientation in maladjustment and as resilience for women with PPD should be further clarified in future investigation. Based on the current collective findings on goal orientation, reducing self-critical focus has the potential to protect against the insidious impact of the combination of focus on independent needs and loss of goals related to independence. Addressing the tendency to focus on interpersonal goals, in any form, that is, adaptive or maladaptive, may also be valuable to treating PPD.

**The Distinction Hypothesis and Importance of Group Comparisons: Research Design**

An ongoing topic of discourse and focus of research investigation is the question of whether PPD is characterized by unique qualities compared to depression at other periods in women's lives. The distinction hypothesis and related theory and assumptions for analysis were introduced in this study to address this unresolved query. Several supportive findings for the

affirmative, contributing to a conceptualization of PPD as different indeed in particularly

relevant areas, including cognitive styles and loss, and leaving room for more inquiry into other

areas, such as partner relationship, emerged. Of note is the study design. The nature of the

question of distinction necessitates a comparison of relevant groups with related characteristics

to produce the most compelling evidence for distinction. Previous research has examined

different groups of PP women (Copper & Murray, 1995), some with a history of MDD, and

found no significant differences concluding that particular cognitive styles do not pose a unique

risk for the onset of PPD compared to NPP MDD (Jones et al., 2010). However, given that these

women were euthymic at the time of the study and in the PP period themselves, this does not

provide a direct comparison of PPD to NPP MDD episodes. In fact, in the same study, the

importance of including a group of NPP women in comparison studies, to demonstrate

specificity related to distinction and avoid erroneous generalization, was emphasized. Studies

with direct comparison groups of PP and NPP depressed women have further found inconsistent

findings. The current study provided comparison of relevant groups of depressed mothers and

contributed new evidence to support distinctive qualities and potential risk factors between

mothers with PPD and NPP MDD. Moreover, this evidence can be directly applied to studies

examining the distinction hypothesis and the conceptualization of PPD as distinct. Additional

analyses, models of prediction, further demonstrate the value of the constructs identified as

important risk factors, contributing to vulnerability and resilience, as well as different aspects of

phenomenology of PPD.

**Conceptualizing Postpartum Depression: Models of Etiology and Phenomenology**

      **Relevant Vulnerabilities.** The diathesis-stress model is recognized as a relevant and

informative framework for uncovering the components and mechanisms of the development of

depression (Clark et al., 1992; Coyne & Whiffen, 1995; Monroe & Simons, 1991) and PPD in

particular (O'Hara et al., 1990; Pakenham et al., 2007; Phillips et al., 2010; Whiffen & Gotlib,

1993). The current study examined PPD etiology and phenomenology by adopting this theory

and adapting the model to be relevant to present theory and hypotheses. Much of previous

research on vulnerability-stress models has examined variables that may well identify risk factors

for PPD, but are essentially focused on external or past occurrences, and detached from women's

present reach or experience. For example, biological vulnerabilities such as family history of

depression (Cooper & Murray, 1995), history of depression (Phillips et al., 2010), and recent

mental health, have been prominent. Parity, number of stressful events (Bernard-Bonnin, 2004;

O'Hara, 1985; Phillips et al., 2010), baby's health, education, and unplanned pregnancy (Church

et al., 2005; Parsons et al., 2012) are also frequently examined. These variables are beneficial in

identifying women at risk, onset, and generally conceptualizing the etiology of depression, yet do

not provide useful targets for intervention or treatment. Identifying vulnerabilities that would be

ideal candidates for treatment was a primary guiding goal of this study. Namely, unlike much

previous research on vulnerabilities, the current study focused on vulnerabilities that are

commonly targets of treatment for psychological maladjustment, cognitive vulnerabilities. For

example, research shows that developing/holding adaptive attitudes towards motherhood,

irrespective of typically researched vulnerabilities, such as mental health history or parity, is

protective against PPD (Robakis et al., 2015). Studies that have examined other similar

vulnerabilities with PP women, such as personality, have focused on styles that are known to be

relevant to depression generally, such as interpersonal sensitivity, attachment anxiety/insecurity,

lack of assertiveness and dysfunctional attitudes/appraisals (Boyce et al., 1991; Church et al.,

2005; Monk et al., 2008; Pakenham et al., 2007; Phillips et al., 2010). However, diatheses that

are most relevant, that is, specific to a disorder and particular population, are likely to be most informative and accurate in terms of prediction (Monroe & Simons, 1991). Identifying cognitive vulnerabilities that are specifically important to PPD etiology was another overarching aim of the current study. This sentiment seems even more important for a condition that has been combined with other conditions when unique qualities may exist and be key to the mechanism of maladjustment. The current study drew on a combination of both qualitative and quantitative research findings, as well as clinical observations, to identify the vulnerabilities specific to women with PPD that would be ideal targets for treatment and conceptualization of depression from a psychosocial perspective.

**Phenomenology: Depression and Postpartum Maladjustment.** Postpartum depression (PPD) is considered a multifaceted syndrome marked by several features of maladjustment. Namely, women with PPD report both individually experienced symptoms and relational aspects of dysfunction. The current study included several of these types of maladjustment within models of prediction outlined in Hypothesis 4 focusing on both depressive/anxiety symptoms and maladjustment in identified important relationships with partner, baby, and mother. Women's experiences during the perinatal period, and increasingly through the PP period, are highly subjected to greater salience of and changes to self in relationships. Accordingly, aspects of relationship maladjustment were expected to be important outcomes and aspects of PP phenomenology, and this hypothesis seems to be supported with significant and meaningful models of prediction. In contrast, fewer contributions to etiology of PPD emerged when examining variables representing the depressive phenomenology. Contributions of cognitive styles, and interactions with perceived loss in the prediction of each type of maladjustment examined, will be outlined and explicated further.

**Predicting Depression.** Two cognitive vulnerabilities, state anxiety and unrealistic expectations for motherhood, were identified as significant in the prediction of the EPDS, the most relevant measure of PP symptoms. Prediction of more classic depressive symptoms of the BDI showed that unrealistic expectations emerged as significant, suggesting that this vulnerability also contributes to a broad symptom profile for PP women and supporting Hypotheses 4 (a) and (c). With respect to state anxiety, this finding is highly consistent with the conceptualization of PPD reflected in research and theory related to the distinction hypothesis, and captured in the EPDS, as marked by anxiety. With respect to expectations as a vulnerability, previous findings that PP disconfirmation of expectations towards motherhood have a negative effect on depression (as measured by the EPDS) fit a conceptual model of the harmful role of unrealistic expectations (Robakis et al., 2015).

Both transient anxiety and expectations are arguably less stable cognitive entities. Should these cognitive vulnerabilities be targeted in treatment, this bodes well for positive treatment outcome, particularly reducing symptoms captured by the EPDS and possibly the BDI. Research suggests that treatment targeting unrealistic expectations may further reduce vulnerability to future or recurrent episodes of PPD. In a comparison study of PP women, women with recurrent depression had (more personality vulnerability and) more unrealistic expectations for motherhood than women with de novo (i.e., first episode) PPD (Phillips et al., 2010). That is, while non-depressed PP women with a history of depression had higher general vulnerability to depression, they had lower unrealistic expectations for motherhood. Clearly, both anxiety symptoms and unrealistic expectations have an important impact on depressive symptomatology of PPD. Addressing unrealistic expectations appears to also have potential of reducing future vulnerability and recurrence of PPD.

In the current study few significant, however consistent effects for unrealistic

expectations, emerged for predicting symptoms associated with PPD. With respect to state

anxiety, each measure of depression demonstrated different best/significant predictors,

supporting Hypothesis 4 (c). Certain cognitive vulnerabilities, namely unrealistic expectations

for motherhood, shows some repetition and seem to be ubiquitous in its contribution to different

types of symptom profiles. Other cognitive vulnerabilities and several comprehensive models of

prediction including perceptions of loss emerged for other aspects of PPM, relationship

maladjustment. The role of cognitive vulnerabilities and loss in the etiology of PPM will be

discussed further below.

**Predictors of Relationship Maladjustment: Vulnerability and Resilience/Protective Factors.**

It has been suggested that factors predisposing women to depressive symptoms may be

considerably different than those associated with relationship maladjustment, such as bonding

with baby, and that these need to be identified more clearly (Muller et al., 2013; Robakis et al.,

2015; Thomson & Bendell, 2014). The current study attempted to address this question, as

proposed in Hypotheses 4 (a) and (d).

As predicted, and confirming the importance of unrealistic expectations for motherhood

and self-concept clarity (SCC) demonstrated in between subjects comparisons, these styles, as

well as perfectionistc self-presentation, emerged as predictors of relationship maladjustment for

PP women. SCC stood out distinctively as a statistically powerful and ubiquitous predictor

across all three types of maladjustment with partner, baby, and mother. More importantly, the

direction of the relationship reflected prediction, for maternal attitudes, and for SCC in the

prediction of partner relationship adjustment, supporting Hypothesis 4 (a) that more maladaptive

styles would predict greater maladjustment. That is, for PP women being higher on a

maladaptive style (unrealistic expectations) and lower on an adaptive style (self-concept clarity)

predicted greater maladjustment. The logical direction of these diatheses is confirmed and

provides empirical evidence for their specific role in vulnerability and resilience to PPD.

**Self-Concept Clarity**. Contrary to prediction, and representing a novel finding unique to

PP women, higher SCC predicted maladjustment with mother and baby. A significant

comprehensive model also emerged when predicting relationship maladjustment with baby.

Specifically, an interaction effect between SCC and both types of loss, interpersonal and

independent, suggests that when perceived losses of both types are present, even women with

high SCC are susceptible to and may not be able to stave off maladjustment. With respect to the

role of loss, more loss predicted especially poor bonding, despite high levels of SCC, and low

loss predicted especially positive bonding. Interpersonal loss appears to be more important to this

prediction effect with SCC. With respect to levels of cognitive vulnerability, high SCC,

compared to low SCC, was considerably more sensitive to degree of loss experienced, impacting

degree of maladjustment experienced more powerfully, namely showing an increase in

maladjustment with greater loss, and a vulnerability effect.

**Unrealistic Expectations.** Consistent with and extending previous research (Church et

al., 2005; Mills et al., 1995), unrealistic expectations for motherhood emerged as a significant

predictor of bonding with baby. In predicting bonding with baby, a significant main effect

emerged suggesting that the vulnerability is a strong predictor alone. Therefore, having

unrealistic expectations functions as a vulnerability when predicting poorer bonding

independently of loss. Vulnerability-stress models have shown the predictive effect of unrealistic

expectations on depression in PP women (Church et al., 2005). This study corroborates and

extends this evidence to different aspects of PPM, namely depression symptoms and relationship

with baby.

      **Perfectionistic Self-Presentation.** The association of perfectionism to psychological

maladjustment, and its role in the development and maintenance of depression in particular, has

been well-documented (Hewitt et al., 2003; Sherry et al., 2007). The requirement in the PP

period of negotiating new relationships, with baby, and old relationships with partner and mother

is generally recognized. Perfectionistic self presentation (PSP), a particular type of perfectionism

representing the interpersonal expression of perfectionism (Hewitt et al., 2003) was examined to

determine its etiological role in prediction of these relational aspects of maladjustment for

women with PPD. This represents an extension of the research that has shown the association of

different and more commonly examined types of individually focused perfectionism with PPD

(Mazzeo et al., 2006). Moreover, PSP is associated with socially prescribed perfectionism, the

tendency to perceive high expectations for self from others. If unrealistic expectations for

motherhood are directly focused on the personal imagined experience of motherhood, socially

prescribed perfectionism is more focused on the imagined expectations of others during

motherhood and has been associated with PPD (Thompson & Bendell, 2014). However, socially

prescribed perfectionism still remains located within the individual.

      Relational perfectionism, PSP, in particular, was expected to predict struggling with

maladjustment in key relationships, while PP women are known to be navigating changes in

these core relationships. This hypothesis was supported with two facets of PSP: self promotion

and nondisplay with significant direct or interaction effects. It has been suggested that while

nondisplay functions as a maladaptive style, self promotion may function as an adaptive style

(Hewitt et al., 2003). The study findings did not support this notion. Both facets of PSP

demonstrated a vulnerability effect, predicting poorer relationship adjustment at higher levels

and supporting Hypothesis 4 (a). Moreover, facets of PSP operated as important predictors in

models including interactions with (both types of) loss, as opposed to only demonstrating main

effects, supporting Hypothesis 4 (b).

**Active Facet of Perfectionism.** Self promotion (SP), the proactive facet of PSP,

predicted relationship maladjustment with partner. Self promotion represents the tendency to

promote a perfect image of having socially desirable qualities such as flawless, capable, moral,

and successful. A significant model with SP was found when predicting partner relationship

combined with both types of loss. A strong moderating effect of interpersonal loss, for women

with high SP was identified. Namely, low loss appears to provide for a resiliency effect resulting

in the best adjustment with partner, despite higher cognitive vulnerability. PP women who had

high SP and also experienced high loss experienced drastically lower, and the lowest,

adjustment, revealing a substantial vulnerability effect. In contrast, adjustment with partner for

women with low SP remained relatively high and steady irrespective of their perceived degree of

loss, revealing less sensitivity to experiences of loss for these women and some resiliency to

maladjustment. In fact, when the combined effect of independent and interpersonal loss were

examined, the strongest resiliency effect emerged at high levels of both types of loss.

**Passive Facets of Perfectionism.** A more passive facet of PSP, Nondisplay of

imperfection, representing concern over demonstrations of imperfection and avoidance of

behaviors thought to represent imperfection, showed independent predictive value of partner

relationship maladjustment. Namely, greater tendency to avoid display of imperfection was

significantly associated with greater relationship maladjustment with partner, supporting

Hypothesis 4 (a) proposing the role of perfectionism as a vulnerability. The second passive facet

of PSP, Nondisclosure of imperfection reflects the concern over revealing imperfections through

verbal disclosure. Contrary to hypothesis, this facet did not demonstrate significant effects for

the PP group and therefore was not a powerful predictor of PPM. Near significant effects suggest

directions for future research on this facet.

**Conceptualizing Cognitive Vulnerabilities in Prediction of Maladjustment.** PSP

appears to clearly play a vulnerability role in the experience of relational maladjustment PP,

irrespective of which facets women engage in, that is both active and passive facets. This finding

expands on previous qualitative research which identifies the loss of control over others'

perceptions as a struggle, and specifically the image of the "perfect mother" that women attempt

to maintain (Beauboeuf-Lafontant, 2007; Beck, 2002). In the current sample, PP women engaged

in both types of perfectionistic self-expression (i.e., active and passive), and there was a negative

effect for partner relationship in particular. Women who engage in SP and rely on the ability to

promote themselves as having socially desirable qualities may be challenged in their ability to

maintain this presentation in the face of the exposing and vulnerable experience of motherhood.

Presumably, this undesired exposure in turn triggers perceptions of being flawed, incapable, and

unsuccessful, all the things they work hard to avoid. Moreover, close others, such as partner, may

be able to view these cracks in perfectionism most easily through proximity, making attempts at

false self promotion, or any form of inauthenticity, impossible and ineffective, and therefore

maladaptive. Indeed, attempts to present as perfect result in poorer self-presentational skills, lack

of behavioral flexibility, excuse-making, and self-concealment (Hewitt et al., 2003).

Consequently, women who engage in active SP or have an unstable or too well defined self-

concept experience more difficulty with their sense of self and security in relationships,

particularly when also exposed to interpersonal threats and losses. This struggle impacts their

relationship experiences with the people they need and rely on the most, such as partner and

mother (Akerjordet & Sverinsson, 2010; Morrow et al., 2008). The combination with perceived

loss is needed to activate the impact of SP. Namely, the nature of the combined impact revealed

that greater tendency to self promote may have a particularly negative impact on adjustment in

partner relationship when combined with high levels of loss in particular. In support of this

finding, social support from husband is identified as not only important, but often considered low

by women who are struggling PP. Similarly, women with PPD describe their relationships with

their own mothers as tense and difficult and an inability to share feelings or rely on their mothers

for advice or help caring for their baby (Mills et al., 1995).

It is noteworthy that passive styles of perfectionism also have an impact on relationships.

Similar to SP, nondisplay predicts maladjustment in partner relationship. With regards to

nondisclosure, no significant effects were demonstrated. However, research reveals that women

with PPD are often unwilling to disclose their feelings to partners, family members, friends, or

health professionals (Dennis & Chung-Lee, 2006). Moreover, lack of knowledge of PPD and

acceptance of myths is a significant help-seeking barrier and interferes with recognizing

symptoms of depression (Dennis & Chung, 2006). Research on this role of nondisclosure for PP

women suggests that future investigation on this facet to explicate its etiological importance and

the value of treatment that incorporates disclosure should be considered. Clearly, PSP, SCC, and

Unrealistic Expectations in general interfere with relational adjustment that is key to support,

security, mothering, and thriving in the PP period. As such they are excellent targets for

intervention and treatment.

The psychosocial conditions and complex relationships between women's vulnerabilities

and experiences during the PP period cannot be fully explicated in one model or theory. This

study reflects and contributes to some elements that are clearly important to the functioning of

PP women with a focus on women themselves in context. Women value their mother's and

partner's support over other sources, highlighting the importance of maintaining the health of

these relationships. In fact, support from mother-in-laws has been noted to be unsuccessful in

replacing support from a woman's own mother in the PP period (Morrow et al., 2008). Mothers'

mental health impacts their bonding with baby, and in turn their ability to care for their babies,

and this relationship is reciprocal. Emotional support from partner and close others moderates the

effects of negative affect related to stress on PP mothers' experiences, including reactions to the

demands of childcare (Williamson et al., 2013). Hence, the need to reduce maladjustment in

these relationships cannot be overestimated/emphasized enough.

**Treatment Implications for Self-Concept Clarity, Unrealistic Expectations and**

**Perfectionism.** When main effects of prediction were examined, SCC consistently and

significantly predicted poor adjustment/maladjustment with all three types of relationships;

partner, mother, and bonding with baby. This finding identifies SCC as an important and

ubiquitous vulnerability to multiple aspects of PPM, namely relationship maladjustment. This is

consistent with the extant research on the salience and impact of identity and role changes in the

PP period, however, it extends this knowledge to identify the cognitive vulnerability that may be

most sensitive to these changes, stability of self-structure.

Based on the present research, the insidious role of higher SCC appears to be the case for

both relationship with mother and bonding with baby, while maladjustment in relationship with

partner is sensitive to lower SCC. Therefore, the particular role of different levels of SCC in

predicting types of maladjustment was elucidated, confirming that, as expected, lower SCC

represents a vulnerability to maladjustment in partner relationship. Yet, higher SCC, marked by

rigidity in structure of the self, particularly in interaction with a high degree of perceived loss, may represent just as much of a vulnerability as lower SCC, marked by an inconsistent self-concept structure. Thus, having higher SCC presents a unique vulnerability to maladjustment in relationships with mother and baby. Specifically, having a clearly, consistently, and confidently defined sense of self poses a unique challenge to developing a new relationship with an infant and navigating changes to relationship with mother. The anger, resentment, and anxiety or discomfort with baby related to loss of self in relation to others described by PP women (Mauthner, 1999) is consistent with this challenge and points to possible aspects of the process of this vulnerability.

SCC is relatively stable as a vulnerability and therefore identifiable in prevention, yet responsive to intervention. For example, improvement in SCC has been found with a Dialectical Behavioral Therapy intervention program for women with Borderline Personality Disorder (Roepke et al., 2011). Moreover, two specific strategies, validation and mindfulness, have been recommended to develop a sense of coherence of self, through feedback with the therapist and greater awareness of present experience, respectively. Given that rigidity associated with higher SCC may correspond with defensiveness and resistance to change (Johnson & Nozick, 2011; Leite & Kuiper, 2008), the aspects of DBT noted may be ideal for positive treatment outcome. Namely, the relationship with the therapist, marked by validation and self-compassion, characteristic of mindfulness practice, would be key therapeutic strategies. In fact, when health professionals are dismissive, minimizing feelings and depressive symptoms, PP women are less likely to seek treatment, whereas a perceived close relationship with health professionals facilitates seeking treatment and is strongly associated with satisfaction with PPD treatment (Dennis & Chung-Lee, 2006).

Different targets of intervention for types of PPM are also supported by research. For example, while ruminative thinking is not predictive of PP depressive symptoms, it does predict different aspects of bonding with baby, including mother perceived bonding, increased anxiety focused on baby, and reduced attachment (Muller et al., 2013). Particular powerful aspects of ruminative thinking have been identified. Namely, the distraction from other things, such as baby's needs, caused by excessive and unproductive attention to thoughts, provides some direction for therapy. Therefore, mindfulness may be especially beneficial in reducing rumination and improving bonding. Moreover, research suggests that bonding can be successfully improved even when depressive symptoms are maintained (Field, 2010). Therefore, the importance of focus on mother-infant interactions as well as maternal depressive symptoms has been emphasized (Brummelte & Galea, 2016). Interaction coaching, an intervention aimed at facilitating mothers' sensitivity and responsiveness to their infants' cues/behaviors, has demonstrated positive outcome. Namely, improvement in infants' sleep and feeding behavior, separation difficulty, and increased positive expressions (e.g., interest, joy) from infants in interactions with mothers have been observed (Bernard-Bonnin, 2004; Field, 2010). Maternal sensitivity to infant cues, decrease in maternal intrusive behavior, and improvement in maternal self-esteem have also been observed. This latter positive impact on sense of self may also impact SCC and underscores the effect of targeting cognitive vulnerabilities on aspects of PPM. Identifying rigidity and/or developing or highlighting areas of confidence in clarity and consistency with respect to the self, may help perinatal women integrate the changes that arise with motherhood. Moreover, the value of utilizing different treatment approaches is supported in research. For example, Psychodynamic therapy has demonstrated comparable treatment outcomes to interaction coaching (Bernard-Bonnin, 2004), and infant massage improves several

aspects of infant well-being (e.g., less irritability and sleep disturbance) and improved interactions with mother (Field, 2010). Overall, irrespective of the intervention implemented, SCC may be a prime target for prevention and treatment programs, and an optimal level should be aimed for.

Research with the MAQ and other measures suggest attitudes towards motherhood are another important vulnerability to experiencing depressive symptoms in PP women (Church et al., 2005; Phillips et al., 2010; Thompson & Bendell, 2014; Warner et al., 1997). The present research confirms and extends this knowledge regarding PP symtomatology to include its role as a predictor of other aspects of PPD, relationship maladjustment, namely bonding with baby. Therefore, the harmful role of this vulnerability does not seem to require much further confirmation to warrant raising the question of how and when to reduce the impact of unrealistic expectations on PPM. One validation study included a new measure of maternal optimism, consisting of items representing the more adaptive, flip side of unrealistic expectations. The study revealed a positive effect of prepartum optimism on both depression (as measured by the EPDS) and bonding with baby PP, suggesting that an optimistic outlook may represent a protective factor against depression and relationship maladjustment PP (Robakis et al., 2015). This represents support for the notion that treatment interventions should focus on improving both depressive symptoms and maternal care of infants, as mentioned above (Brummelte & Galea, 2016). Disconfirmation of expectations towards motherhood PP was also associated with more negative attitudes towards motherhood, suggesting the perpetuating nature of unrealistic expectations and exacerbation risk of leaving them unaddressed. These findings underscore the importance of early prevention when adjusting expectations.

Facilitating a more optimistic approach in specific areas of importance is also implied by the study finding. Namely, it is noteworthy that the optimism measure consisted of items related to emotional and sexual relationship with partner, body changes and image, parenting, baby's needs, and birth experience, which are all highly relevant and specific concerns to perinatal women, and unlikely to be addressed by a generic focus on psychological maladjustment. Rather, a focus on areas that would benefit from optimistic or realistic expectations that are most relevant to PP women would be prudent and maximize success of intervention efforts. Moreover, an optimal level of optimism is recommended, one that is realistic yet positive. Perhaps most importantly, expectations should reflect flexibility as opposed to cognitive rigidity regarding these specific areas of change, which tends to be associated with psychological maladjustment, and presumably also less effective relationship engagement skills. Lastly, the impact of unrealistic expectations for motherhood on particular subgroups of PP women has been identified. For example, unrealistic expectations has emerged as significant for women with unsettled infants (Phillips et al., 2010) and mediates the relationship between unsettled infants and PP depression severity (Church, 2005), underscoring the potential power of adjusting this variable with an ideal subgroup of PP women and identifying with whom to apply this intervention.

Despite frequent interactions with health professionals during the PP period, women with PPD are often reluctant to obtain professional help and disclose emotional problems, particularly depression, and have a tendency to minimize symptoms. The tendency towards silencing the self, and the double burden that is created, which contributes to PPM (Beauboeuf-Lafontant, 2007; Beck, 2002; Schreiber, 1996), underscores the importance of challenging the hesitation to reveal imperfections (i.e., Nondisplay) in the PP period in order to experience better adjustment. For

example, avoiding display of imperfection may directly impact the ability to have a positive

experience with baby by hindering women from seeking out instrumental support from partner

and others. Moreover, the reluctance to enlist support may promote carrying the child care tasks

alone, leading to a physical burden depleting time, energy, and resources that becomes too heavy

to bear and subsequently impossible to maintain well-being/functioning.

Research on the activation of the stress response in animal models shows that more time

away from offspring improves maternal care behaviors, namely mothers engage in more active

as opposed to less nurturing and more passive behaviors (Perrot, 2017). Given that PP women

report a lack of autonomy, and specifically free time, to clarify and process thoughts and feelings

and take care of physical appearance (Mauthner, 1999), this may be a useful strategy for women

who are struggling with bonding and isolating. Time away from baby and using this time to

engage in genuine display of struggles, challenges to previous self-concept, and concerns

presumably will allow mothers to come back with a new perspective. For example, Estes (1997)

describes and emphasizes the importance of "homing" for women, that is, an internal place

where "a woman feels of one piece." She asks the very pertinent question of how to balance

"going home" or taking "time away" with daily life, and suggests that it must be preplanned and

prioritized in the same way that it is when a child needs a mother due to illness. "For it is

unequivocally true, if a woman doesn't go when it's her time to go, the hairline crack in her

soul/psyche becomes a ravine, and the ravine becomes a roaring abyss." She further states that "it

is true that significant "home" can be reached by taking time away from the click-clack of daily

routine, time that is inviolate...."Solely for ourselves" means different things to different women.

For some being in a room with the door closed, but still being accessible to others, is a fine

return to home. For others though, the place from which to dive to home needs to be without any

interruption. No "Mommy, Mommy......No Honey, do we need anything from the grocery store" (p. 310). Taking this time away presumably requires recognizing the inability to cope adaptively or the presence of a new (level or type of) need or absence of skill needing development or attention and being willing to allow others to be aware of these circumstances as well. Moreover, the early period of caregiving is a time when leaving infants may be most challenging, both practically and emotionally, underscoring the need for education and active encouragement for women to practice this coping behavior. Given that relationship with mother is most important and depressive severity highest in this early period (McLaren et al., 2007), enlisting support from mother to create opportunity for time away may be extremely beneficial for PP women at this time. Interpersonal therapy (IPT) also seems appropriate as a psychotherapeutic approach to addressing the impact of PSP. Long term effects of individual IPT, evidenced by sustained recovery, have been demonstrated for women with PPD (Nylen, O'Hara, Brock, Moel, Gorman, & Stuart, 2010). Moreover, extended effects were evident even for women who did not recover during treatment course, the majority of whom experienced recovery later in time. Women who are reluctant to admit struggles, and therefore reduce PSP, may need to engage in individual IPT initially, however inclusion of close others may improve individual and relational functioning significantly (O'Hara et al., 1990). In support of this, PP mothers report wanting close others involved in their treatment and health professionals to inform family about their condition (Dennis & Chung-Lee, 2006). Few treatments or sessions include these others and perhaps should more.

All three of these vulnerabilities, SCC, Unrealistic Expectations, and PSP, seem ideal targets for early intervention and prevention. Women's health programs are likely to be accessed by more women than intervention programs PP. Thus, incorporating screening for these

vulnerabilities at this early stage may identify women who are ideal candidates for prevention of PPM. Measures for each of these are brief and user-friendly and could easily be implemented in a screening program (Rode, 2016). These vulnerabilities are also prime candidates for individual CBT and IPT intervention at this time. Both unrealistic expectations and lack of knowledge make women vulnerable to experiencing PPM (Mills et al., 1995). A focus on beliefs and perceptions in CBT and highly relevant themes to mothers, such as identity and role transitions, interpersonal patterns, and psychoeducation regarding course of recovery (maintenance, relapse) are covered in IPT (O'Hara et al., 2010). At later stages of the perinatal period, more creative and flexible approaches, such as in-home CBT programs (Ammerman, Putnam, Stevens, Bosse, Short, Bodley, & Van Ginkel, 2011) may be of most benefit. That is, catering treatments to the most relevant vulnerabilities, as well as the stage of perinatal, or PP period is recommended.

**Perceptions of Loss**

Depression in women is recognized as occurring in the context of external factors. Stress has been considered primary of these and research has focused on the impact of stress on the development of depression. In fact, both women with PPD and NPP women with MDD experience more stress overall, unique stresses, and are more vulnerable to the psychological impact of stress, compared to men (Terry, 1991). Motherhood adds to these types of stressors. That is, PP women are exposed to their own more extensive set of stressors that are unique to them and predict the development of PPD (Masih et al., 2007). Stressful events have been identified as playing a role in the development of depression in the CDS model. However, the model required to capture the mechanism and etiology of depression has been considered as more complex.

Certain types of stressors may have different activating effects and impact on depression. Namely, ongoing chronic stressors versus acute severe stressors may play different roles (Monroe & Simons, 1991). For example, for PP women, chronic stressors have greater impact for single women, while major life event stressors have greater impact for partnered women, and more so for cohabitating women when these stressors are recent (Reid & Taylor, 2015). Stressors related to loss are particularly insidious and impactful on depression etiology. They are often dichotomized into representing loss related to either interpersonal needs or independence needs, and often categorized as such by researchers. The influence of diathesis on stress must also be considered. Diatheses impact the perception, and both the nature and degree of stress individuals experience, or to which they are exposed (Monroe & Simons, 1991). Cognitive processes, such as appraisal have been shown to provide more power to the prediction of depression by capturing the meaning of events to the individual (Folkman et al., 1986a; Folkman et al., 1986b).

PP research follows this line of work and theory and demonstrates that cognitive processes related to stressful events are important for PP women (Masih et al., 2007; Pakenham et al., 2007). In line with the intention of the study to capture women's experiences, stressful events and their perceived impact was assessed. Moreover, the moderator related to stress in the CDS model was entirely based on PP women's perceptions of stress. During the PP period women are subjected to a host of losses in multiple areas of functioning that span the realms of both interpersonal/relational needs and independence/self-definitional needs (Beck, 2002; Mauthner, 1999). Moreover, perceptions of loss, more than type of loss, and greater loss of both types, irrespective of type of event, have been demonstrated to be predictive of greater depression (Masih et al., 2007). Therefore, perceptions of loss as identified by women themselves, and both types of loss, were expected to moderate the effect of cognitive

vulnerability on PPM. Moreover, women had the freedom to self identify the loss of both

interpersonal and independent needs related to the same event.

The role of perceptions of loss that emerged in the current study is consistent with extant

theory and research, and prediction identified in Hypotheses 3 (a), (b), and (g) and 4 (b). That is,

both types of loss contributed to the prediction of PPM, suggesting that women were

experiencing a lack of fulfillment of both types of needs. Moreover, this deficit, combined with

their personal vulnerability and immense loss and change, creates maladjustment. Overall, high

interpersonal loss, reflecting loss of emotional support, closeness, affection, or trust, did emerge

as an important contributor. This finding is consistent with the high number of interpersonal

stressors PP women are known to experience and their previously identified role in

maladjustment (O'Hara et la., 1990). In the current study sample, a large number of interpersonal

stressors were also endorsed.  Women had the opportunity to identify these stressors that were

related to interpersonal needs from a variety of experiences and their impact in the model was

tested. Of these, some were related to childbirth, mothering, and partner relationship, changes

that would be considered associated with early motherhood. However, an array of stressors

unrelated to early motherhood were also endorsed, and stressors that could be identified

objectively as representing independent needs, related to freedom, goal achievement, success,

and accomplishment, may have in fact represented interpersonal needs when reflected on by

participants. An analysis of the relationship between types of stressors and women's perceptions

of types of loss was not undertaken in the current study and this may be a direction for future

research. Importantly, women's perceptions of loss of both interpersonal needs and independence

needs manifested predictive power, which seems to support the assessment of these perceptions

in future research in order to conceptualize PPM.

Some diatheses were only activated sufficiently to significantly contribute to maladjustment when in combination with one or both types of loss, reflecting the importance of these interactions, as opposed to independent variables. Hence, with regards to the combination of cognitive vulnerabilities and perceptions of loss, interaction effects were powerful in prediction, in addition to main effects, supporting the fit of the general model proposed in the study (Hypotheses 3 and 4). Moreover, the combined effect of both types of loss was needed to activate the cognitive diathesis above threshold and create a vulnerability effect, specifically for the interpersonal expression of perfectionism, PSP. Although some vulnerabilities showed prediction across areas of maladjustment, different vulnerability-loss combinations were most predictive for each type of maladjustment, underscoring the importance of specific models for different types of maladjustment outlined earlier.

**Treatment Implications for Perceptions of Loss.** An important relationship between loss, the interaction with vulnerability, and maladjustment seems to exist. Moreover, the mechanism between loss and maladjustment may have a perpetuating effect. It may be that with loss of fulfillment of needs, such as goal achievement related to independence or interpersonal connections, women become more dependent, and additional expectations are placed on key relationships to fill this space. Moreover, women with cognitive vulnerabilities who experience loss may have limited coping resources to maintain well-being/functioning, subsequently relying more on their relationships with close others. For example, PP women report wanting both emotional and instrumental support from their partner relationship and perceiving this as a "necessity" (Dennis and Chung-Lee, 2006). This may be an unreachable task, putting strain on their partner and relationship. Presumably, these relationships cannot fully provide the fulfillment of needs that are missing, cognitive vulnerabilities lead to maladaptive relationship

engagement, such as PSP, and more loss is experienced in key relationships, leading to even

more vulnerability. In fact, emphasis on partner support and receiving low support from partners

is associated with both severity and incidence of PPD, respectively (Logsdon & Usui, 2001).

Interrupting this cycle, and namely compensating for perceived losses in crucial areas seems key

to PP adjustment. For example, social support has a significant protective effect for PPD

(Williamson et al., 2013), however the variety of support providers is important (Reid & Taylor,

2015), underscoring the value of spreading access to multiple relationships and contexts.

Moreover, using adaptive interpersonal expression of needs, as evidenced by women low on self

promotion, appears to promote positive adjustment in partner relationship, even in the face of

high loss and presumably greater reliance on partners. Identifying the most important perceived

losses for women, facilitating examining these, and providing opportunities for fulfillment of

needs outside of very close relationships are directions for treatment. One approach to

accomplishing this may be to draw from therapeutic tools typically utilized to address grief. For

example, return to employment after a maternity leave may represent a new challenge that

triggers particular stages of dealing with loss. Moreover, group IPT may be the ideal treatment

for addressing loss and providing new interpersonal experiences, as well as practicing adaptive

interpersonal expression of needs.

      **Group IPT.** Standardized group IPT is aimed at reduction of PP mood symptoms and

improvement in relationships outside of group in the context of role changes, via personalized

goal identification and attainment. Group formats provide the benefit of opportunity to practice

self-reflection and interpersonal and conflict resolution skills, normalizing experiences, and

receiving natural support from similar others. Moreover, practicing positive interpersonal skills

and adaptive expression of imperfection, may be ideal in a more neutral social environment, such

as a therapy group, which can subsequently be transferred to closer, more vulnerable

relationships. Indeed, for women with PPD, the inclusion of peer support from other women with

children in the early stage of motherhood, particularly new women, is perceived as especially

important in the recovery from PPD, whereas disclosing to friends with children is expected to

lead to competition (Dennis & Lee-Chung, 2006). This type of support is also associated with

higher satisfaction with treatment. Moreover, group IPT provides flexibility for women's

particular symptom presentation, individual interpersonal style and goals, and perception of

important losses. IPT is manualized and can be learned and administered by professionals

widening the scope of intervention.

The effectiveness of group IPT has been demonstrated (e.g., Klier, Muzik, Rosenblum, &

Lenz, 2001). For example, in a program evaluation outcome study examining variables relevant

to social functioning, a positive increase and overall outcome over the course of the group was

demonstrated for all participants (Maranzan & Choch, 2016). The greatest change was exhibited

for two aspects of social functioning, having a close other and social engagement, where 100%

of participants reported having someone whom they could call a close friend, and 88% of

participants actually had a visit with a friend outside of home or work in the past week by the

end of treatment. With regards to changes in depression, there was a moderate and statistically

significant decrease in symptom severity over time and course of the group. Therefore, group

IPT may provide an alternative support for women when close relationships are not sufficient, or

are experiencing maladjustment, and improve intrapersonal and interpersonal functioning outside

of the group context. There is some evidence that women who terminate IPT treatment early

have lower reported adjustment in relationship with partner prior to treatment, underscoring the

importance of engaging women who are struggling in close relationships in treatment in creative

and effective ways in order to interrupt this maladaptive cycle and facilitate starting to find

support (Klier et al., 2001). For example, several women who participated in the current research

accessed or created social media content related to motherhood and PPD, including a blog and

online support group. Engaging women in revealing imperfection to receive the benefits of

knowledge and support from peers may take many forms.

Creative treatments that include close relationships may also be necessary and effective

in improving adjustment. That is, better bonding with baby and increasing satisfaction with

partner and mother relationships can reestablish these relationships as sources of positive

experiences, support, and fulfillment of needs. For example, in the group IPT evaluation study,

receiving support in the form of childcare and mother-child bonding activities (e.g., circle) was a

key factor in creating access and additional benefits to services. The effectiveness of this form of

support and guidance has been demonstrated in other studies with more positive interaction

behaviors with infants observed (Bernard-Bonnin, 2004). Improving bonding with baby and

positive interpersonal experiences with other mothers, that include supporting them (Dennis &

Chung-Lee, 2006), may serve to fulfill not only typical interpersonal needs, but also provide

reframed self-definitional sources of success, accomplishment, and meeting expectations.

Ultimately, women will be the experts on the nature of these needs and their fulfillment, and this

should be explored with them. Group IPT provides an approach to both explore and fulfill some

of these needs, as well as reframe perceptions. Other creative approaches, such as in-home CBT

(Ammerman et al., 2011) and more flexible individual IPT programs that include baby, mothers,

and partners, will presumably also help to address maladjustment and prevent the increased

contribution to perceptions of loss that ignoring these may perpetuate.

**Characteristics of Health Professional and Setting.** Lack of knowledge of PPD and

acceptance of myths is a significant help-seeking barrier and interferes with recognizing

symptoms of depression (Mills et al., 1995), while open discussion about PPD would help reduce

stigma and promote help-seeking, according to women with PPD (Dennis & Chung-Lee, 2006).

Specifically, the knowledge obtained presumably would validate and reframe perceived

imperfections related to changes to self-concept and unrealistic expectations, for example. This

suggests that psychoeducation is a valuable intervention for PPD (Bernard-Bonnin, 2004).

However, despite frequent contact with health professionals during the PP period, mothers are

often reluctant to obtain professional help and disclose emotional problems, particularly

depression (Dennis & Chung-Lee, 2006). Characteristics of both the health professional and

setting have been identified as playing a role in both accessing and satisfaction with treatment.

Specifically, satisfaction with treatment is strongly related to perceived relationship with health

professional. Contact with a health care professional who normalizes, that is, dismisses a

mother's symptoms or feelings, conducts inappropriate assessments, or displays insufficient

knowledge of PPD leads to reluctance to pursue treatment. Research shows that nurses who

generally have the most frequent access to PP women agree that their provision of counselling

for mild PPD is advisable (Bernard-Bonnin, 2004; Segre, O'Hara, Arndt, & Beck, 2010). This is

often implemented in home visits and improvements to mothers' mood and attitudes and infants'

attachment security and psychomotor development have demonstrated their effectiveness (see

Bernard-Bonnin, 2004). Moreover, focus on the PP period specifically and single-contact

interventions are beneficial (Field, 2010). For example, the success of listening visits, an

empirically supported treatment for depression implemented by non-mental health care providers

has been examined. One study showed that comfort and views on the value of this treatment

were more positive for providers from one organizational setting (prior to training), resulting in

markedly greater number of providers actually delivering the treatment, compared to another

setting where providers were less comfortable with providing listening visits (Segre, McCabe,

Stasik, O'Hara, & Arndt, 2012). This differential outcome occurred despite views being similar

after training. Moreover, it was the organizational setting, as opposed to the views of the

particular providers, that was identified as having the greatest impact on this discrepancy.

Similarly, physicians/paediatricians may be the ideal initial source for screening and guidance

for PPM, yet they report feeling underqualified for this task (Bernard-Bonnin, 2004). These

findings serve to support the importance of flexibility, positive views held by health

professionals, rapport in health-care relationships with patients, and adaptability of

organizational settings to needs of PP mothers to increase access and effective treatment

outcome. Moreover, facilitating informed health professionals with evidence based practical

knowledge is essential.

  **CDS Model Summary.** In summary, the cognitive-diathesis model proposed for PPD

was a good fit in the current study. Perceptions of loss played a crucial role in combination with

diatheses, confirming the power of women's perceptions of their stresses as a potent moderator

between their vulnerabilities and experiences of maladjustment (Masih et al., 2007). Perceived

interpersonal losses clearly have an impact on women's maladjustment PP and influence their

relational experiences with baby and partner. This finding provides some evidence for a match or

congruency effect between type of loss and type of maladjustment in the context of self

categorized types of loss. PPM is also experienced in response to perceived independent loss.

Moreover, with particular vulnerabilities, namely PSP, and types of maladjustment, only the

combination with both types of loss triggered greater maladjustment. The inclusion of participant

directed categorization of perceptions of loss as moderators and both types of loss in future tests

of the CDS model in PP women is supported. Replication of the current model consisting of

vulnerabilities related to SCC, PSP, and expectations for motherhood, and symptom and

relationship maladjustment is recommended, as well as new variables that are relevant to PPD.

Assessment of variables, such as silencing the self and stigma, may be particularly informative

for facilitating access to treatment, and examining the relationship with current vulnerabilities,

such as unrealistic expectations and particular aspects of maladjustment, would expand PPD

conceptualization.

**CDS Model of Major Depression for Nonpostpartum Mothers**

      **Overview.** The same CDS model for depression was tested with the NPP group (in an

exploratory way) to elucidate the etiology of NPP major depression in mothers compared to

PPD, and provide predictive evidence for the distinction hypothesis. In contrast with PPD, the

CDS model for MDD in NPP mothers was a better fit for predicting depression (as opposed to

relational maladjustment), as expected and proposed in Hypothesis 4 (e). With regards to

maladjustment, different variables emerged as significant for each group of mothers when the

same measure of depression was used, also as expected and proposed in Hypothesis 4 (c).

Moreover, while SCC, Expectations for Motherhood, Trait Anxiety, and PSP were expected to

be important predictors for the PP group, no hypotheses were identified for these variables in the

NPP group. In the NPP group, while there was a main effect for trait anxiety in the prediction of

depression symptoms, state anxiety emerged as an important predictor, independently and in the

interaction model, across different aspects of maladjustment examined, that is both depression

and relationship maladjustment with partner. Different facets of PSP were expected to be

important predictors in the etiology of NPP MDD, compared to PPD, and this hypothesis was

supported. Namely, the passive facets, Nondisplay and Nondisclosure, emerged in the model.

Unlike the CDS model for the PP group, Self Promotion did not emerge as a significant predictor

of maladjustment in the NPP group.

**Identifying Cognitive Vulnerability for Depression in NPP Sample.** Whereas the

proposed CDS model for relationship maladjustment is a better fit for the PP group, a CDS

model for depression emerged for the NPP group, supporting Hypothesis 4 (e). That is, cognitive

variables predict depression better (i.e., more vulnerability identified and statistically significant

prediction) in interaction with loss for predicting NPP MDD. In the NPP group, when predicting

depression (as measured by the BDI), main effects for trait anxiety and nondisclosure of

imperfection emerged in the expected direction, exhibiting a vulnerability effect predicting

general depression symptom severity at higher levels of each cognitive style. In combination

with each (or both) type of loss, interpersonal or independent, higher nondisclosure of

imperfection, nondisplay of imperfection, and state anxiety, and lower SCC each also predicted

higher depression severity. Therefore, similar to the PP group, higher levels of maladaptive

vulnerabilities and lower levels of adaptive styles had an obvious negative effect on depression

when combined with loss. However, the negative impact of higher SCC on relationship

maladjustment with mother (and baby) was unique to the PP group.

**Cognitive-Diathesis-Stress Model Predicting Depression.** With regards to interactions

with perceptions of loss, both types of loss are predictors and moderators for both groups of

mothers, however the nature of the effect is dependent on the other factors in the model, namely

type of cognitive vulnerability and maladjustment, and is distinct for PPD and MDD. For

example, in the NPP group the largest interaction effect was for state anxiety. Although a

significant interaction effect was found with both types of loss, the particular combination of

high state anxiety and high independent loss in predicting depression in the NPP group

demonstrated a large vulnerability effect. Specifically, at high levels of loss, the (negative)

impact of state anxiety on depression is strong, compared to a minimal impact at lower levels of

loss, and for women with higher state anxiety, the (negative) impact of loss on depression was

strong, compared to a minimal impact for women with lower state anxiety. The effect of

Nondisclosure is similarly activated when combined with either independent or interpersonal

loss, suggesting the potential importance of different types of perceived loss in activating

diatheses above threshold and triggering depression symptomatology. Moreover, the increased

combined (three-way) effect of cognitive vulnerability and both types of loss emerged in the

NPP group. For example, SCC became a stronger, significant predictor when combined with

both independent and interpersonal loss. Namely, compared to those with higher SCC, NPP

women with lower SCC showed a stronger negative relationship of independent loss on

depression. Specifically, in this model, for women with low SCC and perceived high

independent loss, a remarkably large vulnerability effect of high depression severity was

observed, decreasing with less loss, whereas a minimal effect of loss on depression was observed

for women with high SCC. Therefore, in the CDS model for (NPP) MDD, both types of loss

individually and collectively demonstrate an activating effect on cognitive diathesis and an effect

of depression. Independent loss in particular may clearly play a strong moderating role in the

etiology of depressive symptoms for NPP mothers with MDD.

**Predicting Relationship Maladjustment in NPP Major Depression.** The CDS model

for relationship maladjustment with mother and partner was also tested for (NPP) MDD. State

anxiety continued to have a strong main effect on partner relationship maladjustment. However,

interactions combining each type of loss with vulnerabilities did not generally emerge as a good

fit for predicting relationship maladjustment for women with (NPP) MDD. Namely, in the

interaction models between cognitive vulnerabilities and each type of loss, only interpersonal

loss independently, albeit consistently, predicted partner relationship maladjustment, suggesting

a congruency or match effect of type of loss and maladjustment type. This is consistent with

theory and research on classic NPP depression and the match effect, applied to another part of

the model, loss and maladjustment, as opposed to just vulnerability and loss in the prediction of

nonrelational maladjustment (i.e., depression). No significant interaction effects of cognitive

vulnerability and loss emerged for the CDS model of relationship maladjustment in NPP group,

supporting Hypothesis 4 (e).

     **Treatment Implications for NPP Mothers.** NPP depressed mothers with greater current

anxiety, lower SCC, and who enlist different types of concealment appear to struggle more with

relationships with close others, namely partner, and with depressive symptoms, than mothers

who exhibit these tendencies less. The experience of losses predicts this struggle as well with

several significant interactions emerging in the prediction of depression severity. These

vulnerabilities presumably also create distance in relationship, that is if a mother is both

struggling and passively attempting to conceal this, she will struggle with accessing support from

others and the reported experience of a "double burden" for women with depression is created

(Schreiber, 1996). Moreover, the impact of cognitive vulnerabilities, and the interactions with

loss, on depressive severity was most evident and apparently powerful for NPP women

(compared to relationship maladjustment and PP women). In fact, the impact of concealment

may be even more insidious and is highlighted as PSP has been noted to play a role in suicide for

women, especially when accompanied by other risk factors (Hassan, Flett, Ganguli, & Hewitt,

2014). The present study seems to confirm and clarify the possible mechanism for this condition

and counterproductive coping that interferes with receiving support from close others for

depressed mothers. For example, for PP women, intrusive thoughts regarding harming baby

leads to shame and guilt (Beck, 2002), which creates reluctance to engage in help-seeking

behavior (Dennis & Chung-Lee, 2006). This phenomenon appears to be similar for both PP and

NPP mothers, in that the reasons cited by PP women, namely shame, stigma, and fear of child

apprehension may exist for NPP women as well (Dennis & Chung-Lee, 2006), suggesting targets

for outreach and intervention. In fact, shame resilience has been identified as necessary for

vulnerability and well-being (Brown, 2010). The particular aspects (i.e., content and nature) of

anxiety impacting NPP mothers' maladjustment experiences should be investigated in order to be

targeted further. Interventions noted earlier for addressing low SCC should also be considered

for NPP women. Similar to consideration of utilizing diverse professionals for screening,

assessing/monitoring, and supporting/guiding women with PPD, the role of medical

professionals, namely physicians and paediatricians, should be considered for NPP MDD in

mothers. One author suggests that physicians maintain a "high index of suspicion" of depression

in mothers due to the risk for harmful impact on children (Bernard-Bonnin, 2012).

     **Summary of Cognitive-Diathesis-Stress Model of Nonpostpartum MDD.** The finding

that SCC predicts depression is consistent with previous research on the association between low

SCC and psychological maladjustment (Ayduk et al., 2009; Campbell et al., 1996; Roepke et al.,

2011). The evidence with mothers and the interaction with perceptions of loss in a model of

prediction, may represent an addition to extant research. Similarly, the associations of both PSP

and co-morbidity of anxiety symptoms with depression are not novel. The present research

suggests that the impact of these constructs are insidious on the depressive experience. For NPP

women, although anxiety symptoms may not fully capture the symptom profile of depression in

mothers, state anxiety has a pervasive impact on maladjustment and appears to be a particularly

negative vulnerability across different types of maladjustment, and therefore should be

prioritized as a target for treatment with mothers. Moreover, state anxiety is susceptible to loss,

creating a stronger impact on maladjustment, suggesting that loss should be a target of treatment

for depressed mothers. Encouraging more active authentic interaction with others and developing

a more confident/defined self-concept are worthy treatment targets to help depressed mothers

recover and improve psychological functioning, particularly reduce classic depressive symptoms

captured by the BDI. Lastly, as both independent and interpersonal losses demonstrated an

activating effect of cognitive vulnerability, they should be considered in treatment for NPP

mothers.

**Cognitive Diathesis-Stress Model and the Distinction Hypothesis**

       **Perfectionism and Distinction.** One may speculate about the different role of particular

manifest expressions of perfectionism in the two samples of mothers. Women in the PP period

may be unable to conceal demonstrations and avoid behaviors that reveal imperfections when

their most prominent role is child care. They are inevitably observed in this role by health care

providers, family who engage with their baby will by extension observe their ability to engage

with and care for the baby, and leaving the house provides opportunity for others to observe

navigation of challenges, doubts, and behaviors in the role of mother. Mothers with older

children conversely may be able to avoid direct observation of behaviors that they wish to

conceal more readily due to engaging in fewer behaviors, particularly novel child care behaviors,

that they feel the need to conceal or perceive as flawed. Consequently, nondisplay does not result

in the same insidious effects on their relationships compared to women with PPD. Indeed,

mothers in the PP period are especially prime for being observed, whether judgmentally, with a

focus on flaws and shortcomings, or compassionately. Women who have a high tendency to avoid revealing imperfections, and/or have low sense of competence in their role as mother, may be highly sensitized to these circumstances and increase their concealing tendencies. Hence, more reliance on nondisplay as a means of concealing imperfections. The reality and concern over exposing imperfections may cause women to isolate, as avoiding display of imperfections may otherwise be impossible. This may be why PP women who are struggling also actively self promote at maladaptive levels. These strategies for concealment and creating a desirable veneer may be their only option to balance out the display of their perceived undesirable experiences, qualities, and behaviors. When they do engage in SP, it may be with those who more easily can observe their behaviors, such as in their partner relationship, that is, with the one person who will inevitably see them in closest proximity and in turn with whom they are most exposed. This attempt at avoidance of exposure, in turn, may interfere with gaining support and cause strain in these particular relationships. Because vulnerability is necessary for connection, which is the basic need underlying relationship adjustment, one researcher and author proposes that vulnerability, and particularly authenticity, is crucial to happiness and well-being, including effective parenting and fulfilling relationships (Brown, 2010, 2012). For PP women and NPP mothers in particular, learning to practice vulnerability and authenticity may also be necessary for their recovery from depression.

The general negative impact of nondisplay appears to be similar for PP and NPP women, that is, creating maladjustment. Namely, engaging in hiding of imperfections with regards to behavior, particularly in combination with much perceived loss in different areas of need, leads to greater potential impact on maladjustment. Moreover, the impact can be on either a symptom (MDD) or interpersonal level (PDD), depending on the stage of motherhood. The demonstrated

role in the prediction model of depression as well as indication of possible higher engagement of

verbal concealing of imperfection for mothers with NPP MDD, compared to women with PPD,

suggests that women with older children also use the other passive style, nondisclosure. They

may not need an additional active style of PSP, (i.e., self promotion) as much with most others

with the use of these two styles, or may engage in SP resulting in a less negative impact on their

functioning. Therefore, while PSP is important as a vulnerability to PP and NPP mothers,

specific types should be targeted for each group of mothers in intervention and treatment.

      **Perfectionism Summary.** Overall, PSP appears to have a greater negative impact in

relationship for women with PPD, and a greater impact on depression symptomatology for NPP

women with MDD. Namely, the tendency to avoid displaying perceived imperfections and to

self promote perceived desirable qualities contributes to maladjustment with partner for PP

women. This is quite logical considering that women with PPD are presumably needing and also

may be seeking support from their partners at a time when their infants need high levels of

engagement and care, and their role as mother is highly salient. Both Nondisclosure and

Nondisplay impact depression severity for NPP women. For mothers with depression,

unwillingness to disclose, in particular, may interfere with the opportunity to gain important

psychoeducation, and by extension treatment, thereby creating increased vulnerability to greater

symptom severity, suggesting that psychoeducation should be prioritized for NPP mothers.

      **Summary: Cognitive Diathesis Stress Model and the Distinction Hypothesis.**

Anxiety, particularly state anxiety, and perfectionism namely, passive PSP (nondisplay and

nondisclosure) are the most important vulnerabilities for the NPP mothers with MDD in this

study. Higher SCC does appear to contribute to protecting against depression severity and low

SCC is a vulnerability, even in the absence of great loss. The role of SCC is much less prominent

in predicting maladjustment for NPP women compared to PP women, as is unrealistic

expectations for motherhood, which did not emerge as a predictor for NPP mothers.

Furthermore, a unique vulnerability role of higher SCC is newly identified for only PP women,

impacting relationships with mother and baby. Overall, the focus on different cognitive

vulnerabilities, different measures of depression, and different aspects of maladjustment for

mothers with PPD and NPP mothers with MDD seems warranted based on best fit models of

prediction for each group of women in this investigation.

**Social Desirability Bias**

Prior to examining the content of participants' self reports, the approach to testing, that

is, possible response bias and validity of content, was considered. A measure of social

desirability bias (SDB), the MCSDS (Crowne & Marlowe, 1960) that captures both self

deception and impression management, however primarily impression management, driven by

the need for approval, was included in the study. The MCSDS is considered free of pathology

related content and appears to measure both some reality and some distortion, and both

conscious and unconscious motivation (Dodaj, 2012; Paulhus, 1991; Paulhus, 2002; Trapnell &

Paulhus, 2012). Cognitive styles, perceptions, relationship satisfaction, and symptoms all

emerged as vulnerable to a degree of SDB. The particular response content that was sensitive to

SDB was different for each sample group of mothers.

**Social Desirability Bias and Postpartum Mothers.** In the current study, the overall

level of social desirability bias for PP women was higher than found in previous studies

(Dipietro et al., 2007). For PP women, statistically significant results included moderate

associations with relationship adjustment with partner, self-efficacy, and nondisplay of

imperfection (a facet of perfectionistic self presentation). Namely, PP women with more SDB

reported better partner relationships, higher self-efficacy, and less tendency for concealing behaviors believed to represent imperfection. Regarding partner relationship, it may be that women who engage in impression management also engage in adaptive relationship behaviors, or alternatively have a greater need for their relationships to be perceived as well-adjusted. Due to the nature of the MCSDS as a nonpathological measure that taps more unconscious processes, the former explanation seems possible, however the relationship between greater SDB and underreporting of undesirable experiences, or overreporting of desirable experiences, is also fitting. Moreover, the latter theory may provide some contribution to explaining the unexpected finding, contrary to previous research, of no difference in partner relationship adjustment between PP and NPP mothers, and even slightly higher adjustment for PP mothers. Therefore, impression management, marked by the need for approval, may result in some positive effects for self and on relationships or interfere with honest reporting of relationship adjustment with partner for women with PPD.

SDB also emerged as associated with one of the adaptive styles of goal orientation of the depressive experiences questionnaire (DEQ) for women with PPD. Specifically, the tendency to value goals related to independence and self-definition was associated with SDB. This is consistent with previous research, with women from the general population, which found associations with this orientation and no association between SDB and the tendency to value interpersonal goals (Zuroff et al, 1983). Rather, negative associations between self-criticism and SDB have revealed a tendency to minimize this maladaptive individually focused style. The positive association for PP women between SDB and self-efficacy, the adaptive individually focused orientation, fits with the notion that an adaptive style, even an individually focused one that may tend to be less socially approved of for women, taps less need for bias in reporting.

Perhaps, this is especially the case for women with PPD if this style would not interfere with positive social interaction or approval/reward, compared to perceived relationship with partner, for example.

Previous research on perfectionistic self presentation (PSP) with a student population demonstrated that all three facets had a small significant negative relationship with social desirability (Hewitt et al., 2003). The current study mirrors past findings, and demonstrates a unique bias for women with PPD. Specifically, although the nature of the relationship was the same for all three facets of PSP, with greater reported self-presentation being associated with lower SDB, only one facet, that of concealing behaviors reflecting imperfection, nondisplay, had a stronger, moderate and significant negative association with SDB. Therefore, the tendency to promote oneself positively or avoid verbal disclosure of faults may be less prone to impression management and approval seeking associated with SDB than the tendency to hide imperfect behaviors. This finding seems to reflect a much greater concern about presentation and vulnerability associated with exposing this latter specific tendency of nondisplay of imperfection. Moreover, the association with only one facet of PSP speaks to the existence of different facets of interpersonal expression of perfectionism, and the differential reaction in degree of vulnerability and need for approval triggered by each facet.

SDB also had small negative associations with depression, measured by BDI, and trait anxiety, and small positive associations with depression measured by EPDS, and state anxiety. The relationship between SDB and both the BDI and trait anxiety is consistent with previous research with regards to both the direction and size of the association between these constructs (Dipietro et al., 2007; Lau, et al., 2007; Van Busell, et al., 2010). The positive correlation with reporting of EPDS/PPD specific symptoms and state anxiety is consistent with the notion that the

EPDS captures a different set of symptoms than the BDI, and seems to reflect that the measure

will also capture different sensitivity to SDB, as women with PPD respond differently to these

two measures. With regards to the nature of the relationship between SDB and bonding with

baby, the current study does not mirror previous research which showed higher SDB was

associated with better reported bonding (Van Bussel et al, 2007b). The current sample of women

with PPD did not demonstrate this bias. In fact, a small, positive association was found reflecting

an association between higher SDB and poorer bonding. However, this relationship was not

significant. Overall, these associations between SDB and depression, anxiety, and bonding with

baby were neither significant nor robust.

        **Social Desirability Bias and Nonpostpartum Mothers.** In the current study, the overall

level of SDB for the NPP group was comparable to previous research for NPP mothers (Lakey &

Heller, 1985). For women with major depression, SDB was moderately and significantly

associated with greater depression on a postpartum depression measure, EPDS, the perceived

experience of greater loss of all types (general, interpersonal, and independent), as well as

greater impact of life events. In a previous study, the accuracy of reporting negative life events

and psychological symptoms, namely depression, in women was examined (Lakey & Heller,

2012). Demonstrated congruence with a close other's rating, and the positive association of these

congruent ratings with both depression symptoms and life events provided support for the

accuracy of perception of life events and depression. The authors concluded that there was no

evidence for over-reporting bias associated with depression or social desirability. Moreover,

association between negative events and psychological distress was significant when measures of

events free of reporting bias were used, suggesting that life events may play a genuine role in the

development of depression over and above SDB. This previous study differs from the current

research in that it examined a nonclinical population with substantially lower levels of distress,

and a focus on life events, as opposed to perceptions of loss. Therefore, the stronger and positive

association of SDB in the current study may be attributed to the population of depressed mothers.

Parous women with a tendency to seek approval and who may be balancing multiple

roles, often subject to private and public scrutiny and opinion, may also be more prone to

contextualizing their depression within perceived losses (Beauboeuf-Lafontant, 2007; Stoppard,

1999; Ussher, 2010). That is, they may identify strongly with this narrative for their struggles,

and in turn report greater loss. The demonstrated consistency of the relationship between loss

and SDB across any type of loss experience (i.e., all loss types and impact of life events) further

suggests that the content is not as significant in motivating socially desirable responding (SDR),

rather the experience of reporting on loss in general is associated with SDR. That is, SDB clearly

appears to be associated with different ways of identifying perceived impact of stress equally.

The cause of the relationship between SDB and reporting depression symptoms associated with

PPD (EPDS) and not major depression (BDI) is unclear. Women with major depression,

including higher levels associated with greater psychological distress, and arguably more

vulnerability, may be more reluctant to report classic depressive symptoms, whereas admitting to

feeling "anxious" or "overwhelmed" may be perceived as more desirable. Preliminary analyses

revealed that the EPDS demonstrated greater sensitivity to loss than the BDI for the NPP group.

The consistent nature of SDB in response to both EPDS item content and reporting loss and its

impact suggests some coherency in the type of experience being captured by these measures and

in women's responses. Namely, it is possible that the EPDS taps less vulnerable and stigma

related aspects of psychological distress, or symptoms that women with major depression are

more willing to endorse. Similarly, a contextualized experience of depression within losses may

be perceived as more socially desirable. Previous research findings to illuminate this question

further has not been identified by the current researcher.

      **Social Desirability Bias Summary.** Clearly, a degree of SDB emerged in the assessment

of women's perceptions of their depression symptoms, partner relationships, loss, and

willingness to display imperfection. Nevertheless, when SDB was controlled for in analyses, the

overall findings remained the same. This underscores that SDB did not contaminate the results of

the study and women's other tendencies, experiences, and attitudes, emerged independent of their

possible need to present in a particular fashion to the researcher or engage in ego defense. The

findings related to SDB are interesting in that even at the level of response bias, the reluctance to

report or denial of specific psychosocial aspects of their lives differed for women with PPD and

NPP mothers with MDD.

## Demographic and Descriptive Data: Different Stages of Motherhood

      Demographic and descriptive data on several aspects of women's past and current lives,

including mental health history, pregnancy, childcare history, and relationship, educational, and

socioeconomic status was collected. No significant differences were found between groups on

these aspects of participants' lives. However, this demographic information, namely significant

relationships between some of these variables, provided insight into history for each group of

participants and a description that may reflect their unique experiences and point to directions for

future research. For the PP sample, higher education was associated with having fewer children,

and both of these variables were associated with better bonding with baby. For the NPP sample,

age, that is being older, emerged as having significant associations with several aspects of

women's lives, such as longer partner relationship duration, and both these variables were

associated with greater loss. A positive relationship between age and planning pregnancies

emerged, which was also associated with having a history of a child in ICU after birth. Having a child in ICU was additionally associated with a history of major depression.

Regarding mental health history, for both groups of mothers, PP and NPP, a history of depression was associated with another previous episode or current depression. Namely, in the NPP group, a history of occurrence of major depression (MDD) had a positive relationship with a history of PPD and current depression severity (BDI). This finding corroborates past research on the increased risk for an episode of major depression specifically (Cooper & Murray, 1995) with a history of experiencing depression at both time periods. A positive association between history of PPD and history of MDD was also found in the PP group. To some extent this conflicts with previous findings that compared to NPP women with MDD, women with PPD were less likely to have a prior history of depression, suggesting that some women only develop depression during the PP period (see O'Hara, 2009 for review). With regards to recurrence of depression, consistent with previous findings, and similar to MDD, past episodes of depression do predict future episodes of depression in women with PPD (O'Hara et al., 1990). However, women who have only had a PPD episode are at lower risk for developing MDD, and higher risk for developing PPD following a future pregnancy than women who have had an episode of depression at both time periods (PP and NPP). This latter group of women are at higher risk of also developing another episode of MDD, as opposed to only PPD (Cooper & Murray, 1995), suggesting that the participants of the current study are in the category of being at higher risk for depression at both time periods. Moreover, the current findings are consistent with previous research evidence that for both women with PPD and NPP women with MDD, recurrence of depression is similar in that past episodes of depression predict future episodes of depression (O'Hara et al., 1990; O'Hara et al. 1991).

**Postpartum Mothers.** Within the group of PP mothers, being in different periods of PP seemed to correspond with different stages of motherhood. Namely, mothers who were earlier in the PP period had greater current depression severity, suggesting that depression occurs at different degrees of severity at different times in the PP period. Specifically, the early PP period may be a time of greater maladjustment (Kammerer et al., 2009; O'Hara et al., 1990) due to the high/intense needs of an infant, immediate and substantial changes, and physical demands occurring at this time. Prior to the PP period, pregnancy appears to also be a period of difficulty corresponding with intrapersonal and interpersonal challenges. Specifically, in the current study, the closer a baby was to being born full-term, that is, the longer the pregnancy, the greater state anxiety a woman experienced and (the higher the gestational age of baby at birth), the less relationship satisfaction women reported with their mother and partner. This is consistent with research regarding the onset of PPD possibly occurring in pregnancy, and the higher risk for women who struggle in pregnancy to develop PPD (O'Hara et al., 1991). Contrary to some previous findings, breastfeeding did not emerge as a significant variable (Akman et al., 2008; Beck, 2002) and the finding that unplanned pregnancy is associated with greater depression (Manzi et al., 2010) was not corroborated. However, in contrast to the reported difficulty associated with longer pregnancy, having a planned pregnancy was associated with multiple positive mental health factors of psychological well-being, marked by less trait anxiety, less self-criticism, and greater self-concept clarity.

**PP Mothers and Relational Functioning/Variables**. For PP women, history of major depression and current depression was positively associated with what is typically considered an adaptive type of interpersonal goal orientation, Relatedness, (Blatt et al., 1996). This maladaptive role is consistent with some findings with PP women (Vliegen et al, 2006) and emerged in the

present research. Several aspects of relational well-being also emerged as associated with demographic aspects of PP mothers' reports. Women who had a baby who was in ICU post-delivery reported higher satisfaction with relationship with mother. Women who exhibited less dependency (maladaptive interpersonal orientation), less self-criticism (maladaptive independent orientation), and experienced less general loss had longer lasting partner relationships. Consistent with previous research, in the current study these variables were examined as predictors and moderator of psychological and relational maladjustment, respectively (Vliegen et al., 2006). However, causation, and specifically the direction of the relationship, cannot be identified by correlational level of analysis and would require further research inquiry to interpret.

**Nonpostpartum Mothers.** In the current sample of NPP mothers with MDD, older mothers, compared to younger mothers, were more likely to have an older youngest child, and the older their youngest child was the less likely their children were to be in their mother's care. In general, number of children was only moderately associated with having children in care for the NPP group. NPP mothers with MDD who had an older youngest child also exhibited less unrealistic expectations (i.e., more positive attitudes) for motherhood. Presumably, a mother with older children may have experienced the dreaded aspects of motherhood and confirmed that her expectations were unfounded, or adjusted to the reality and developed more realistic expectations. The finding that NPP women had significantly less unrealistic expectations than PP women and that this variable did not emerge as a predictor of maladjustment for NPP mothers in the current study seems to support this notion. If this is the case, this would bode well for treatment outcome, as expectations may be malleable and susceptible to experience and other

forms of formal, planned intervention as discussed above. However, having more children, which was reported by older mothers, was associated with poorer adjustment with partner.

These findings may reflect a different mothering stage for older mothers in the NPP group that is in contrast to younger mothers, and mothers in the PP period who have at least one child depending on them for basic needs. That is, NPP women with MDD, and older women in particular, are in a period of their lives during which their children are older and some have left their parental home, whereas PP mothers have at least one child requiring direct care and unique parenting to this period of development. Thus, the type of parenting requirements and role as mother at this later stage is presumably different from that required in the PP period. It should be noted that correlational analyses were performed in an exploratory manner. Hence, further research inquiry is needed to reliably explicate the (demographic related) experiences of mothers at different stages of motherhood and peripartum.

**Interview Observations: Different Motivations for Participation, Biases, and Conceptualizations of Depression**

**PP Women and Stigma.** At the initial stages of recruitment for the study, it was expected that due to the time and energy required for the intense demands of taking care of an infant, it would be more challenging to recruit PP mothers compared to mothers at other stages of child care. However, the opposite outcome occurred. More PP women expressed interest and contacted the study, resulting in a slightly larger PP sample, compared to the NPP sample. The next screening stage of the study provided an opportunity to gather informal information on women's attitudes and feelings regarding their depression. Specifically, observations in the interview stage revealed different potential motivations for participation for women in each group, and different apparent conceptualizations of their depression. PP women tended to

emphasize appreciation for the research being conducted and the importance of bringing awareness to the topic. Moreover, a strong desire to contribute to helping other women who may struggle was expressed, presumably an altruistic motivation. In fact, a few women initially refused to accept compensation for their participation, citing this motivation of contribution as their reward for participating. Overall, one anticipated barrier to recruitment, stigma, appeared to be quite low among PP women. Of course, it is unknown whether stigma may have played a role in selection bias to some degree, in that women who did associate greater stigma to their psychosocial distress would not have contacted the study to participate. Based on the PP mothers who did participate, using desire to contribute to awareness and help others may provide a motivation for facilitating accessing support and treatment planning (Dennis & Chung-Lee, 2006). For example, based on the researcher's clinical experience of facilitating an IPT group for PPD, women often struggle to follow up after screening and commit to attending the group for a variety of reasons. However, once in attendance, their empathic and supportive skills are well developed and utilized, whereas self-focus, reflection, and support seeking is at times more challenging and engaged in with less ease/more reluctance. Identifying motivations for different groups of PP women may also be beneficial to helping women access support. Within the PP group, some mothers, namely those with more children and a history of PPD, exhibited more social desirability bias. The current study included (and did not differentiate between) both primiparous and multiparous women and women with a de novo or recurrent episode of PPD. It is possible that mothers with greater child care demands or a longer history of PP difficulties have a different perception of their depression and psychosocial functioning related to social approval, and in turn different intervention needs.

**NPP Women and Minimizing Bias.** Some NPP women exhibited a different approach to the study and apparent conceptualization of their depression. Namely, they appeared to be more concerned about anonymity and others knowing that they may be experiencing depression, suggesting possible greater stigma for depressed mothers with older children. The smaller sample of this group that was recruited may reflect more uncertainty about identifying their own depression and even the importance of placing attention on it as a mental health condition. This is consistent with the ambivalence about using the word depression leading to women "suffering in silence" cited in qualitative research (Burr, 2002; Scattolon & Stoppard, 1999). This outcome may reflect a minimizing bias for mothers with depression (Ussher, 2010). In one study, using both qualitative and quantitative research methods, maternally focused worry was identified as an under-recognized phenomenon leading the researchers to suggest that it requires more clinical and research attention (Phillips et al., 2009). The finding that NPP women in the current study who engaged in greater impression management reported more loss, more anxiety related symptoms, and anxiety contributed significantly to their depression and relationship with partner, may support this supposition. In contrast, the notion that PPD was a worthy topic of research and discussion was expressed consistently by participants and others contributing to the study. On one hand, this provides grounds for optimism that efforts in recent years to identify and recognize the importance of PPM has been effective, creating a new positive trend of reduced stigma and greater awareness. On the other hand, it may be important to remember that as one group's needs in a population are recognized more, another's are not forgotten or minimized and remain on the radar. This seems to be the inherent balance required in the decision to highlight any psychosocial issue. Considering this balance is the responsibility of researchers and advocates in their contributions, and is also recognized by this researcher.

**Self Perceptions of Mental Health and Over-Pathologizing Bias.** Participants' history and current overall mental health was discussed in the initial screening stage in a semi-structured format. One bias in particular, applied to past and current mental health, seemed evident. None of the participants were identified as having severe psychopathology. However, in the sample as a whole, women were often uncertain about their diagnosis, and tended to over-pathologize their thoughts and behaviors, particularly their interpersonal behaviors. This tendency was particularly evident when being screened for mania or psychosis in both groups, suggesting that this bias may still exist not only for health professionals, but for women themselves (Matthey, 2010). Thus, refining lay conceptualizations of motherhood and depression to promote women's understandings of what they may need when struggling, and clarifying relationships and attributions for their psychosocial difficulties, remains an important area for future outreach with women and their support networks.

## Strengths, Contributions, Limitations, and Directions for Future Research

**Strengths**

**Sample.** The study has several noteworthy strengths. Study sample characteristics determine possible analytic strategies, as well as interpretation and generalizability of findings. First, by virtue of being a dissertation study, with the inherent limitations of recruiting from the community, and for a clinical population, the sample size was substantial, allowing for analyses to test interesting and valuable hypotheses. The wide scope of recruitment led to geographical breadth of the sample, with participants collected from across Canada and USA, and from multiple types of locations and sources. A sample of potentially diverse participants and motivations were captured, and in turn a perhaps more representative sample of depressed

mothers in the larger population. Collection of demographic information for all participants

allowed for examination and control of any confounding variables.

**Multiple Methods and Relevant Measures.** The reliability of research findings are most

compelling with replication of results based on multiple statistical means and methods of

analysis. Multiple methods of assessment (self-report and interview) and analysis (correlational,

regression, and between subjects), including appropriate and different analyses to confirm

findings (ANOVA, Kruskal Wallis H, T-tests), were conducted. For example, depression

inclusion criteria was met with a screening interview (MINI) and confirmed with self-report

measures (EPDS and BDI), and a life event questionnaire was examined to confirm absence of

pregnancy in the past year for the NPP group. Furthermore, following past evidence recognizing

the lack of sensitivity of the BDI to capture PPM, the most appropriate measure of depression

was used for each group. Similarly, a stress inventory particular to women of childbearing age

(Norbeck, 1984) was used. Finally, the creation and examination (where possible) of

conservative groups was an added strength, providing greater confidence in the reliability of

study findings.

**Study Design.** Several aspects of the study design provided both replication and new

contributions to motherhood and depression research. The hypotheses were guided by a

combination of a theoretical framework, clinical observation, and both quantitative and

qualitative research. Thus, there was an opportunity to replicate well established findings,

regarding anxiety on the one hand, for example, as well as examine some exploratory

hypotheses, regarding maternal relationship and SCC on the other hand. Another aspect of the

study design, the inclusion of a comparison group, was a significant strength replicating the

design in previous studies, following and heeding the emphasis by previous researchers (Jones et

al., 2010; O'Hara et al., 1990; O'Hara et al., 1991; Whiffen & Gotlib, 1993), and allowing for

direct examination of the distinction hypothesis.

**The Distinction Hypothesis.** The primary hypothesis of the study was the long-standing

unresolved question of discourse regarding whether PPD is a unique syndrome compared to

depression experienced at other time periods. Moreover, it examines the phenomenon several

years after it was introduced (Pitt, 1968) from a perspective that benefits from more recent

attention, evolving conceptualization, and continually, albeit slow developing diagnostic criteria

for PPD. Recognizing onset for PPD occurs up to one year and including women from this wider

time frame allowed for a more representative sample of PP women and reflected this

contemporary understanding of PPD. Reframing and identifying the distinction hypothesis from

a more informed perspective, and examining this new conceptualization in a direct manner, are

therefore both strengths of the current study. Moreover, along with similar contributions to this

area of inquiry, it also has the potential to contribute to an important aspect of PPD

conceptualization, by impacting DSM criteria, for example, to more accurately reflect the true

symptomatology experienced by women with PPD.

**A Unique Cognitive-Diathesis-Stress Model for Postpartum Depression.** The study

further contributes to this conceptualization by targeting the unique qualities of the PP

experience. Namely, as opposed to simply drawing from research with other populations, there

was a focus on discovering the importance of particularly relevant variables to new mothers,

such as expectations for motherhood and self-concept clarity. A prime example of this is that the

current study takes one piece of knowledge that is unique, the losses that women ubiquitously

experience in the PP period, and a well established psychosocial model for depression, the CDS

model, a phenomenon, the match hypothesis, and theory, and combines these pieces to test the new, more applicable, model.

**Perceptions of Loss and Relationship Maladjustment.** Unlike most previous research focused on only event related stress, the current study emphasized perceptions of loss and their greater and indiscriminate impact on the etiology of depression and maladjustment. Including perceptions of loss as a moderating variable provides greater complexity to the study and opportunity to understand women's cognitive styles in the relationship between dispositions and psychological distress and maladjustment. Therefore, the study empirically examines women's experiences based on their perceptions, arguably a strength of the study. The recognition and incorporation of the role of relational maladjustment in depression is another strength of the study, further representing the well known importance of social aspects of the depression experience. Importantly, the study procedure and design remains simple enough to be replicable for future research.

**Identifying Cognitive Vulnerability to Empower Women.** With regards to cognitive styles, previous studies have often examined biologic or demographic vulnerabilities. Examining cognitive styles as predictors runs the risk of implying blame or sole responsibility on women for their psychological adjustment or maladjustment. In reality, many factors, such as contextual, play a role in any psychological functioning. A different perspective, and the researcher's preferred one and intention, is that elucidating cognitive vulnerabilities will empower women and those providing interventions to them with perhaps the only risk factors that are in an individual's reach. That is, these variables can be targeted and adapted to have flexibility within changes and transitions. PP women may not be able to control whether they had a traumatic birth, their partner is unsupportive, or the temperament of their infant being difficult. However,

they may benefit from learning to integrate new aspects of the self into an old structure, or

adjusting expectations to impact their experience in response to each of these challenges, with

accurate knowledge and tailored prevention and treatment programs.

**Statistical Validity.** Several steps were taken to reduce probability of error and promote

the reliability and statistical conclusion validity of the findings. These steps included checking

data twice with different members of the research team to reduce bias, the use of widely used

measures that have demonstrated good reliability and validity, meeting statistical assumptions,

using both parametric and robust nonparametric tests, examining both liberal and conservative

criteria for establishing significance, reporting adjusted values, and replicating findings with

different tests. Response bias, namely, social desirability/impression management was also

examined. Overall, the interplay between addressing Type I error, to avoid identifying false

findings, and Type II error, to permit power to identify existing true findings was prioritized.

Namely, methods that were employed or inherent aspects of the study included reporting/focus

on effect size in addition to significance, identifying both statistical and practical significance,

setting a significance level at the outset to determine the outcome of hypotheses, designing the

study primed for replicability of findings, examining and controlling for possible confounding

variables, and promoting sufficient power by limiting number of variables in analyses and using

larger sample where possible, while still using a small enough sample to reduce likelihood of

erroneously identifying/emphasizing small effects. Similarly, decision making was driven

considerably by a balanced consideration of the theoretical framework and statistical standards.

**Limitations.** Even the most well chosen statistical analyses hold limitations in the ability

to reveal true effects and avoid demonstrating false impressions of null effects. Some statistical

analyses pose limitations to the current study. For example, using interactions to detect effects of

the data is a limitation, in that interactions offer less power than main effects, suggesting that a

null or insignificant finding may erroneously overlook a true effect. Statistical standards often

require larger samples. Hence, the smaller sample size further precludes finding small significant

effects. However, the greatest limitation of the study is its design, which allows for causal

ambiguity. That is, due to the cross-sectional design, any conclusions drawn from analyses

cannot indicate definitive causation. Meaningful interpretations and their importance are not

guaranteed and are at best well informed conjecture. The cross-sectional design is also a

limitation in that fluctuations found in symptoms of women in the perinatal period (pregnancy,

early, and late postpartum; Kammerer et al., 2009) may suggest the importance of examining

cognitive variables and their relationship to maladjustment at different times during pregnancy

and PP. For example, the unique role of relationship maladjustment at different stages of the PP

has been identified. Namely, original mother-daughter relationship tends to be more significant

in the early PP period up to 4 months (McLaren et al., 2007), whereas partner relationship is

more important after 3 months (Boyce et al., 1991; Matthey et al., 2000). Subtypes of PP women

were not directly identified and may exist with respect to vulnerability as well (Church et al.,

2005; Phillips et al., 2010). Moreover, one particularly important subgroup cannot be identified

with a cross-sectional design. There are more individuals with diatheses who are predisposed to

psychological maladjustment than identified in research, and these are the primary group of

women at risk and who represent ideal targets for receiving early intervention. A cross-sectional

design does not allow for identifying these women (Monroe & Simons, 1991). Indeed, evidence

for the role of variables in the etiology of PPD would be more compelling with a longitudinal,

prospective design. The inherent limitation on the number of variables and theories that can be

reasonably examined in a particular study serves as another study weakness. The chosen theory

guiding the study also directs the testing and findings in a particular direction. For example, aspects of PPM, such as bonding with baby and relationship maladjustment, used as criterion variables due to the theoretical assumptions of the current study, have been examined as predictor variables in past research (Figueiredo et al., 2008). Moreover, relevant predictor and mediating variables in the development of PPM, such as attachment and coping (Pakenham et al., 2007) were not included in the study.

Other limitations include the lack of focus on contextual factors, such as sociopolitical and cultural. For example, expectations for motherhood, the role of partner, mothers, and mother-in-laws may be different for different cultures and self-report measures of these constructs may be approached differently. The impact of social differences may have a significant effect on SDB and psychosocial assessment. In fact, differences in degree of SDB have been found for women with different ethnicities and differences in psychosocial measures may be influenced by ethnicity as opposed to mainly true individual differences in responses. For example, one study found that Caucasian mothers had lower SDB and reported greater state anxiety than African-American mothers (Lau et al., 2007). Generally, subgroups of PP women would be important to examine, matching variables and hypotheses to relevant aspects of the contemporary experience of new mothers, which includes in vitro-fertilizations, adoptions, surrogacy and an increase in the population of single mothers. There may be clinically and statistically significant differences between experiences of single mothers, including women who choose to have children alone and women who have divorced or their partner has left or died. For example, the impact of stress on these women may be unique. In fact, there is some evidence that single PP women, compared to married PP women, are less effected by major events, presumably because they are so preoccupied with daily chronic stresses they must deal with

independently (Reid & Taylor, 2015). Adoptive mothers, compared to PP mothers, also report

greater well-being and less anxiety, despite having similar levels of depressive severity and

exhibiting an association between stress and depression (Mott, Schiller, Richards, & O'Hara,

2011). Finally, although research suggests that women's psychological processes play an integral

role in PPD when controlling for their partners' psychological processes (Simpson et al., 2003),

partners should be examined directly in research on PPD, both to determine how their

psychological processes contribute to PPD, and to understand their experiences during the PP

period. To this end, there is some evidence that the EPDS (Partner Version) is a reliable and

valid measure of mother's depression when filled out by partners/fathers and of father's/partner's

depression when filled out by mothers, even in the absence of their partner (Fisher, S. D.,

Kopelman, R., & O'Hara, M. W., 2012).

**Contributions and Directions for Future Research.** These limitations aside, the current

study (design) provides the benefit of being based on a theoretical framework, empirical

evidence, and women's reported experiences. Moreover, the study can be replicated and

compared to future research, providing a contribution to the continued refinement of the theory,

collection of evidence, and investigation of issues related to PP adjustment, and importantly,

maladjustment characteristics of PPD. Specific contributions may be targeting malleable aspects

of women's experiences within their own locus of control in treatment and as prevention, such as

perceptions, expectations, and cognitive styles, developing more accurate DSM diagnostic

criteria, and educating the public on useful lay understandings of mothers' experiences of

depression. For example, based on the release of the latest edition, DSM criteria are slowly and

marginally evolving and do not match the conceptualization of PPD recognized by informed

women, clinicians, and researchers in the area of PP experience. Namely, there is an

incongruence between DSM-5 diagnostic criteria and the recognized onset period used in

research and clinical settings of one year or more. Creative strategies are often undertaken to

attempt to accurately identify and assess PPD, such as by using adjustment disorder with anxiety

and ignoring temporal criteria (Matthey et al., 2003). The change in the most recent edition of

the DSM from postpartum to peripartum onset (APA, 2013) does reflect recognition of the more

accurate onset, going back temporally, but not forwards, as the criteria remains within

weeks/month of giving birth. However, the evidence for the distinction hypothesis is certainly

not represented in the continued placement of PPD under MDD with an onset qualifier. This is a

problem that still needs to be addressed and for the which the current study provides support.

Testing the model including the nonmatch hypothesis with a larger sample to determine

whether interaction effects emerge would be one direction for future research. Using partner or

objective ratings of loss to reduce systematic error is also an option. Overall, using both

qualitative and quantitative research methods approaches is recommended (McLaren et al., 2007;

Phillips et al., 2009). Explicating the role of current maternal relationship would contribute to

theory and narratives highlighting the importance of this relationship to PP women. Other

cognitive styles, not yet investigated in quantitative research, should be identified for their role as

vulnerabilities to PPM. Examining SCC with other markers of general relationship adjustment,

such as duration, or infidelity in the face of stressors or loss, is another direction for future

research.

Demonstrated support for the distinction hypothesis suggests that women with PPD

should be screened differently (EPDS), diagnosed differently (DSM criteria), and treated

differently (group IPT, In-home CBT, Listening Visits). Importance of ongoing use of

continuous measures in research and clinical settings to capture PPM is also emphasized

(Matthey et al., 2003). The study provides some initial evidence that using the EPDS in clinical

screening and treatment for mothers with older children who are struggling may be beneficial.

Namely, it may serve to capture some aspects of their maladjustment, such as anxiety, as well as

the sensitivity to loss, that may not be fully captured by the BDI. NPP mothers with major

depression may also benefit from better recognition of the unique aspects of PP etiology and

adjustment by separating their experience and identifying their unique etiology,

symptomatology, and phenomenology, such as the role of nondisclosure. It is possible that the

minimizing-over-pathologizing pendulum has swung in the desired direction towards more

recognition of PP specific maladjustment (Matthey, 2010). Future research should continue to

consider this balance, not only for the reduction of impact of PPD on women, children, and

society, but also to not lose sight of the implied unique needs of NPP mothers with MDD.

**Conclusions**

The newly coined "Distinction Hypothesis", based on research and theory presented

several years ago identifying "atpyical features" of PPM (Pitt, 1968), and continued investigation

(Cooper at al., 1988; Cooper & Murray, 1995; Hendrick et al., 2000; Jones et al., 2010; O'Hara,

1985; O'Hara et al., 1990; O'Hara et al., 1991; Watson et al., 1984; Whiffen, 1988; Whiffen &

Gotlib, 1993), was supported and refined further in the current study. Namely, identified

differences in self-concept clarity, unrealistic expectations for motherhood, and symptom

severity (as measured by a direct measure of PP symptomatology) in women with PPD compared

to NPP women with MDD, contribute empirical evidence to the distinction hypothesis.

Differences in trait anxiety, interpersonal goal orientation (adaptive and maladaptive), tendency

for nondisclosure of imperfection, and relationship satisfaction with partner provide directions

for future research. Degree of stress and perceived loss was higher for PP women as expected

and represents a significant focus of the study. Models of depression identify a match between

valuing goals related to independence (self-criticism) and perceived experience of independent

loss as having power to predict depression. Models provide refinement to existing framework for

prediction of depression with highly relevant and for some consistently predictive cognitive

styles related to self-concept structure, maternal specific expectations, anxiety, and passive and

active interpersonal expressions of perfectionism. Different degrees of tendencies representing

vulnerability or resilience, depending on the type of maladjustment, were explicated. The

importance of perceptions of greater loss related to both interpersonal and self-definitional needs

in the development of PPM emerged, and the combination with relevant cognitive vulnerabilities

in the presence of loss as further contributing to PPM was confirmed. Specific models for not

only PP symptoms, but relational maladjustment in key relationships with partner, mother, and

baby were tested and partly confirmed. Implications for facilitating women with PPD accessing

support, addressing cognitive vulnerabilities, and reducing symptom severity and relationship

maladjustment were outlined. Creativity and flexibility, such as with in-home CBT programs,

group IPT, and specificity in individual treatment with regards to the subjective meaning of

particular losses and nature of cognitive styles is recommended. Different treatments specific to

women with PPD versus women with NPP MDD, and subgroups of PP women with particular

needs related to poorer partner maladjustment or unsettled infants is also recommended. Health

care professionals should be aware of and knowledgeable on the unique qualities of PPM and

express views that are validating, that is, neither minimizing nor over-pathologizing, flexible in

how and where they implement intervention, and organizations must adapt to provide effective

care and improve access.

References

Abramson, L. Y., Metalsky, G. I., & Alloy, L. B. (1989). Hopelessness depression: A theory-

    based subtype of depression. *Psychological Review, 96*, 358-372.

Akerjordet, K. & Severinsson, E. (2010). Being in charge – new mothers' perceptions of

    reflective leadership and motherhood. *Journal of Nursing Management, 18*, 409-417.

Akman, I., Kuscu, M. K., Yurdakul, Z., Ozdemir, N., Solakoglu, M., Orhon, L., Karabekiroglu,

    A., & Ozek, E., (2008). Breastfeeding duration and postpartum psychological adjustment:

    Role of maternal attachment styles. *Journal of Paediatrics and Child Health, 44*, 369-

    373.

Allan, J. & Dixon, A. (2009). Older women's experiences of depression: A hermeneutic

    phenomenological study. *Journal of Psychiatric and Mental Health Nursing, 16*, 865-

    873.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders

    (5th ed. Text Revision)*. Washington, DC: Author.

Ammerman, R. T., Putnam, F. W., Stevens, J., Bosse, N. R., Short, J. A., Bodley, A. L., Van

    Ginkel, J. B. (2011). An open trial of in-home CBT for depressed mothers in home

    visitation. *Maternal and Child Health Journal, 15*, 1333-1341.

Ayduk, O., Gyurek, A., & Luerssen, A. (2009). Rejection sensitivity moderates the impact of

    rejection on self-concept clarity. *Personality and Social Psychology Bulletin, 35*, 1467-

    1478.

Bagby, R. M., Parker, J. D. A., Joffe, R. T., & Buis, T. (1994). Reconstruction and validation of

    the depressive experiences questionnaire. *Assessment, 1,* 59-68.

Baron, P. & Hanna, J. (1990). Egocentrism and depressive symptomatology in young adults. *Social Behavior and Personality, 18*, 279-286.

Barnes, L. L. B., Harp, D., & Jung, W. S. (2002). Reliability generalization of scores on the spielberger state-trait anxiety inventory, *Education and Psychological Measurement, 62*, 603-618.

Beauboeuf-Lafontant, T. (2007). "You have to show strength" an exploration of gender, race, and depression. *Gender & Society, 21*, 28-5.

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-569.

Beck, C. T. (2002). Postpartum depression: A metasynthesis. *Qualitative Health Research, 12*, 453-472.

Beebe, B., Jaffe, J., Buck, K., Chen, H., Cohen, P., Blatt, S., Kaminer, T., Feldstein, S., & Andrews, H. (2007). Six-week postpartum maternal self-criticism and dependency and 4-month mother-infant self-and interactive contingencies. *Developmental Psychology, 43*, 1360-1376.

Bell, N. J., Wieling, E., & Watson, W. (2007). Narrative processes of identity construction: Micro indicators of developmental patterns following transition to university. *Identity: An International Journal of Theory and Research, 7*, 1-26.

Bennett, H. A., Boon, H. S., Romans, S. E., & Grootendorst, P. (2007). Becoming the best mom that I can: Women's experiences of managing depression during pregnancy – a qualitative study. *BioMed Central Women's Health, 7*.

Bernard-Bonnin, A. C. (2004). Maternal Depression and Child Development. *Paediatric Child Health, 9*, 575-583.

Besser, A., Vliegen, N., Luyten, P., & Blatt, S. J. (2008). Systematic empirical investigation of

vulnerability to postpartum depression from a psychodynamic perspective.

*Psychoanalytic Psychology, 25*, 392-410.

Bieling, P. J. & Grant, D. A. (2007). Toward bridging the science and practice of depression

prevention: What can we learn from cognitive vulnerability? *Canadian Psychology, 48*,

240-255.

Blatt, S. J., D'Afflitti, J. P., & Quinlan, D. M. (1976). Experiences of depression in normal

young adults. *Journal of Abnormal Psychology, 85*, 383-389.

Blatt, S. J., Quinlan, D. M., Chevron, E. S., McDonald, C., & Zuroff, D. (1982). Dependency and

self-criticism: Psychological dimensions of depression. *Journal of Consulting and

Clinical Psychology, 50*, 113-124.

Blatt, S. J., Zohar, A., Quinlan, D. M., Luthar, & Hart, B. (1996). Levels of relatedness    within

the dependency factor of the depressive experiences questionnaire for adolescents.

*Journal of Personality Assessment, 67*, 52-71.

Blatt, S. J., Zohar, A. H., Quinlan, D. M., Zuroff, D. C., & Mongrain (1995). Subscales    within

the dependency factor of the depressive experiences questionnaire. *Journal of

Personality Assessment, 64(2)*, 319-339.

Bloch, M., Daly, R. C. & Rubinow, D. R. (2003). Endocrine factors in the etiology of

postpartum depression. *Comprehensive Psychiatry, 44*, 234-246.

Bloch, M., Schmidt, P. J., Danaceau, M., Nieman, L., & Rubinow, D. R. (2000). Effects of

gonadal steroids in women with a history of postpartum depression. *American Journal of

Psychiatry, 157*, 924-930.

Boyce, P., Hickie, I., & Parker, G. Parents, partners or personality? Risk factors for post-natal

depression. *Journal of Affective Disorders, 21*, 245-255.

Boyd, R. C., Le, H. N., & Somberg, R. (2005). Review of screening instruments for postpartum

depression. *Archives of Womens Mental Health, 8*, 141-153.

Bretherton, I. (1992). The origins of attachment theory: John bowlby and mary ainsworth.

*Developmental Psychology, 28*, 759-775.

Brown, B. (2010). *The gifts of imperfection*. Minnesota: Hazeldon

Brown, B. (2012). *Daring greatly: How the courage to be vulnerable transforms the way we live,

love, parent, and lead*. USA: Avery

Brummelte, S. & Galea, L. A. M. (2010). Depression during pregnancy and postpartum:

Contribution of stress and ovarian hormones. *Progress in NeuroPsychopharmocology &

Biological Psychiatry, 34*, 766-776.

Brummelte, S. & Galea, L. A. M. (2016). Postpartum depression: Etiology, treatment and

consequences for maternal care, *Hormones and Behavior, 77*, 153-166.

Burr, J. (2002). Providing a contrasting view to evolutionary psychology's hypotheses on

depression. *Psychology, Evolution & Gender, 4*, 93-113.

Campbell, J. D., Trapnell, P. D., Heine, S. J., Katz, I. M., Lavallee, L. F., & Lehman, D. R.

(1996). Self-concept clarity: Measurement, personality correlates, and cultural

boundaries. *Journal of Personality and Social Psychology, 70*, 141-156.

Choch, M. (2006). *The egocentric orientation scale: Different facets of egocentric cognition*.

Unpublished master's thesis, University of Manitoba, Winnipeg, Manitoba, Canada.

Church, N. F., Brechman-Toussaint, M. L., & Hine, D. W. (2005). Do dysfunctional

    cognitions mediate the relationship between risk factors  and postnatal depression

    symptomatology? *Journal of Affective Disorders, 87*, 65-72.

Clark, D. A., Beck, A. T. & Brown, G. K. (1992). Sociotropy, autonomy, and life events

    perceptions in dysphoric and nondysphoric individuals. *Cognitive Therapy and Research,

    16*, 635-652.

Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.

Cooper, P. J., Campbell, E. A., Day, A., Kennerley, H., & Bond, A. (1988). Non-psychotic

    psychiatric disorder after childbirth. A prospective study of prevalence, incidence, course

    and nature. *British Journal of Psychiatry, 152*, 799-806.

Cooper, P. J. & Murray, L. (1995). Course and recurrence of postnatal depression evidence for

    the specificity of the diagnostic concept. *British Journal of Psychiatry, 166*, 191-195.

Cox, J. L., Holden, J. M., & Sagovsky, R. (1987). Detection of postnatal depression:

    Development of the 10-item edinburgh postnatal depression scale. *British Journal of

    Psychiatry, 150*, 782-786.

Coyne, J. C. & Whiffen, V. E. (1995). Issues in personality as diathesis for depression: The case

    of sociotropy-dependency and autonomy-self-criticism. *Psychological Bulletin, 118*, 358-

    378.

Crane, D. R., Busby, D. M., & Larson, J. H. (1991). A factor analysis of the dyadic adjustment

    scale with distressed and nondistressed couples, *The American Journal of Family

    Therapy, 19,*60-66.

Cross, S. E., Gore, J. S., & Morris, M. L. (2003). The relational-interdependent self-construal, self-concept consistency, and well-being. *Journal of Personality and Social Psychology, 85*, 933-944.

Cummings, E. M. & Kouros, C. D. (2009). Maternal depression and its relation to children's development and adjustment. *Encyclopedia on Early Childhood Development*.

Crowne, D. P. & Marlowe D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*, 349-354.

Davila, J. & Sargent, E. (2003). The meaning of life (events) predicts changes in attachment security. *Personality and Social Psychology Bulletin, 29*, 1383-1395.

Deci, E. L. & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self determination of behavior. *Psychological Inquiry, 11*, 227-268.

Dennis, C., & Chung-Lee, L. (2006). Postpartum depression help-seeking barriers and maternal treatment preferences: *A qualitative systematic review. Birth, 33,* 323-331.

Dipietro, J. A., Costigan, K. A., & Sipsma, H. L. (2007). Continuity in self-report measures of maternal anxiety, stress, and depressive symptoms from pregnancy through two years postpartum. *Journal of Psychosomatic Obstetrics and Gynecology,* 1-10.

Dixon, W. J. (1980). Efficient analysis of experimental observations. *Annual Review of Pharmacology and Toxicology, 20*, 441-462.

Dodaj, A. (2012). Social desirability and self-reports: testing a content and response-style model of social desirable responding. *Europe's Journal of Psychology, 8*, 651-666.

Dover, C. A. (1992). *The influence of dependency and self-criticism on postpartum maladjustment.* Unpublished PhD thesis, McGill University, Montreal, Quebec.

Elkind, D. (1985). Egocentrism redux. *Developmental Review, 5*, 218-226.

Estes, C. P. (1997). *Women who run with the wolves*. Toronto: Random House.

Families first program evaluation report: Evaluating the effectiveness of the families first visiting
program in improving the well-being of at-risk families with preschool children. (2010,
February). *Retrieved December 2011, from http://www.gov.mb.ca/healthychild/families
first/ff_eval2010.pdf.*

Field, T. (2010). Postpartum depression effects on early interactions, parenting, and safety
practice: A review. *Infant Behavior Development, 33*, 1-6

Figueiredo, B. & Costa, R. (2009). Mother's stress, mood and emotional involvement with the
infant: 3 months before and 3 months after childbirth. *Archives of Women's Mental
Health, 12*, 143-153.

Figueiredo, B., Costa, R., Pacheco, A., & Pais, A. (2009). Mother-to-infant emotional
involvement at birth. *Maternal and Child Health Journal, 13*, 539-549.

Figueiredo, B., Field, T., Diego, M., Hernandez-Reif, M., Deeds, O., & Ascencio, A. (2008).
Partner relationships during the transition to parenthood. *Journal of Reproductive and
Infant Psychology, 26*, 99-107.

Fisher, S. D., Kopelman, R., & O'Hara, M. W. (2012). Partner report of paternal depression
using the Edinburgh Postnatal Depression Scale-Partner, *Archives of Women's Mental
Health, 15*, 283-288.

Folkman, S., Lazarus, R. S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R. J. (1986).
Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes.
*Journal of Personality and Social Psychology, 50*, 992-1003.

Folkman, S., Lazarus, R. S., Gruen, R. J., & DeLongis,  (1986). Appraisal, coping, health status,

and psychological symptoms. *Journal of Personality and Social Psychology, 50*, 571-579.

Frost, R. O., Marten, P., Lahart, C., & Rosenblate, R. (1990). The dimensions of perfectionism. *Cognitive Therapy and Research, 14*, 449-468.

Giakoumaki, O., Vasilaki, K., Lili, L., Skouroliakou, M., & Liosis, G. (2009). The role of maternal anxiety in the early postpartum period: Screening for anxiety and depressive symptomatology in Greece. *Journal of Psychosomatic Medicine, 30*, 21-28.

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*, 350-364.

Gilbert, P. (2006). Evolution and depression: Issues and implications. *Psychological Medicine, 36*, 287-297.

Glass, G. V. & Hopkins, K. D. (1996). *Statistical methods in education and psyhcology:  Third edition.* Boston, NY: Allyn & Bacon.

Green, S. B. & Salkind, N. J. (2003). *Using SPSS for windows and macintosh: Third Edition.* Upper Saddle River, New Jersey: Pearson Education.

Hammen, C. & Brennan, P. A. (2002). Interpersonal dysfunction in depressed women: Impairment independent of depressive symptoms. *Journal of Affective Disorders, 72*, 145-156.

Harkness, S. (2009). The cultural mediation of postpartum depression. *Medical     Anthropology Quarterly, 1*, 194-209.

Harrington, A. R. & Greene-Harrington, C. C. (2007). Healthy start screens for depression

among urban pregnant, postpartum and interconceptional women. *Journal of the National

Medical Association, 99*, 226-231.

Hassan, S., Flett, G. L., Ganguli, R., & Hewitt, P. L. (2014). Perfectionistic self-presentation and

suicide in a young woman with major depression and psychotic features. *Case Reports in

Psychiatry, 901981.*

Hay, D. F., Pawlby, S., Sharp, D., Asten, P., Mills, A., & Kumar, R. (2001). Intellectual

problems shown by 11-year-old children whose mothers had postnatal depression.

*Journal of Child Psychology and Psychiatry, 42*, 871-889.

Hayes, A. F. (2009). *Beyond Baron and Kenny: Statistical mediation analysis in the new

millennium.* Manuscript. The Ohio State University, Columbus, Ohio, USA.

Hendrick, S. S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and

Family, 50*, 93-98.

Hendrick, V., Altshuler, L., Strouse, T., & Grosser, S. (2000). Postpartum and nonpostpartum

depression: Differences in presentation and response to pharmacologic treatment.

*Depression and Anxiety, 11*, 66-72.

Hewitt, P. L., Flett, G. L., Sherry, S. B., Habke, M., Parkin, M., Lam, R. W., McMurty, B. et al.,

(2003). The interpersonal expression of perfection: Perfectionistic self-presentation and

psychological distress. *Journal of Personality and Social Psychology, 84*, 1303-1325.

Homewood, E., Tweed, A., Cree, M., & Crossley, J. (2009). Becoming Occluded: The transition

to motherhood of women with postnatal depression. *Qualitative Research in Psychology,

6*, 313-329.

Hopkins, J., Marcus, M., & Campbell, S. B. (1984). Postpartum depression: A critical review. *Psychological Bulletin, 95*, 498-515.

Hyde, J. S., Mezulis, A. H., & Abramson, L. Y. (2008) The ABCs of depression: Integrating affective, biological, and cognitive models to explain the emergence of the gender difference in depression. *Psychological Review, 115*, 291-313.

Johnson, E. A., Brown, N., & Koven, L. P. (2001). *Dispositional egocentrism in adults: Conceptualization, measurement and correlates.* Unpublished manuscript, University of Manitoba, Winnipeg, Canada.

Johnson, E. A. & Ediger, J. P. (2001). *The relation of adaptive and maladaptive self-consciousness to adult egocentrism.* Poster session presented at the World Congress of Behavioral and Cognitive Therapy, Vancouver, BC.

Johnson, T.P., Fendrich, M., Mackesy-Amiti, M.E. (2012). An evaluation of the validity of the Crowne-Marlowe need for approval scale, *Quality & Quantity, 46*, 1883-1896.

Johnson, E. A. & Nozick, K. J. (2011). Personality, adjustment, and identity style influences on stability in identity and self-concept during the transition to university. *Identity: An international Journal of Theory and Research, 11*, 1-22.

Jones, L., Scott, J., Cooper, C., Forty, L., Smith, K. G., Sham, P., Farmer, A., McGuffin, P., Craddock, N., & Jones, I. (2010). Cognitive style, personality and vulnerability to postnatal depression. The *British Journal of Psychiatry, 196*, 200-205.

Kammerer, M., Marks, M. N., Pinard, C., Taylor, A., Castelberg, B., Kunzil, H., & Glover, V. (2009). Symptoms associated with the DSM IV diagnosis of depression in pregnancy and postpartum. *Archives of Womens Mental Health, 12*, 135-141.

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., Wittchen,

H., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R

psychiatric disorders in the United States. *Archives of General Psychiatry, 51*, 8-19.

Klier, C. M ., Muzik, M., Rosenblum, K. L. Lenz, G. (2001). Interpersonal psychotherapy

adapted for the group setting in the treatment of postpartum depression. *Journal of

Psychotherapy Practice and Research, 2*, 124-131.

Lakey, B. & Heller, K. (1985). Response biases and the relation between negative life events and

psychological symptoms. *Journal of Personality and Social Psychology, 49*, 1662-1668.

Lau, C., Hurst, N. M., Smith, E. O., & Schanler, R. J. (2007). Ethnic/racial diversity, maternal

stress, lactation, and very low birthweight infants. *Journal of Perinatology, 27*, 399-408.

Leahy, R. L. (Ed.) (2004). *Contemporary cognitive therapy: Theory, research, and practice*.

New York: Guilford.

Leite, C. & Kuiper, N. A. (2008). Client uncertainty and the process of change in psychotherapy:

The impact of individual differences in self-concept clarity and intolerance of

uncertainty. *Journal of Contemporary Psychotherapy, 38*, 55-64.

Liotti, G. (1992). Egocentrism and the cognitive psychotherapy of personality disorders. *Journal

of Cognitive Psychotherapy, 6*, 43-58.

Logsdon, M. C. & Usui, W. (2001). Psychosocial predictors of postpartum depression in diverse

groups of women. *Western Journal of Nursing Research, 23*, 563-574.

Macedo, A., Bos, S. C., Marques, M., Maia, B., Soares, M. J., Pereira, T., Gomes, A. A.,

Valente, J., & Azevedo, M. H. (2009). Perfectionism dimensions in pregnancy-a study in

Portuguese women. *Archives of Womens Mental Health, 12*, 43-52.

Manzi, C., Vignoles, V. L., & Regalia. C. (2010). Accommodating a new identity: Possible

    selves, identity, change and well-being across two life-transitions. *European Journal of*

    *Social Psychology, 40*, 970-984.

Maranzan, A. & Choch, M. (2016). *Program evaluation of IPT group for postpartum mood*

    *disorders*, Unpublished research, Lakehead University, Thunder Bay, ON.

Masih, S., Spence, S. H., & Oei, T. P. S. (2007). Sociotropic and autonomous personality and

    stressful life events as predictors of depressive symptoms in the postpartum period.

    *Cognitive Therapy Research, 31*, 483-502.

Matthey, S. (2010). Are we overpathologising motherhood? *Journal of Affective Disorders, 120,*

    263-266.

Matthey, S., Barnett, B., Howie, P., & Kavanagh, D. J. (2003). Diagnosing postpartum

    depression in mothers and fathers: whatever happened to anxiety? *Journal of Affective*

    *Disorders, 74*, 139-147.

Matthey, S., Barnett, B., Ungerer, J., & Waters, B. (2000). Paternal and maternal depressed

    mood during the transition to parenthood. *Journal of Affective Disorders, 60*, 75-85.

Mauthner, N. S. (1999). "Feeling low and feeling really bad about feeling low": Women's

    experiences of motherhood and postpartum depression. *Canadian Psychology, 40*, 144-

    161.

Mazzeo, S. E., Slof-Op't, M. C. T., Ir, L., Jones, I., Mitchell, K., Kendler, K. S., Neale, M. C.,

    Aggen, S. H., & Bulik, C. M. (2006). Associations among postpartum depression, eating

    disorders, and perfectionism in a population-based sample of adult women.

    *International Journal of Eating Disorders, 39*, 202-211.

McCrae, R. R. & Oliver, O. P. (1992). An introduction to the five-factor model and its

applications. *Journal of Personality, 60*, 175-215.

McLaren, L., Kuh, D., Hardy, R., & Mishra, G. (2007). Postnatal depression and the original

mother-child relationship: A prospective cohort study. *Journal of Affective Disorders,*

*100*, 211-219.

Maneker, J. S. & Rankin, R. P. (1985). Education, age at marriage, and  marital duration: Is there

a relationship? Journal of Marriage and Family, 47, 675-683.

Meltzer, E. S. & Kumar, R. (1985). Puerperal mental illness, clinical features and classification:

A study of 142 mother-and-baby admissions. *British Journal of Psychiatry, 147*, 647-

654.

Mills, E. P., Finchilescu, G., & Lea, S. J. (1995). Postnatal depression – An examination of

psychosocial factors. *South African Medical Journal, 85*, 99-105.

Monk, C., Leight, K. L., & Fang, Y. (2008). The relationship between attachment style and

perinatal mood disturbance: implications for screening and treatment. *Archives of*

*Womens Mental Health, 11*, 117-129.

Monroe, S. M. & Simons, A. D. (1991). Diathesis-stress theories in the context of life       stress

research: Implications for the depressive disorders. Psychological Bulletin, 110,     406-

425.

Morais, M. L. S., Lucci, T. K., & Otta, E. (2013). Postpartum depression and child development

in the first year of life, *Studies in Psychology, 30*, 7-17.

Morrow, M., Smith, J. E., Lai, Y., & Jaswal, S. (2008). Shifting landscapes: Immigrant women

and postpartum depression. *Health Care for Women International, 29*, 593-617.

Mott, S. L., Schiller, C. E., Richards, J. G., O'Hara, M. W., Stuart, S. (2011). Depression and

anxiety among postpartum and adoptive mothers, *Archives of Women's Mental Health,*

*14*, 335-343.

Muller, D., Teisman, T., Havemann, B., Michalak, J., Seehagen, S. (2013). Ruminative thinking

as a predictor of perceived postpartum mother-infant bonding. *Cognitive Therapy*

*Research, 37*, 89-96

Murray, L. (1997). Postpartum depression and child development. *Psychological Medicine, 27*,

253-260.

Newman, D. A. (2009). Missing data techniques and low response rates: The role of systematic

non-response parameters. In C. E. Lance & R. J. Vandenberg (Eds.) *Statistical and*

*Methodological Myths and Urban Legends: Doctrine, Verity, and Fable in the*

*Organizational and Social Sciences* (pp. 7-36). New York: Routledge.

Nolen-Hoeksema, S. (2000). The role of rumination in depressive disorders and mixed

anxiety/depressive symptoms. *Journal of Abnormal Psychology, 109*, 504-511.

Nolen-Hoeksema, S., Larson, J., & Grayson, C. (1999). Explaining the gender difference in

depressive symptoms. *Journal of Personality and Social Psychology, 77*, 1061-1072.

Norbeck, J. S. (1984). Modification of life event questionnaire for use with female respondents.

*Research in Nursing and Health, 7*, 61-71.

Nylen, K. J., O'Hara, M. W., Brock, R., Moel, J., Gorman, L., & Stuart, S. (2010). Predictors of

the longitudinal course of postpartum depression following interpersonal psychotherapy.

*Journal of Consulting and Clinical Psychology, 78*, 757-763.

O'Hara, M. W. (1985). Social support, life events, and depression during pregnancy and the

puerperium. *Archives of General Psychiatry, 43*, 569-573.

O'Hara, M. W. (2009). Postpartum depression: What we know. *Journal of Clinical Psychology, 65*, 1258-1269.

O'Hara, M. W., Schlechte, J. A., Lewis, D. A., & Varner, M. W. (1991). Controlled prospective study of postpartum mood disorders: Psychological, environmental, and hormonal variables. *Journal of Abnormal Psychology, 100*, 63-73.

O'Hara, M. W., Stuart, S., Gorman, L. L., & Wenzel, A. (2000). Efficacy of interpersonal psychotherapy for postpartum depression, *Archives of General Psychiatry, 57*, 1039-1045.

O'Hara, M. W., Zekoski, E. M., Philipps, L. H., & Wright, E. J. (1990). Controlled prospective study of postpartum mood disorders: Comparison of childbearing and nonchildbearing women. *Journal of Abnormal Psychology, 99*, 3-15.

Pakenham, K. I. Smith, A., & Rattan, S. L. (2007). Application of a stress and coping model to antenatal depressive symptomatology. *Psychology, Health & Medicine, 12*, 266-277.

Parsons, C. E., Young, K. S., Rochat, T. J., Kringelbach, M. L., & Stein, A. (2012). Postnatal depression and its effects on child development: A review of evidence from low-and middle-income countries. *British Medical Bulletin, 101*, 57-79

Paulhus, D. L. & Reid, D. B. (1991). Enhancement and denial in socially desirable responding. *Journal of Personality and Social Psychology, 60,* 307-317.

Paulhus, D. L. (2002). Socially desirable responding: The evolution of a construct. In H. I. Braun, D. N. Jackson, & D. E. Wiley, D. E. (Eds.), *The role of contructs in psychological and educational measurment*, (pp. 49-69). New Jersey, Erlbaum.

Perrot, T. (2017). *Maternal and Paternal Effects on Offspring Stress Response Development*, (PowerPoint slides), University of Manitoba.

Phillips, J., Charles, M., Sharpe, L., Matthey, S. (2009). Validation of the subscales of the

    Edinburgh Postnatal Depression Scale in a sample of women with unsettled infants.

    *Journal of Affective Disorders, 118*, 101-112.

Phillips, J., Sharpe, L., Matthey, S., & Charles, M. (2010). Subtypes of postnatal depression? A

    comparison of women with recurrent and de novo postnatal depression. *Journal of*

    *Affective Disorders, 120*, 67-75.

Pitt, B. (1968). "Atypical" depression following childbirth. *British Journal of Psychiatry, 114*,

    1325-135.

Prochaska, J. O. & DiClemente, C. C. (1983). Stages and processes of self-change of smoking:

    Toward an integrative model of change. *Journal of Consulting and Clinical Psychology,*

    *51,* 390-395.

Reck, C., Stehle, E., Reinig, K., & Mundt, C. (2009). Maternity blues as a predictor of DSM-IV

    depression and anxiety disorders in the first three months postpartum. *Journal of*

    *Affective Disorders, 113*, 77-86.

Reich, W. A., Harber, K. D., & Siegel, H. I. (2008). Self-structure and well-being in life

    transitions. *Self and Identity, 7*, 129-150.

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.

Robakis, T. K., Williams, K. E., Crowe, S., Kenna, H., Gannon, J., Rasgon, N. L. (2015).

    Optmistic outlook regarding maternity protects against depressive symptoms postpartum.

    *Archives of Women's Mental Health, 18*, 197-208.

Rode, J. L. (2016). The role of emotional intelligence in predicting postpartum depression. *Western Journal of Nursing Research, 38*, 427-440.

Roepke, S., Schroder-Abe, M., Schutz, A., Jacob, G., Dams, A., Vater, A., Ruter, A., Merkl, A., Heuser, I., Lammers, C. (2011). Dialectical Behavioural Therapy has an impact on self-concept clarity and facets of self-esteem in women with borderline personality disorder. *Clinical Psychology and Psychotherapy, 18*, 148-158.

Rogers, C. R. (1961). On becoming a person: A therapist's view of psychotherapy. Boston: Houghton Mifflin Company.

Rosenwald, G. C. & Stonehill, M. W. (1972). Early and late postpartum illnesses. *Psychosomatic Medicine, 34*, 129-138.

Ryan, R. M. & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist, 55*, 68-78.

Scattolon, Y. & Stoppard, J. M. (1999). "Getting on with life": Women's experiences and ways of coping with depression. *Canadian Psychology, 40*, 205-219.

Scher, C. D., Ingram, R. E., & Segal, Z. V. (2005). Cognitive reactivity and vulnerability: Empirical evaluation of construct activation and cognitive diatheses in unipolar depression. *Clinical Psychology Review, 25*, 487-510.

Schreiber, R. (1996). (Re)defining my self: Women's process of recovery from depression. *Qualitative Health Research, 6*, 469-491.

Segre, L. S., McCabe, J. E. , Stasik, S. M., O'Hara, M. W., & Arndt, S. (2012). Implementation of an evidence-based depression treatment into social service settings: The relative importance of acceptability and contextual factors. *Administration and Policy in Mental Health, 39*, 180-186.

Segre, L. S., O'Hara, M. W., Arndt, S., Beck, C. T. (2010). Nursing care for postpartum

depression - part 1: Do nurses think they should offer both screening and counseling?

*MCN The American Journal of Maternal Child Nursing, 35*, 220-225.

Sheehan, D. V., Lecrubier, Y., Sheehan, K.H., Janavs, J., Weiller E., Keskiner, A., Schinka, J.,

Knapp, E., Sheehan, M. F., & Dunbar, G. C. (1997). The validity of the Mini

International Neuropsychiatric interview (MINI) according to the SCID-P and its

reliability, *European Psychiatry, 12*, 232-241.

Sherry, S. B., Hewitt, P. L., Flett, G. L., Lee-Baggley, D. L., & Hall, P. A. (2007). Trait

perfectionism and perfectionistic self-presentation in personality pathology. *Personality

and Individual Differences, 42*, 477-490.

Simpson, J. A., Rholes, W. S., Campbell, L., Tran, S., & Wilson, C. L. (2003). Adult attachment,

the transition to parenthood, and depressive symptoms. *Journal of Personality and Social

Psychology, 84*, 1172-1187.

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of

marriage and similar dyads. *Journal of Marriage and the Family, 38*, 15-28.

Spielberger, C. D., Gorsuch, R C., Lushene, R. E., Vagg, P. R., and Jacobs, G. A. (1983/1999).

*Manual for the state trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists

Press.

Spitzer, R. L., Williams, J. B. W., Gibbon, M., & First, M. B. (1992). The structured clinical

interview for DSM-III-R (SCID) I: History, rationale, and description. (1992). *Archives

of General Psychiatry, 49*, 624-629.

Steiner, M., Dunn, E., & Born, L. (2003). Hormones and mood: From menarche to menopause

and beyond. *Journal of Affective Disorders, 74*, 67-83.

Stoppard, J. M. (1999). Why new perspectives are needed for understanding depression in

women. *Canadian Psychology, 40*, 79-90.

Swanson, K. M., Karmali, Z. A., Powell, S. H., Pulvermakher, F. (2003). Miscarriage effects on

couples' interpersonal and sexual relationships during the first year after loss: Women's

perceptions. *Psychosomatic Medicine, 65*, 902-910.

Tabachnick, B. G. & Fidell, L. S. (1989, 2007). Using multivariate statistics (2nd ed., 5th ed.).

New York: Harper Collins Publishers.

Taylor, A., Atkins, R., Kumar, R., Adams, D., & Glover, V. (2005). A new mother-to-infant

bonding scale: links with early maternal mood. *Archives of Women's Mental Health, 8*,

45-51.

Terry, D. J. (1991). Predictors of subjective stress in a sample of new parents. *Australian Journal

of Psychology, 43*, 29-36.

Thompson, K. D. & Bendell, D. (2014). Depressive cognitions, maternal attitudes and

postnatal depression. *Journal of Reproductive and Infant Psychology, 32*, 70-82.

Trapnell, P. D. & Paulhus, D. L. (2012). Agentic and communical values: Their scope and

measurment. *Journal of Personality Assessment, 94*, 39-52.

Ussher, J. M. (2010). Are we medicalizing women's misery? A critical review of women's

higher rates of reported depression. *Feminism and Psychology, 20*, 9-35.

Van Bussel, J. C. H., Spitz, B., & Demyttenaere, K. (2006). Women's mental health before,

during, and after pregnancy: A population-based controlled cohort study. *BIRTH, 33*,

297-302.

Van Bussel, J. C. H., Spitz, B., & Demyttenaere, K. (2009). Depressive symptomatology in

　　pregnant and postpartum women. An exploratory study of the role of maternal antenatal

　　orientations. *Archives of Womens Mental Health, 12*, 155-166.

Van Bussel, J. C. H., Spitz, B., & Demyttenaere, K. (2010a). Reliability and Validity of the

　　Dutch  version of the maternal antenatal attachment scale. *Archives of Women's Mental*

　　*Health, 13*, 267-277.

Van Bussel, J. C. H., Spitz, B., & Demyttenaere, K. (2010b). Three self-report questionnaires of

　　the early mother-to-infant bond: reliability and validity of the Dutch version of the

　　MPAS, PBQ and MIBS. *Archives of Women's Mental Health, 13*, 273-384.

Vaughn, Baier (1999). Reliability and validity of the Relationship Assessment Scale. *The*

　　*American Journal of Family Therapy, 27*, 137-147.

Vliegen, N., & Luyten, P. (2009). Dependency and self-criticism in post-partum depression and

　　anxiety: a case control study. *Clinical Psychology & Psychotherapy, 16*, 22-32.

Vliegen, N., Luyten, P., Besser, A., Casalin, S., Kempke, S., Tang, E. (2010). Stability and

　　change in levels of depression and personality: A follow up study of postpartum

　　depressed mothers that were hospitalized in a mother-infant unit. *The Journal of Nervous*

　　*and Mental Disease, 198*, 45-51.

Vliegen, N., Luyten, P., Meurs, P., & Cluckers, G. (2006). Adaptive and maladaptive dimensions

　　of relatedness and self-definition: Relationship with postpartum depression and anxiety.

　　*Personality and Individual Differences, 41*, 395-406.

Warner, R., Appleby, L., Whitton, A., & Faragher, B. (1997). Attitudes toward motherhood in

　　postnatal depression: Development of the maternal attitudes questionnaire. *Journal of*

　　*Psychosomatic Research, 43*, 351-358.

Watson, J. P., Elliott, S. A., Rugg, A. J., & Brough, D. I. (1984). Psychiatric disorder in

pregnancy and the first postnatal year. *British Journal of Psychiatry, 144*, 453-462.

Weissman, M. M., Bland, R. C., Canino, G. J., Faravelli, C., Greenwald, S., Hwu, H., Joyce, P.

R., Karam, E. G., Lee, C., Lellouch, J., Lepine, J., Newman, S. C., Rubio-Stipec, M.,

Wells, E., Wickramaratne, P. J., Wittchen, H., & Yeh, E. (1996). Cross-national

epidemiology of major depression and bipolar disorder. *JAMA, 276*, 293-299.

Whiffen, V. E. (1988). Vulnerability to postpartum depression. A prospective multivariate study.

*Journal of Abnormal Psychology, 97*, 467-474.

Whiffen, V. E. & Gotlib, I. H. (1993). Comparison of postpartum and nonpostpartum depression:

Clinical presentation, psychiatric history, and psychosocial functioning. *Journal of

Consulting and Clinical Psychology, 61,* 485-494.

Williams, J. B. W., Gibbon, M., First, M. B., Spitzer, R. L., Davies, M., Borus, J., Howes, M. J.,

Kane, J., Pope, H. G., Rounsaville, B., & Wittchen, H. (1992). The structured clinical

interview for DSM-III-R (SCID): II. Multisite test-retest reliability. *Archives of General

Psychiatry, 49*, 630-636.

Williamson, J. A., McCabe, J. E., O'Hara, M. W., Hart, K. J., LaPlante, D. P., & King, S. (2013).

Parenting stress in early motherhood: stress spillover and social support. *Comprehensive

Psychology, 2*, 11.

Yonkers, K. A., Smith, M. V., Gotman, N., & Belanger, K. (2009). Typical somatic symptoms of

pregnancy and their impact on a diagnosis of major depressive disorder. *General

Hospital Psychiatry, 31*, 327-333.

Zuroff, D. C., Moskowitz, D. S. Wielgus, M. S., Powers, T. A., & Franko, D. L. (1983).

Construct validation of the dependency and self-criticism scales of the depressive

experiences questionnaire. *Journal of Research in Personality, 17*, 226-241.

Footnotes

[1] An ANCOVA revealed the difference in EPDS scores remains significant, and in fact is slightly more significant, accounting for more variance, when controlling for social desirability bias (MCSDS) with $F(3, 113) = 3.07$, $p = .03$, partial eta squared = .08. All other mean differences also remain significant.

[2] All results remain the same when ANCOVAs were performed to control for social desirability bias (MCSDS).

[3] Two-way interactions were examined in regression analyses with BDI as criterion for the PP group and EPDS as criterion for the NPP group. Results were similar with only the interaction self-criticism and independent loss (match) model emerging as near significant.

Appendix A: Edinburgh Postnatal Depression Scale (EPDS)

**Instructions**: As you have recently had a baby, we would like to know how you are feeling.
Please **UNDERLINE** the answer which comes closest to how you have felt **IN THE PAST 7
DAYS**, not just how you feel today.
1. I have been able to laugh and see the funny side of things
 As much as I always could
 Not quite so much now
 Definitely not so much now
 Not at all

2. I have looked forward with enjoyment to things
As much as I ever did
Rather less than I used to
Definitely less than I used to
Hardly at all

*3. I have blamed myself unnecessarily when things went wrong
Yes, most of the time
Yes, some of the time
Not very often
No, never

4. I have been anxious or worried for no good reason
No, not at all
Hardly ever
Yes, sometimes
Yes, very often

*5. I have felt scared or panicky for no good reason
Yes, quite a lot
Yes, sometimes
No, not much
No, not at all

*6. Things have been getting on top of me
Yes, most of the time I haven't been able to cope at all
Yes, sometimes I haven't been coping as well as usual
No, most of the time I have coped quite well
No, I have been coping as well as ever

*7. I have been so unhappy that I have had difficulty sleeping
Yes, most of the time
Yes, quite often
Not very often
No, not at all

*8. I have felt sad or miserable
Yes, most of the time
Yes, quite often
Not very often
No, not at all

*9. I have been so unhappy that I have been crying
Yes, most of the time
Yes, quite often
Only occasionally
No, never

*10. The thought of harming myself has occurred to me
Yes, quite often
Sometimes
Hardly ever
Never

Scoring: 0, 1, 2, and 3 according to increased severity of symptom
* Reverse scored items

Appendix B: Beck Depression Inventory (BDI)

**INSTRUCTIONS**: On this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out this one statement in each group which best describes the way you have been feeling in the **past week including today**. Fill in the bubble beside the statement that you picked. If several statements in the group seem to apply equally well, fill in each one. **Be sure to read all the statements in each group before making your choice**.

1.
0. I do not feel sad.
1. I feel sad.
2. I am sad all the time and I can't snap out of it.
3. I am so sad or unhappy that I can't stand it.

2.
0. I am not particularly discouraged about the future.
1. I feel discouraged about the future.
2. I feel I have nothing to look forward to.
3. I feel that the future is hopeless and that things cannot improve.

3.
0. I do not feel like a failure.
1. I feel that I have failed more than the average person.
2. As I look back on my life, all I can see is a lot of failures.
3. I feel I am a complete failure as a person.

4.
0. I get as much satisfaction out of things as I used to.
1. I don't enjoy things the way I used to.
2. I don't get real satisfaction out of anything anymore.
3. I am dissatisfied or bored with everything.

5.
0. I don't feel particularly guilty.
1. I feel guilty a good part of the time.
2. I feel quite guilty most of the time.
3. I feel guilty all the time.

6.
0. I don't feel I am being punished.
1. I feel I may be punished.
2. I expect to be punished.
3. I feel I am being punished.

7.
0. I don't feel disappointed in myself.
1. I am disappointed in myself.
2. I am disgusted with myself.
3. I hate myself.

8.
0. I don't feel that I am any worse than anybody else.
1. I am critical of myself for my weaknesses or mistakes.
2. I blame myself all the time for my faults.
3. I blame myself for everything bad that happens.

9.
0. I don't have any thoughts of killing myself.
1. I have thoughts of killing myself, but I would not carry them out.
2. I would like to kill myself.
3. I would kill myself if I had the chance.

10.
0. I don't cry any more than usual.
1. I cry more than I used to.
2. I cry all the time now.
3. I used to be able to cry but now I can't cry though I want to.

11.
0. I am no more irritated now than I ever am.
1. I get annoyed or irritated more easily than I used to.
2. I feel irritated all the time now.
3. I don't get irritated at all by the things that used to irritate me.

12.
0. I have not lost interest in other people.
1. I am less interested in other people than I used to be.
2. I have lost most of my interest in other people.
3. I have lost all of my interest in other people.

13.
0. I make decisions about as well as I ever could.
1. I put off making decisions more than I used to.
2. I have greater difficulty in making decisions than before.
3. I can't make decisions at all anymore.

14.
0. I don't feel I look worse than I used to.
1. I am worried that I am looking old and unattractive.
2. I feel that there are permanent changes in my appearance that make me look unattractive.

3. I believe that I look ugly.

15.
0. I can work about as well as before.
1. It takes extra effort to get started at something.
2. I have to push myself very hard to do anything.
3. I can't do any work at all.

16.
0. I can sleep as well as usual.
1. I don't sleep as well as I used to.
2. I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
3. I wake up several hours earlier than usual and cannot get back to sleep.

17.
0. I don't get more tired than usual.
1. I get easily tired more than I used to.
2. I get tired from doing almost anything.
3. I am too tired to do anything.

18.
0. My appetite is no worse than usual.
1. My appetite is not as good as it used to be.
2. My appetite is much worse now.
3. I have no appetite at all anymore.

19.
0. I haven't lost much weight, if any, lately.
1. I have lost more than 5 pounds.
2. I have lost more than 10 pounds.           I am purposely trying to lose
3. I have lost more than 15 pounds.            Weight by eating less:  Yes   No

20.
0. I am no more worried about my health than usual.
1. I am worried about physical problems such as aches and pains,
or upset stomach.
2. I am very worried about physical problems and it's hard to think of much else.
3. I am so worried about my physical problems that I cannot think about anything else.

21.
0. I have not noticed any recent change in my interest in sex.
1. I am less interested in sex than I used to be.
2. I am much less interested in sex now.
3. I have lost interest in sex completely.

Appendix C: Perfectionistic Self Presentation Scale (PSPS)

1. It is okay to show others that I am not perfect.
2. I judge myself based on the mistakes I make in front of other people.
3. I will do almost anything to cover up a mistake.
4. Errors are much worse if they are made in public rather than private.
5. I try always to present a picture of perfection.
6. It would be awful if I made a fool of myself in front of others.
7. If I seem perfect, others will see me more positively.
8. I brood over mistakes that I have made in front of others.
9. I never let others know how hard I work on things.
10. I would like to appear more competent than I really am.
11. It doesn't matter if there is a flaw in my looks.
12. I do not want people to see me do something unless I am very good at it.
13. I should always keep my problems to myself.
14. I should solve my own problems rather than admit them to others.
15. I must appear to be in control of my actions at all times.
16. It is okay to admit mistakes to others.
17. It is important to act perfectly in social situations.
18. I don't really care about being perfectly groomed.
19. Admitting failure to others is the worst possible thing.
20. I hate to make errors in public.
21. I try to keep my faults to myself.
22. I do not care about making mistakes in public.
23. I need to be seen as perfectly capable in everything I do.
24. Failing at something is awful if other people know about it.
25. It is very important that I always appear to be "on top of things."
26. I must always appear perfect.
27. I strive to look perfect to others.

Rating: Likert-type format with 7 point response on a continuum from "strongly disagree" to "strongly agree"

Appendix D: Self-Concept Clarity Scale


1. My beliefs about myself often conflict with one another.*
2. On one day I might have one opinion of myself and on another day I might have a different opinion.*
3. I spend a lot of time wondering about what kind of person I really am.*
4. Sometimes I feel that I am not really the person I appear to be.*
5. When I think about the kind of person I have been in the past, I'm not sure what I was really like.*
6. I seldom experience conflict between the different aspects of my personality.
7. Sometimes I think I know other people better then I know myself.*
8. My beliefs about myself seem to change very frequently.*
9. If I were asked to describe my personality, my description might end up being different from one day to another day.*
10. Even if I wanted to, I don't think I would tell someone what I'm really like.*
11. In general, I have a clear sense of who I am and what I am.
12. It is often hard for me to make up my mind about things because I don't really know what I want.*


Rating: Likert scale on a continuum from 1 "strongly disagree" to 5 "strongly agree"
*Reverse scored items

Appendix E: Depressive Experiences Questionnaire (DEQ)

**Instructions:** Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent.  If you <u>strongly agree</u>, circle7; if you <u>strongly disagree</u>, circle 1; The midpoint, if you are neutral or undecided, is 4.

|  |  | Strongly<br>Disagree |  |  |  |  |  | Strongly<br>Agree |
|---|---|---|---|---|---|---|---|---|
| 1. | I set my personal goals and standards as high as possible. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. | Without support from others who are close to me, I would be helpless. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. | I tend to be satisfied with my current plans and goals, rather than striving for higher goals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. | Sometimes I feel very big, and other times I feel very small. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. | When I am closely involved with someone, I never feel jealous. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. | I urgently need things that only other people can provide. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. | I often find that I don't live up to my own standards or ideals. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. | I feel I am always making full use of my potential abilities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. | The lack of permanence in human relationships doesn't bother me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. | If I fail to live up to expectations, I feel unworthy. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. | Many times I feel helpless. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. | I seldom worry about being criticized for things I have said or done. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

13. There is a considerable difference between how I
     am now and how I would like to be.                 1     2     3     4     5     6     7

14. I enjoy sharp competition with others.              1     2     3     4     5     6     7

15. I feel I have many responsibilities that I must meet.   1     2     3     4     5     6     7

16. There are times when I feel "empty" inside.         1     2     3     4     5     6     7

17. I tend not to be satisfied with what I have.        1     2     3     4     5     6     7

18. I don't care whether or not I live up to what
     other people expect of me.                      1   2     3     4     5     6     7

  19. I become frightened when I feel alone.                 1     2     3     4     5     6     7

  20. I would feel like I'd be losing an important part
      of myself if I lost a very close friend.               1     2     3     4     5     6     7

  21. People will accept me no matter how many mistakes
      I have made.                                           1     2     3     4     5     6     7

  22. I have difficulty breaking off a relationship
      that is making me unhappy.                             1     2     3     4     5     6     7

  23. I often think about the danger of losing someone
      who is close to me.                                    1     2     3     4     5     6     7

  24. Other people have high expectations of me.             1     2     3     4     5     6     7

  25. When I am with others, I tend to devalue or
      "undersell" myself.                                    1     2     3     4     5     6     7

  26. I am not very concerned with how other people
      respond to me.                                         1     2     3     4     5     6     7

  27. No matter how close a relationship between two people is,
      there is always a large amount of uncertainty and conflict.   1     2     3     4     5     6     7

  28. I am very sensitive to others for signs of rejection.   1     2     3     4     5     6     7

  29. It's important for my family that I succeed.            1     2     3     4     5     6     7

  30. Often, I feel I have disappointed others.               1     2     3     4     5     6     7

  31. If someone makes me angry, I let him (her) know
      how I feel.                                             1     2     3     4     5     6     7

32. I constantly try, and very often go out of my way,
    to please or help people I am close to.                   1     2     3     4     5     6     7

33. I have many inner resources (abilities, strengths).        1     2     3     4     5     6     7

34. I find it very difficult to say "No" to the requests of friends.   1     2     3     4     5     6     7

35. I never really feel secure in a close relationship.        1     2     3     4     5     6     7

36. The way I feel about myself frequently varies: there are times
    when I feel extremely good about myself and other times
    when I see only the bad in me and feel like a total failure   1     2     3     4     5     6     7

37. Often, I feel threatened by change.                        1     2     3     4     5     6     7

38. Even if the person who is closest to me were to
    leave, I could still "go it alone."                        1     2     3     4     5     6     7
39. One must continually work to gain love from another
    person: that is, love has to be earned.                    1     2     3     4     5     6     7

40. I am very sensitive to the effects my words or
    actions have on the feelings of other people.             1     2     3     4     5     6     7

41. I often blame myself for things I have done or
    said to someone.                                           1     2     3     4     5     6     7

42. I am a very independent person.                            1     2     3     4     5     6     7

43. I often feel guilty.                                       1     2     3     4     5     6     7

44. I think of myself as a very complex person, one
    who has "many sides."                                      1     2     3     4     5     6     7

45. I worry a lot about offending or hurting someone
    who is close to me.                                        1     2     3     4     5     6     7

46. Anger frightens me.                                        1     2     3     4     5     6     7

47. It is not "who you are," but "what you have
    accomplished" that counts.                                 1     2     3     4     5     6     7

48. I feel good about myself whether I succeed or fail.        1     2     3     4     5     6     7

49. I can easily put my own feelings and problems aside,
    and devote my complete attention to the feelings and
    problems of someone else.                                  1     2     3     4     5     6     7

50. If someone I cared about became angry with me, I
would feel threatened that he (she) might leave me.    1   2   3   4   5   6   7

51. I feel comfortable when I am given important
responsibilities.    1   2   3   4   5   6   7

52. After a fight with a friend, I must make amends as
soon as possible.    1   2   3   4   5   6   7

53. I have a difficult time accepting weaknesses in myself.    1   2   3   4   5   6   7

54. It is more important that I enjoy my work than it
is for me to have my work approved.    1   2   3   4   5   6   7

55. After an argument, I feel very lonely.    1   2   3   4   5   6   7

56. In my relationships with others, I am very concerned
about what they can give to me.    1   2   3   4   5   6   7

57. I rarely think about my family.    1   2   3   4   5   6   7

58. Very frequently, my feelings toward someone close to me vary:
there are times when I feel completely angry and other times
when I feel all-loving towards that person.    1   2   3   4   5   6   7

59. What I do and say has a very strong impact on
those around me.    1   2   3   4   5   6   7

60. I sometimes feel that I am "special."    1   2   3   4   5   6   7

61. I grew up in an extremely close family.    1   2   3   4   5   6   7

62. I am very satisfied with myself and my accomplishments.    1   2   3   4   5   6   7

63. I want many things from someone I am close to.    1   2   3   4   5   6   7

64. I tend to be very critical of myself.    1   2   3   4   5   6   7

65. Being alone doesn't bother me at all.    1   2   3   4   5   6   7

66. I very frequently compare myself to standards or goals.    1   2   3   4   5   6   7

Appendix F: DEQ Subscales and Items Used in PPD Study

**DEQ RELATEDNESS Facet**

9. The lack of permanence in human relationships doesn't bother me. *
20. I would feel like I'd be losing an important part of myself if I lost a very close friend.
32. I constantly try, and very often go out of my way, to please or help people I am close to.
34. I find it very difficult to say "No" to the requests of friends.
45. I worry a lot about offending or hurting someone who is close to me.
50. If someone I cared about became angry with me, I would feel threatened that he(she) might leave.
55. After an argument, I feel very lonely.
65. Being alone doesn't bother me. *

**DEQ DEPENDENCE Facet**

2. Without support from others who are close to me, I would be helpless.
19. I become frightened when I feel alone.
22. I have difficulty breaking off a relationship that is making me unhappy.
23. I often think about the danger of losing someone who is close to me.
26. I am not very concerned with how other people respond to me. *
28. I am very sensitive to others for signs of rejection.
38. Even if the person who is closest to me were to leave, I could still "go it alone". *
42. I am a very independent person. *
46. Anger frightens me.
52. After a fight with a friend, I must make amends as soon as possible.

**DEQ SELF CRITICISM Facet**

7. I often find that I don't live up to my own standards or ideals.
11. Many times I feel helpless.
13. There is a considerable difference between how I am now and how I would like to be.
17. I tend not to be satisfied with what I have.
27. No matter how close a relationship between two people there is always a large amount of conflict.?
30. Often, I feel I have disappointed others.
35. I never really feel secure in a close relationship.?
37. Often, I feel threatened by change.
62. I am very satisfied with myself and my accomplishments. *Reverse

* Reverse scored items

Appendix G: State-Trait Anxiety Inventory (STAI)

1. I feel calm.*
2. I feel secure.*
3. I am tense.
4. I feel strained.
5. I feel at ease.*
6. I feel upset.
7. I am presently worrying over possible misfortune.
8. I feel satisfied.*
9. I feel frightened.
10. I feel comfortable.*
11. I feel self-confident.*
12. I feel nervous.
13. I am jittery.
14. I feel indecisive.
15. I am relaxed.*
16. I feel content.*
17. I am worried.
18. I feel confused.
19. I feel steady.*
20. I feel pleasant.*
Part 2
21. I feel pleasant.*
22. I feel nervous and restless.
23. I feel satisfied with myself.*
24. I wish I could be as happy as others seem to be.
25. I feel like a failure.
26. I feel rested.*
27. I am "calm, cool, and collected."*
28. I feel that difficulties are piling up so that I cannot overcome them.
29. I worry too much over something that does not really matter.
30. I am happy.*
31. I have disturbing thoughts.
32. I lack self-confidence.
33. I feel secure.*
34. I make decisions easily.
35. I feel inadequate.
36. I am content.*
37. Some unimportant thought runs through my mind and bothers me.
38. I take disappointments so keenly that I can't put them out of my mind.
39. I am a steady person.*
40. I get in a state of tension or turmoil as I think over my recent concerns and interests.

Scored on a scale from 1-4, Not at all to Very much so
*Reverse scored items

Appendix H: Dyadic Adjustment Scale (DAS)

**Instructions**: Most persons have disagreements in their relationships. Please indicate below the approximate extent of agreement or disagreement between you and your partner for each item on the following list.

| Always Agree | Almost Always Agree | Occa-sionally Disagree | Fre-quently Disagree | Almost Always Disagree | Always Disagree |
|:---:|:---:|:---:|:---:|:---:|:---:|
| 5 | 4 | 3 | 2 | 1 | 0 |

1. Handling family finances
2. Matters of recreation
3. Religious matters
4. Demonstrations of affection
5. Friends
6. Sex relations
7. Conventionality (correct or proper behavior)
8. Philosophy of life
9. Ways of dealing with parents or in-laws
10. Aims, goals, and things believed important
11. Amount of time spent together
12. Making major decisions
13. Household tasks
14. Leisure time interests and activities
15. Career decisions

| All the time | Most of the time | More often than not | Occa-sionally | Rarely | Never |
|:---:|:---:|:---:|:---:|:---:|:---:|
| 0 | 1 | 2 | 3 | 4 | 5 |

16. How often do you discuss or have you considered divorce, separation, or terminating your relationship?*
17. How often do you or your mate leave the house after a fight?*
18. In general, how often do you think that things between you and your partner are going well?
19. Do you confide in your mate?
20. Do you ever regret that you married (*or lived together*)?*
21. How often do you and your partner quarrel?*
22. How often do you and your mate "get on each other's nerves?"*

| Every Day | Almost Every Day | Occa- sionally | Rarely | Never |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

23. Do you kiss your mate?

| All of Them | Most of Them | Some of Them | Very Few of Them | None of Them |
|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 |

24. Do you and your mate engage in outside interests together?

How often would you say the following events occur between you and your mate?

| Never | Less than once a month | Once or twice a month | Once or twice a week | Once a day | More often |
|---|---|---|---|---|---|
| 0 | 1 | 2 | 3 | 4 | 5 |

25. Have a stimulating exchange of ideas*
26. Laugh together*
27. Calmly discuss something*
28. Work together on a project*

There are some things about which couples sometimes agree and sometimes disagree. Indicate if either item below cause differences of opinion or were problems in your relationship during the past few weeks (check yes or no).

29. Being too tired for sex*
30. Not showing love*

The circles on the following line represent different degrees of happiness in your relationship. The middle point, "happy," represents the degree of happiness of most relationships. Please fill in the circle which best describes the degree of happiness, all things considered, of your relationship.

---

| Extremely Unhappy | Fairly Unhappy | A Little Unhappy | Happy | Very Happy | Extremely Happy | Perfect |

32. Which of the following statements best describes how you feel about the future of your relationship?*

I want desperately for my relationship to succeed, and *would go to almost any length* to see that it does.

I want very much for my relationship to succeed, and *will do all I can* to see that it does.
I want very much for my relationship to succeed, and *will do my fair share* to see that it does.
It would be nice if my relationship succeeded, but *I can't do much more than I am doing now* to help it succeed.
It would be nice if it succeeded, but *I refuse to do any more than I am doing now* to keep it going.
My relationship can never succeed, and *there is no more than I can do* to keep the relationship going.

Reverse scored items *

Appendix I: Relationship Assessment Scale (RAS)

1. How well does your partner (mother) meet your needs?

2. In general, how satisfied are you with your relationship?

3. How good is your relationship?

4. How often do wish you hadn't gotten into this relationship? *

(How often do you wish you had another relationship/relationship was different?)

5. To what extent has your relationship met your original expectations?

6. How much do you love your partner (mother)?

7. How many problems are there in your relationship? *

Scale ranges from 1 (low satisfaction) to 5 (high satisfaction).
* Reverse scored items

Appendix J: Maternal Attitudes Questionnaire (MAQ)

**Instructions**: Below is a series of statements about being a mother. In each case please circle the answer which most applies to you. This questionnaire is seeking your opinion-there are no right or wrong answers.

1. I think my baby is very demanding.
2. I feel proud of being a mother.*
3. I am disappointed by motherhood.
4. Having a baby has made me as happy as I expected.*
5. I sometimes regret having my baby.
6. I am the only person who can look after my baby properly.
7. To be a good mother, I should be able to cope well all the time.
8. If my baby is unwell or unhappy it is not my fault.
9. I have resented not having enough time to myself since having my baby.
10. My daily life has been no more difficult since my baby was born.*
11. If I find being a mother difficult, I feel like a failure.
12. If I love my baby I should want to be with him/her all the time.
13. If other people help me look after my baby, I feel a failure.
14. I resent the way my life has been restricted since having my baby.

Rating: Scale from "strongly agree" to "strongly disagree" scored with a 0, 1, or 2.
Reverse scored items*

Appendix K: Maternal-to-Infant Bonding Scale (MIBS)

**Instructions**: These questions are about your feelings for your child in (the first few weeks, omitted). Some adjectives are listed below which describe some of the feelings mothers have towards their baby in the (first weeks, omitted) after they were born. Please make a tick against each word in the box which best describes how you felt in the (first few weeks, omitted).

|  | Very Much | A Lot | A Little | Not At All |
|---|---|---|---|---|
| Loving* |  |  |  |  |
| Resentful |  |  |  |  |
| Neutral or felt nothing |  |  |  |  |
| Joyful* |  |  |  |  |
| Dislike |  |  |  |  |
| Protective* |  |  |  |  |
| Disappointed |  |  |  |  |
| Aggressive |  |  |  |  |

Rating: Scored with a 0, 1, 2, or 3.
Reverse scored items*

Appendix L: Revised Life Event Questionnaire (Revised LEQ)

Listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitates social readjustment. *Please check those events which you have experienced in the recent past (and indicate the time period during which you have experienced each event).* Be sure that all check marks are directly across from the items they correspond to.

Also, for each item checked below, *please indicate the extent to which you viewed the event as having either a positive or negative impact on your life* at the time the event occurred. That is, *indicate the type and extent of impact that the event had*. A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.
**\*Rate on 5 point likert scale from 0 (not at all) to 5 (extremely) \*include positive**

A. Health

1. Major personal illness or injury
2. Major change in eating habits
3. Major change in sleeping habits
4. Major change in usual type and/or amount of recreation
5. Major dental work
6. Pregnancy
7. Miscarriage or abortion
8. Started menopause
9. Major difficulties with birth control pills or devices

B. Work

10. Difficulty finding a job
11. Beginning work outside the home
12. Changing to a new type of work
13. Changing your work hours or conditions
14. Change in your responsibilities at work
15. Troubles at work with your employer or co-workers
16. Major business readjustment
17. Being fired or laid off from work or retirement
18. Retirement from work
19. Taking courses by mail or studying at home to help you in your work

C. School

20. Beginning or ceasing school, college, or training program
21. Change of school, college, or training program
22. Change in career goal or academic major
23. Problems in school, college, or training program

D. Residence

24. Difficulty finding housing
25. Changing residence within the same town or city
26. Moving to a different town, city, state, or country
27. Major change in your living conditions (home improvements or a decline in your home or neighborhood)

E. Love and Marriage

28. Began a new, close, personal relationship
29. Became engaged
30. Girlfriend or boyfriend problems
31. Breaking up with a girlfriend or boyfriend or breaking an engagement
32. Pregnancy*
33. Miscarriage or abortion*
33. Getting married (or beginning to live with someone)
34. A change in closeness with your spouse or partner
35. Infidelity
36. Trouble with in-laws
37. Separation from spouse or partner due to conflict
38. Separation from spouse or partner due to work, travel, etc.
39. Reconciliation with spouse or partner
40. Divorce
41. Change in your spouse or partner's work outside the home (beginning work, ceasing work, changing jobs, retirement, etc.)

F. Family and Close Friends

42. Gain of a new family member (through birth, adoption, relative moving in, etc.)
43. Child or family member leaving home (due to marriage, to attend college, or for some other reason)
44. Major change in health or behavior of a family member or close friend (illness, accidents, drug or disciplinary problems, etc.)
45. Death of a spouse or partner
46. Death of a child
47. Death of a family member or close friend
48. Birth of a grandchild
49. Change in the marital status of your parents

G. Parenting

50. Change in child care arrangements
51. Conflicts with spouse or partner about parenting
52. Conflicts with child's grandparents (or other important person) about parenting

53. Taking on full responsibility for parenting as a single parent
54. Custody battles with former spouse or partner


H.  Personal and Social

55. Major personal achievement
56. Major decision regarding your immediate future
57. Change in your personal habits (your dress, life-style, hobbies, etc.)
58. Change in your religious beliefs
59. Change in your political beliefs
60. Loss or damage of personal property
61. Took a vacation
62. Took a trip other than a vacation
63. Change in family get-togethers
64. Change in your social activities (clubs, movies, visiting)
65. Made new friends
66. Broke up with a friend
67. Acquired or lost a pet

I.  Financial
68. Major change in finances (increased or decreased income)
69. Took on a moderate purchase, such as a T.V., car, freezer, etc.
70. Took on a major purchase or a mortgage loan, such as a home, business, property, etc.
71. Experienced a foreclosure on a mortgage or loan
72. Credit rating difficulties


J.  Crime and Legal Matters

73. Being robbed
74. Being a victim of a violent act (rape, assault, etc.)
75. Involved in an accident
76. Involved in a law suit
77. Involved in a minor violation of the law (traffic tickets, disturbing the peace, etc.)
78. Legal troubles resulting in your being arrested or held in jail

K.  Other

Other recent experiences which have had an impact on your life. List and rate.

79. _____
80. _____
81. _____

Appendix M: Perceptions of Loss (POL)

**Interpersonal Loss**:

 How much did this event result in a disruption to your relationship with others?

How much did this event result in:

A. Loss of emotional support that I had or wanted to have?

B. Closeness or affection I had or wanted to have?

C. Friendship or companionship I had or wanted to have?

D. Trust that I had for someone?

**Loss of Independence**:

How much did this event result in a loss of your independence, freedom or (life) goals?

How much did this event result in loss of:

A. Succeeding at what I do?

B. Accomplishing what I wanted?

C. Reaching my goals or fulfilling my hopes for how I do?

D. Meeting my expectations or performing up to my own standards?.

Rating: 7 point scale from 0 (no loss) to 6 (great loss)

Appendix N: Marlowe-Crowne Social Desirability Scale (MCSDS)

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is *true* or *false* as it pertains to you personally.

1. Before voting I thoroughly investigate the qualifications of all the candidates.

2. I never hesitate to go out of my way to help someone in trouble.

3. It is sometimes hard for me to go on with my work if I am not encouraged.*

4. I have never intensely disliked anyone.

5. On occasion I have had doubts about my ability to succeed in life.*

6. I sometimes feel resentful when I don't get my way.*

7. I am always careful about my manner of dress.

8. My table manners at home are as good as when I eat out in a restaurant.

9. If I could get into a movie without paying and be sure I was not seen I would probably do it.*

10. On a few occasions, I have given up doing something because I thought too little of my ability.*

11. I like to gossip at times.*

12. There have been times when I felt like rebelling against people in authority even though I knew they were right.*

13. No matter who I am talking to, I'm always a good listener.

14. I can remember "playing sick" to get out of something.*

15. There have been occasions when I took advantage of someone.*

16. I'm always willing to admit when I make a mistake.

17. I always try to practice what I preach.

18. I don't find it particularly difficult to get along with loud mouthed, obnoxious people.

19. I sometimes try to get even rather than forgive and forget.*

20. When I don't know something I don't at all mind admitting it.

21. I am always courteous, even to people who are disagreeable.

22. At times I have really insisted on having things my own way.*

23. There have been occasions when I felt like smashing things.*

24. I would never think of letting someone else be punished for my wrongdoings.

25. I never resent being asked to return a favor.

26. I have never been irked when people expressed ideas very different from my own.

27. I never make a long trip without checking the safety of my car.

28. There have been times when I was quite jealous of the good fortune of others.*

29. I have almost never felt the urge to tell someone off.

30. I am sometimes irritated by people who ask favors of me.*

31. I have never felt that I was punished without cause.

32. I sometimes think when people have misfortune they only got what they deserved.*

33. I have never deliberately said something that hurt someone's feelings.

*Reverse scored items

Appendix O: Recruitment Posters



UNIVERSITY
OF MANITOBA

Are you a new mother who is feeling "blue" or depressed?

You are invited to participate in a research study about mothers' perceptions of themselves and their relationships.

> **If you:**
> - **are between the ages of 18 and 45**
> - **have at least one child: 4 weeks to 6 months old**
> - **have a partner for at least one year**

You may be eligible to participate in an ethics approved university study. *This research has been approved by the Psychology/Sociology Research Ethics Board at the University of Manitoba.

Study participation will include a 30 minute phone interview and completing a package of questionnaires at home that will be returned by mail.

You will receive a small token of compensation for your participation.

For more information please call or email motherhoodstudy2012 @gmail.com.

Motherhood And Depression Study
Call Or Email
motherhoodstudy2012@gmail.com

Are you a mother who is feeling "blue" or depressed?

You are invited to participate in a research study about mothers' perceptions of themselves and their relationships.

**If you:**
- **are between the ages of 18 and 45**
- **have at least one child at least one year old**
- **have a partner for at least one year**

You may be eligible to participate in an ethics approved university study.

*This research has been approved by the Psychology/Sociology Research Ethics Board at the University of Manitoba

Participation will include a 30 minute phone interview and questionnaires that you will complete at home.

You will receive a small token of compensation for your participation.

For more information please call or email motherhoodstudy2012@gmail.com.

Motherhood And Depression Study
Call Or Email
motherhoodstudy2012@gmail.com

Appendix P: Phone Script

Good morning/afternoon/evening. May I speak to _____? My name is Michelle Choch and I am a graduate student in the Clinical Psychology Program within the Faculty of Arts at the University of Manitoba. I received information from _____ that you are interested in more information about participating in a study on how women/mothers perceive themselves and their relationships (after having a baby) and I am the researcher running this study for my PhD. thesis. Do you have a few minutes to talk right now? I am calling to give you some information about what you will be asked to do for the study and see if you would like to go ahead with participation.

The study invites you to set up an appointment to talk on the phone for a brief interview during which I will ask you some questions about your mood and then complete a questionnaire package that will be mailed out to you. The questionnaires should take you approximately 90 minutes and the appointment should be 20-30 minutes. Your phone appointment will be arranged at a time that is convenient for you during your first 6 months postpartum and prior to August 2014. Initially, you will be asked to provide personal information, such as your age and background information to determine your fluency in English. Then you will be asked to answer questions about how you perceive yourself and your relationships. Before completing the questionnaire you will be given a consent form which includes all the information that I will give you today plus some extra information regarding confidentiality and contact numbers, in case you have any further questions about the study or your participation. You will be asked to sign this consent form once you have read through it and are satisfied with its contents and then you may proceed with completing the questionnaires. If you agree to participate you will mail in the completed questionnaires and will receive feedback about the study, numbers for counselling services, a modest token of compensation for your participation and information about how to receive a summary of the results of the study. After the thesis is completed I will be presenting the results at research conferences. In order to protect your confidentiality, I will assign you a number so your name will not be identified. I will not use your name or any other personal identifiers in any presentation, the thesis or research paper. All information containing personal identifiers, such as your consent from, will be destroyed in December 2014.

Do you have any questions? Would you be interested in participating in this research? Would you like to schedule an appointment to complete the first part of the study? When is it convenient for you to arrange a telephone interview? Is this the number at which I can reach you? May I have your email address? The purpose of this is to send you a copy of the consent form that you can review before the interview. Please review the Consent Form and check the appropriate box at the bottom of the document indicating whether or not you consent to participate and email it back to me. I will ask for your verbal consent over the telephone before the interview begins if I have not received it at the time of the interview. Here is my contact information if you have any questions before we meet or motherhoodstudy2012@gmail.com. I look forward to talking to you more about your experiences. Thank you for time and your willingness to participate in the study/for your time and consideration.

Appendix Q: Instructions for Completing Questionnaire Packages

The questionnaire package you will be asked to complete for this study includes two copies of a consent form. Please read the consent form carefully. If you are satisfied with its contents, please sign one of the copies. You will be asked to hand in this consent form along with the rest of your questionnaire package. The second copy of the consent form is for you to keep.

This study asks you to complete 13 short questionnaires. In total, the questionnaires should take you no longer than 90 minutes to complete, but please take your time and complete questionnaires with as much attention as possible, without outside distractions. You may take breaks and come back to the questionnaires. Please read the instructions carefully before beginning each questionnaire. All answers will be kept completely confidential, so please respond as honestly as possible and complete all statements. You will need a pen or pencil to fill out the questionnaires. If you have any questions while completing the questionnaires, please write them down and contact me.

Appendix R: Consent Form

Hôpital St-Boniface Hospital
RECHERCHE · RESEARCH

UNIVERSITY
OF MANITOBA

Department of Psychology

190 Dysart Road
Winnipeg, Manitoba
Canada R3T 2N2
Phone (204) 474-9338
Fax (204) 474-7599

**Title of Project**: Motherhood and Depression Study.

**Researcher**: Michelle Choch, M.A., Ph.D. Candidate, Psychology Doctoral Student;
motherhoodstudy2012@gmail.com,.

**Research Supervisor**: Dr. Edward Johnson, Ph.D., C. Psych., Associate Professor and Director
of Clinical Training.

This consent form, a copy of which will be left with you for your records and reference, is only
part of the process of informed consent. It should give you the basic idea of what the research is
about and what your participation will involve. If you would like more detail about something
mentioned here, or information not included here, you should feel free to ask. Please take the
time to read this carefully and to understand any accompanying information.

**What am I doing?**
You are invited to participate in a research study conducted by Michelle Choch, a Ph.D. student
from the Psychology Department at the University of Manitoba. This study is being conducted in
order to fulfill requirements for a Ph.D. dissertation project. The study is looking at how mothers
perceive their thoughts and feelings in relation to themselves and their relationships after having
a baby. Specifically, the study is looking at mothers' experiences of depression.

**What does participating involve?**
Should you choose to participate you will be asked to fill out all items on 13 questionnaires,
which should require up to 90 minutes to complete. Initially, you will be asked to provide
personal information, such as your age and background information to determine your fluency in
English. Then you will be asked to answer questions about how you perceive your thoughts and
feelings, in general, and in relation to your baby, partner, and mother. Please read instructions
carefully and answer all items as honestly as possible. You will also be asked questions over the
phone which will take up to 30 minutes.

**W hat are the benefits?**
By participating you are making a valuable contribution to research on motherhood, depression, and relationships. You will experience and may learn more about how psychological research is conducted. You will receive a small token of appreciation ($20 gift certificate) for your participation in the study and some tips for dealing with depression.

**How will my information be protected?**
Names will not be asked for on your questionnaires, so your identity cannot be linked to items on your questionnaire and will remain anonymous. Completed questionnaires and any other information received will be securely kept in a locked cabinet and will be viewed only by researchers. Medical information that contains your identity will be treated as confidential in accordance with the Personal Health and Information Act of Manitoba. Results of the study will be presented only as group data and shredded by one year following the collection of data, which will provide enough time for all data to be collected and analyzed.

**Will any information not be confidential?**
Generally, all the information that you provide during the study will remain confidential. However, the researcher is obligated to address any information related to concerns for your safety and the safety of any children. This means that if you or your child's safety is at serious risk, this will be addressed by speaking to child protection agencies or legal authorities to ensure safety. The researcher will discuss any concerns about safety with you unless you cannot be reached and someone is in immediate danger of being harmed.

**How will the results of the study be used?**
The results of the study will be used in a Ph.D. dissertation project as a paper and presentation and may be referred to in journal articles and presentations at psychology conferences.

**Is there any potential for harm?**
There are no known risks associated with participation in this study. However, you may choose to discontinue participation at any time, and are encouraged to speak to the researcher or use the contact information provided on this consent form. Furthermore, if there is any additional information that has not been provided or is unclear, you should feel free to ask.

**What if I find something upsetting during the study and/or I need to talk to someone for support?**
It is expected that you will not experience any distress during this study beyond what you would experience in your day to day life. However, the study asks questions about depression and answering some of the questions may be emotionally distressing. Please feel free to contact the numbers given to you on the consent form if you have any questions or concerns about the study. Also, if you think that you may require help or counselling services to cope with distress, you may contact any of the following. If you feel that you are in immediate crisis you may contact Klinic at 204-786-8686, Manitoba Suicide Line at 1-877-435-7170, Mobile Crisis Services at 204-940-1781, WRHA Crisis Stabilization Unit at 204-940-3633 or go to either your nearest hospital emergency department or the Mental Health Crisis Response Centre at 817 Bannatyne Avenue. For immediate services in Brandon you may contact Mobile Crisis Unit at 204-725-

4411 or Crisis Stabilization Unit at 1-888-379-7699. For non emergency support you may also contact Health Links at 204-788-8200, Women's Health Clinic at 204-947-2422 ext. 113, The Family Centre at 204-947-1401, WRHA Clinical Health Psychology at 204-787-5161, Healthy Child Manitoba – Families First at 204-945-3744 (Winnipeg) or 1-866-626-4862 (Manitoba), Child Development Clinic at 204-787-2584, Wolseley Family Place at 204-788-8052 or Mood Disorders Association of Manitoba at 204-786-0987 (Winnipeg) or 1-800-263-1460 (Manitoba) or Postpartum Depression Warmline 204-391-5983. Finally, you may also contact your physician for a referral to a psychologist or psychiatrist, or your public health nurse. If you do not have a physician you may contact the Family Doctor Connection Program at 204-947-1517.

**What if I want to stop participating?**
Completion of this questionnaire package is strictly voluntary. You may choose not to participate or discontinue participation at any time without penalty.

**When will I receive the results?**
Immediately after your completed questionnaires have been received by mail, you will receive a feedback form which explains the purpose of the study by mail or email. If you would like a summary of the study's results once all group data has been analyzed please provide your email address and they will be emailed to you upon completion of the study. If you do not have an email address you may provide a mailing address. If you are not interested in receiving a summary of the results please do not provide your address.

Email address or mailing address (if interested in receiving summary of results):

_____

Your signature on this form indicates that you understand to your satisfaction the information above regarding participation in this study and willingly agree to participate. In no way does this waive your legal rights nor release the researchers, sponsors, or involved institutions from their legal and professional responsibilities. You are free to withdraw from the study at any time, and/or refrain from answering any questions you prefer to omit, without prejudice or consequence. Your continued participation should be as informed as your initial consent, so you should feel free to ask for clarification or new information throughout your participation.

If you experience discomfort during participation in the study, or if you have any further questions regarding the study please feel free to contact Michelle Choch, M.A. at or email motherhoodstudy2012@gmail.com.

The University of Manitoba and St. Boniface Hospital may look at your research records to see that the research is being done in a safe and proper way.

This research has been approved by the Psychology/Sociology Research Ethics Board at the University of Manitoba. If you have any concerns or complaints about this project you may contact any of the above-named persons or the Human Ethics Coordinator (HEC) at 204-474-7122, or email Margaret_bowman@umanitoba.ca. A copy of this consent form has been given to you to keep for your records and reference.

_____          _____

Participant's Signature                                Date


_____          _____

Researcher's Signature                                Date

*Note.* Participant initials requested at the bottom of each page of form.

Appendix S: Feedback Form - (Postpartum) Depression and
Perceptions of Self and Relationships

Thank you for your participation in this study. The questionnaires you have just completed required you to answer items related to your thoughts, feelings, and behaviors in relation to yourself and your relationships. We were particularly interested in examining dispositional forms of thinking including perfectionism, self concept clarity, anxiety, and valued goals. All four of these forms of thinking have been identified as possibly playing a role in the development of psychological difficulties such as depression. Women who experience depression after having a baby (postpartum depression) may be particularly affected by these forms of thinking, because they tend to struggle with changes related to themselves, their partner relationship, their relationship with their mother, and their relationship with their baby. Specifically, perfectionism is related to high expectations of yourself and others, self concept clarity is related to how consistent and confident you are in your sense of your own identity, anxiety is related to internal conflict such as difficulty making decisions, and valued goals are related to independence or dependence on others. Struggles with identity, control, independence, and connecting in relationship that women are faced with after having a baby are particularly relevant to these types of thinking styles. Stressful events and how women perceive stress can influence whether these struggles turn into serious psychological distress, such as depression. Data from this study will be used to determine whether these thinking styles and perceptions of stress are important in the development of depression after having a baby and what role they play in creating specific types of difficulty. Another aspect of the study is determining whether women who have depression after a baby have a unique experience or whether their experience is similar to having depression at other times in life. Results from the study will be available in up to two years and will be emailed or mailed to you if you have indicated that you are interested in receiving them.

Please feel free to contact the numbers given to you on the consent form if you have any questions or concerns. Also, if you think that you may require help or counselling services, you may contact any of the following: the Psychological Service Centre (474-9222), your physician for a referral to a psychologist or psychiatrist, or your public health nurse. For non emergency support you may also contact Health Links at 788-8200, Women's Health Clinic at 947-2422 ext. 113, The Family Centre at 947-1401, WRHA Clinical Health Psychology at 787-5161, Healthy Child Manitoba – Families First at 945-3744 (Winnipeg) 1 866 626 4862 (Manitoba) or Child Development Clinic at 787-2584.

If you think that you are suicidal, that you may harm yourself or your baby and require immediate help, please contact Klinic at 786-8686, WRHA Mobile Crisis Service at 940-1781 or go to your nearest emergency department. Thank you for your participation in this study.

Sincerely,

_____
Michelle Choch, M.A., PhD. Candidate
\* Phrases related to postpartum in particular were omitted or edited for the comparison NPP group.

Appendix T: Resources for Motherhood and Depression Study

If you have any questions please contact:

**Researcher**: Michelle Choch, M.A., Ph.D. Candidate, Psychology Doctoral Student; motherhoodstudy2012@gmail.com.

If you think that you may require help or counselling services to cope with distress, you may contact any of the following:

If you feel that you are in **immediate crisis** you may contact:

Klinic at 204-786-8686, Manitoba Suicide Line at 1-877-435-7170, Mobile Crisis Services at 204-940-1781, WRHA Crisis Stabilization Unit at 204-940-3633 or either go to your nearest hospital emergency department or the Mental Health Crisis Response Centre at 817 Bannatyne Avenue.

For **immediate services in Brandon** you may contact Mobile Crisis Unit at 204-725-4411 or Crisis Stabilization Unit at 1-888-379-7699.

For **non emergency support** you may also contact:

Health Links at 204-788-8200, Women's Health Clinic at 204-947-2422 ext. 113, Family Dynamics at 204-947-1401, WRHA Clinical Health Psychology at 204-787-5161, Healthy Child Manitoba – Families First at 204-945-3744 (Winnipeg) or 1-866-626-4862 (Manitoba), Child Development Clinic at 204-787-2584, Wolseley Family Place at 204-788-8052 or Mood Disorders Association of Manitoba at 204-786-0987 (Winnipeg) or 1-800-263-1460 (Manitoba), or Postpartum Depression Warmline 204-391-5983.

You may also contact your physician for a referral to a psychologist or psychiatrist, or your public health nurse. If you do not have a physician you may contact the Family Doctor Connection Program at 204-947-1517.

For **internet resources for postpartum depression** look at www.postpartum.org, www.postpartum.net, or the Canadian Psychological Association's psychology fact sheet on postpartum depression at: www.cpa.ca/docs/File/Publications/FactSheets/PsychologyWorksFactSheet_Post-PartumDepression.pdf.
For **internet resources for major depression** look at the Canadian Psychology Association's psychology factsheet on depression: www.cpa.ca/docs/File/Publications/FactSheets/PsychologyWorksFactSheet_Depression.pdf, or look at the Winnipeg Regional Health Authority website's depression services brochure at: www.wrha.mb.ca/prog/psychology/files/Psych_DepressionBrochure.pdf.

Appendix U: Information and Tips for Mothers with Postpartum Depression

*Facts about Depression in Women:*

• Women are twice as likely as men to have depression.
• Women are particularly vulnerable during the childbearing years (15 to 44 years of age).
• Postpartum depression is different from the "Baby Blues": It lasts longer and is more severe.
• Postpartum depression can develop between 4 weeks and 1 year after having a baby.
• Depression does not have a single cause, but often is caused by multiple factors
• You are not alone: 10% to 15% of new mothers have postpartum depression.

*Tips for Dealing with Depression: What Can You Do?:*

**Get Support and Focus on Supporters**

• Whether women perceive their partners as supportive has an impact on their experience of depression.
• Communicate and work with your partner to get the support that will be most helpful.
• Focus on people who can support you if your partner is unavailable or seems unsupportive.
• Struggling and hiding your depression creates a "double burden" on you making it harder to feel better, so stay connected to others and reach out for help from a health care professional.

**Realistic Expectations of Yourself**

• Women with unrealistic expectations of themselves struggle more with depression.
• Focus on your experience of motherhood and avoid comparing it to your picture of what you expected or what others expect and have suggested you should be experiencing.
• Avoid focusing on how others perceive you and your experiences as a mother.
• Recognize that some of what you are experiencing is natural and normal. Changes in appetite, sleep, energy, and sexual drive are expected changes for many women after having a baby.
• Focus on what you are doing well, including getting through the day, keeping yourself safe and healthy, and your baby safe and healthy. Being a mother is a big job even when it seems you are not doing much, you have accomplished some very important things.

**Enjoy Your Baby**

 • Feelings towards your baby and depression influence one another: Bonding with baby affects depression and depression affects bonding with baby.
 • Spend some time each day *enjoying* time with your baby trying to put other worries aside.

**Exercise and Relaxation**

• Exercise affects your mood and state of mind: Try walking, stretching, or swimming.
• Focus on what feels good not on other goals such as losing weight. Keep your expectations/goals small so that you feel good when you have accomplished a little step instead of disappointed when you can't reach a huge goal you have set up. Little steps add up!
• Be proactive about relaxing: Spend a few minutes each day focusing on calm breathing, visualizing something that is pleasing, listening to a song that creates a positive mood, or smiling, which can affect your mood even if you don't feel it in the moment.

**Sleep**

• Research shows that treating sleep problems such as insomnia increases the chances of recovering from depression.
• Use your support network and working with your baby's routine to try to get more sleep when possible.
• Monitor and identify patterns between your sleep, eating, and mood. They are all connected and might give you clues about how to increase either the quantity or quality of sleep.
• Try to *accept*, not resist, fight, or become frustrated about sleep. Acceptance reduces the added exhaustion resulting from energy put into emotional resistance. Try meditation which impacts energy even if you cannot get to sleep.


***Most importantly focus on what helps you. Depression is not your fault, there is help, and it can get better.***

Appendix U: Information and Tips for Mothers with Depression


*Facts about Depression in Women:*

• Women are twice as likely as men to have depression.
• Women are particularly vulnerable during the childbearing years (15 to 44 years of age).
• You are not alone: Over 10% or 2.5 million adults in Canada will develop depression at some point in their lives.
• Besides childbirth related problems, depression is the leading cause of hospitalizations in women.
• Depression does not have a single cause, but often is caused by multiple factors. There is no one "answer" to depression, but there are several things that you can do to help yourself address the different factors that create and maintain its consequences.

*Tips for Dealing with Depression: What Can You Do?:*

**Get Support and Focus on Supporters**

• Whether women perceive that they have support has an impact on their experience of depression.
• Communicate and work with your partner to get the support that will be most helpful.
• Focus on people who can support you if your partner is unavailable or seems unsupportive.
• Struggling and hiding your depression creates a "double burden" on you making it harder to feel better, so stay connected to others and reach out for help from a health care professional.
• Stay in touch with friends and people around you. Social interaction helps you get positive feedback, feel mastery (like you are good at something and doing it well), and gives you a break from your own thoughts and feelings that may be negative as opposed to supportive.

**Realistic Expectations of Yourself**

• Women with unrealistic expectations of themselves struggle more with depression.
• Focus on your expectations of yourself, creating ones that you would expect of a friend who you may not be as hard on, and not on your toughest standards for yourself or what you think others expect of you. Avoid focusing too much on how you think others perceive you.
• Focus on what you are doing well, including getting through the day, keeping yourself safe and healthy and your children safe and healthy. Being a mother, partner, daughter, sister, friend etc. are all big jobs. Even when it seems you are not doing much, you have accomplished some very important things.

**Enjoy Yourself**

• Although it may be the last thing you think of doing when you are feeling down, experiencing pleasurable activities is one of the best treatments for depression. This means doing things that don't have a purpose in the way you usually think of things that need to get done, such as taking care of

others or accomplishing tasks. This means doing something to just feel good. Think of this as a new type of task or goal: "I need to enjoy myself for a few minutes everyday".
• Be proactive about relaxing: Spend a few minutes each day focusing on calm breathing, visualizing something that is pleasing, listening to a song that creates a positive mood, or smiling, which can affect your mood even if you don't feel it in the moment.

**Exercise**

• Exercise affects your mood/state of mind and can be a great way to meet and socialize with others or have time to yourself.
• Try walking, stretching, swimming, dancing etc. anything that allows you to move your body, get in another mind state and have a break from your daily tasks by yourself or with others.
• Again focus on what feels good not on other goals such as losing weight. Keep your expectations/goals small so that you feel good when you have accomplished a little step instead of disappointed when you can't reach a huge goal you have set up. Little steps add up!

**Sleep**

• Research shows that treating sleep problems such as insomnia increases the chances of recovering from depression.
• Monitor and identify patterns between your sleep, eating, and mood. They are all connected and might give you clues about how to increase either the quantity or quality of sleep.
• Try to *accept*, not resist, fight, or become frustrated about sleep. Acceptance reduces the added exhaustion resulting from energy put into emotional resistance. Try meditation which impacts energy even if you can't get to sleep.

***Most importantly, focus on what helps you. Depression is not your fault, there is help, and it can get better.***

Appendix V: Demographic Information Form

# Please answer the following questions as honestly as possible:

Where were you born?:    Canada _____    Elsewhere _____

How long have you lived in Canada?: _____ (# of years or months)

Is English your first language?: _____

How long have you been reading and writing English?: _____

What is your date of birth? _____ D _____ M_____ Y

What is your annual income? _____

What is your highest level of education? (High school, College, Undergraduate University, Graduate University Degree) _____

How many children do you have? _____    How many children are in your care? _____

How many months pregnant were you when your baby was born? _____months and _____weeks

How old is your baby? _____ months _____ weeks

Was your pregnancy expected/planned?  Yes _____    No _____

Are you breastfeeding? _____ number of months _____

Have you ever been diagnosed or treated for depression? _____ How long ago? _____

How many times? _____

What type of treatment did you receive (medication, therapy) _____

Are you receiving any treatment right now? Y____ N ____ If yes, what type (medication, therapy) _____

Appendix W: Added Life Events by Participants for Life Events Questionnaire

Hospitalization

Loss of father (not through death)

Bad relationship with mother in law

Panic attack

Death of child

Death of grandma

Cat urinating in toy room

Good being a mother

Good having children

Good learning new things everyday

Baby hospitalized

Father in jail

Both brothers fired unfairly

Third brother and wife and children moved far away

Family visiting

Traumatic delivery

Giving birth

Enrolling daughter in public school

Turning 40

Pipe exploded in house, major renos not covered by insurance, partner did all of this while working F/T, doing a Master's degree and running a small business

Abusive spouse (emotional and mental)

Having to give up weekend access of young children still in nursery to father who was emotionally abusive to me

Sick leave

Conflict with long term disability company

Baby born premature and in NICU

Fiance quit all drugs and alcohol

Husband attending F/T school

Being stalked

Appendix X: Correlational Analysis: Demographic and Psychosocial Variables

**Demographic Variables.** Characteristics of each group were examined more closely with bivariate or point biscerial correlations between demographic/descriptive variables. In the PP group, significant correlations were found between education and both number of children ($r$ = - .51, $p < .01$) and number of children in care ($r = - .46, p < .01$), revealing that participants with higher education had fewer children and fewer children in their care. A near significant positive correlation between gestational age of baby and whether baby was in ICU postdelivery was found ($r = .34, p = .06$; or $r = .56, p = .00$ for gestational age of baby based on premature or full - term categories) suggesting that the closer a baby was born to term the less likely the baby had been in ICU. PP women tended to have most of their children in their care ($r = .92, p < .01$). History of PPD was positively correlated with history of (NPP) MDD ($r = ..75, p < .05$).

In the NPP group, higher education was associated with longer partner duration ($r = .37, p < .05$). Older participants were more likely to have more children ($r = .38, p < .05$), plan their pregnancies ($r = .48, p < .05$), and have a longer relationship with their partner ($r = .54, p < .01$). History of major depression (MDD) was moderately associated with a history of PPD ($r = .40, p < .05$) and history of having a child in ICU ($r = .395, p < .05$). Having a child previously in ICU was also positively associated with planned pregnancy ($r = .40, p < .05$). Age of youngest child was positively correlated with participant age ($r = .58, p < .01$) and negatively correlated with the number of children in care ($r = - .417, p < .05$), revealing that the older participants' youngest child was, the less likely the child was to be in mother's care. In general, number of children was only moderately associated with having children in care for the NPP group ($r = .70, p < .01$).

**Demographic Variables and Psychosocial Measures**. Bivariate and Point Biscerial

correlations were subsequently conducted between demographic variables and psychosocial

variables of interest. In the PP group, Bonding with Baby had significant correlations with

Education ($r = - .47$, $p < .01$), Number of Children ($r = .46$, $p < .01$), and Number of Children in

Care ($r = .45$, $p < .01$), revealing that higher education and fewer children was associated with

better bonding. History of depression was associated with (an adaptive) interpersonal goal

orientation. Namely, MDD history had a positive relationship with Relatedness ($r = .39$, $p < .05$),

revealing that a history of major depression was associated with greater Relatedness. The time of

PP reported in months had a negative relationship with current depression severity as measured

by the EPDS ($r = - .343$, $p < .05$), revealing that women who were earlier in the PP period had

greater current depression severity. Women who had a baby in ICU post-delivery reported higher

satisfaction in their relationship with mother ($r = .42$, $p < .05$). Partner duration had a negative

relationship with Dependency ($r = - .392$, $p < .01$), Self Criticism ($r = - .476$, $p < .01$), and

General Loss ($r = - .347$, $p < .05$), revealing that women with longer relationships exhibited less

dependency, less self-criticism, and experienced less general loss. Gestational age of baby at

birth was associated with partner relationship adjustment ($r = - .341$, $p < .05$) and state anxiety ($r

= - .383$, $p < .05$), revealing that the closer a baby was to being born full-term, the greater state

anxiety a woman experienced, and the higher the gestational age of baby at birth the less

relationship satisfaction women reported. Planned pregnancy had significant relationships with

Trait anxiety ($r = - .528$, $p < .01$), Self-Criticism ($r = - .441$, $p < .01$) and SCC ($r = .420$, $p < .05$).

Namely, having a planned pregnancy was associated with less trait anxiety, less self-criticism,

and greater self-concept clarity. Greater social desirability bias was moderately associated with

greater number of children ($r = .34$, $p < .05$) and had a strong positive association with history of

PPD ($r = .78$, $p < .05$), revealing that women with a history of PPD and more children tended to exhibit a higher social desirability bias. No significant correlations emerged for Breastfeeding, Age, and Income.

In the NPP group, both being older in age and longer partner duration was associated with greater loss, specifically Independent Loss (Age: $r = .41$, $p < 05$, Partner Duration: $r = .41$, $p < .05$) and General Loss (Age: $r = .39$, $p < .05$; Partner Duration: $r = .40$, $p < .05$). Higher education was associated with less tendency for Nondisclosure of Imperfection ($r = - .37$, $p < .05$). Depression history was associated with current depression as measured by the BDI ($r = .54$, $p < .01$) with a history of occurrence of major depression having a positive relationship with current depression severity. A presence of history of PPD was associated with less dependency ($r = - .45$, $p < .05$). Number of Children had a negative correlation with relationship adjustment with partner ($r = - .37$, $p < .05$), revealing that having more children was associated with lower satisfaction/poorer adjustment. Youngest age of child was associated with the MAQ ($r = .40$, $p < .05$), specifically having an older youngest child had a positive relationship with less unrealistic expectations for motherhood (i.e., more positive attitudes towards motherhood). No significant correlations emerged for Income, Number of Children in Care, Breastfeeding, Planned Pregnancy, and ICU.

Appendix Y: Corroborating Findings: Post Hoc Tests and T-tests

In order to achieve an appropriate balance of risk for Type I and Type II errors, that is, the risk of identifying a false effect and the risk of failing to detect true effects,  post hoc/pairwise comparisons using tests with different levels of Type 1 correction were conducted. Specifically, Fisher's Least Significant Difference (LSD) with no correction, and therefore a liberal test (i.e., more power), as well as Tukey's HSD (Honest Significant Difference) and Bonferroni correction, tests which both use a family based correction/error rate and therefore are more conservative in addressing Type I error created with multiple tests performed, were all examined (Glass & Hopkins, 1996). P values were subsequently adjusted for the more conservative tests, taking into account the correction procedure, in order to identify (near) significant results and corroborate findings. Mean difference remained (near) significant for the more conservative tests; Tukey HSD (p-value criteria of .10) for the EPDS and MAQ and with the Bonferroni Correction  (p-value of .15) for the EPDS.

Due to recognition that in some analyses comparisons were run with groups containing an overlap of the same participants in two groups, while ANOVA assumes that each group is independent with different participants, Independent-Samples t-Tests for only the two complete groups, (i.e., larger groups with liberal inclusion criteria) comparing PP ($n = 37$) and NPP ($n = 30$), were also conducted to provide corroborating results for between subjects comparisons. Fifteen participants per group is considered acceptable as a moderate and sufficient sample for power to yield accurate results for Independent Samples t-Tests (Green & Salkind, 2003) and therefore the current sample meets this criteria. Levene's tests for the BDI and DAS neared

significance with $p = .08$ for both groups. Therefore, t-test results for equal variances not

assumed was examined revealing an inconsequential change in significance values, however

both statistics will be reported. It should be noted that the DAS has a nonnormal distribution for

the NPP group and Self-Concept Clarity has a nonnormal distribution for the PP group.

Assumptions have been met for the following all other variable comparisons reported.

Results of the t-tests mirror previous findings. The EPDS exhibited a significant

difference in means with $t (65) = 2.02$, $p = .04$, revealing greater depression severity for PP

women. Trait anxiety exhibited a higher mean in the PP group by 2.9, ($M = 56.70$ vs. $M = 53.80$)

that did not reach significance. The PP group exhibited a higher mean by 9.5 ($M = 102.50$ vs. $M$

$= 92.90$) that reached near significance with $t (65), = 1.94$, $p = .06$, and $t (65) = 1.85$, $p = .07$ with

equal variances not assumed. The difference in means (mean difference = 2.4) was significant for

the MAQ ($M = 10.20$ vs. $M = 7.70$), $t (65) = 2.13$, $p = .04$, demonstrating that PP women

exhibited more unrealistic expectations for motherhood. Dependency and Relatedness, the

maladaptive and adaptive facets of Interpersonal Goal Orientation measured by the DEQ both

showed a higher mean by for the PP group. Namely, $M = 48.00$ for PP vs. $M = 45.00$ for NPP

and mean difference = 3 was revealed for Dependency, $p = .13$, and $M = 41.50$ for PP and vs. $M$

$= 38.90$ for NPP, and mean difference = 2.50, $p = .15$ was revealed for Relatedness. Both mean

differences reached near significance. All other variables were close to nearly identical in means

for both groups and/or mean difference did not reach significance.

Appendix Z: Main Effects in Two-Way Interaction Models for Partner

Relationship Adjustment: NPP Group

Although two-way interactions between cognitive vulnerability and loss were

nonsignificant for most variables, a pattern of significant (or near significant) main effects

emerged further for interpersonal loss and the remaining cognitive vulnerability variables,

namely, anxiety (both trait and state), SCC, and unrealistic expectations for motherhood (Table

24). For example, with SCC and interpersonal loss, the model has an $R = .66$, R square = .44,

Adjusted $R^2 = .37$, $R^2$ change = .23, contributing an additional 23% of variance prediction above

number of children, $F$ change $(2, 25) = 5.07$, $p = .01$. When variables are examined

independently, interpersonal loss has a $B = .440$, $t = 2.81$, $p = .01$, $r = .50$, partial $r = .49$. SCC

variable is near significant with $B = - .280$, $t = - 1.83$, $p = .08$, $r = - .30$, partial $r = - .34$,

reflecting that as expected, greater interpersonal loss and lower SCC each predict poorer

relationship adjustment with partner. State anxiety is the only variable that also demonstrates a

near significant direct effects model with independent loss with $R = .60$, $R^2 = .35$, Adjusted $R^2 =$

.28, $R^2$ change = .14, $F$ change $(2, 25) = 2.78$, $p = .08$. When examined independently, state

anxiety reaches near significance as a contributing variable with $B = .329$, $t = 2.0$, $p = .06$, $r =$

.41, partial $r = .37$ reflecting greater anxiety predicting poorer relationship adjustment. The same

direction of relationship is evident for trait anxiety and unrealistic expectations for motherhood.

Results are presented in Table 24.

Table 23

*Hierarchical Regression Analysis Predicting Relationship Satisfaction with Partner from Cognitive Vulnerability and Loss as Moderator in NPP Group, Main Effects*

| Model/Order | R/R² | R²Δ | F Δ | df | p | β | t | p | r | partial r |
|---|---|---|---|---|---|---|---|---|---|---|
| Step 1 | | | | | | | | | | |
| Number of Children | .46 | .21 | 7.23 | 1, 27 | .01* | .35 | 2.13 | .04 | .46 | .39 |
| | | | | | | | | | | |
| Step 2 | | | | | | | | | | |
| a. Trait Anxiety | .37 | .15 | 3.03 | 2, 25 | .07 | | | | | |
| Interpersonal Loss | | | | | | .40 | 2.44 | .02* | .50 | .44 |
| | | | | | | | | | | |
| b. State Anxiety | .42 | .21 | 4.63 | 2, 25 | .02* | | | | | |
| Interpersonal | | | | | | .33 | 1.99 | .06 | .50 | .37 |
| Independent | .35 | .27 | 2.78 | 2, 25 | .08 | | | | | |
| | | | | | | | | | | |
| c. SCC | .44 | .23 | 5.07 | 2, 25 | .01* | - .28 | - 1.83 | .08 | - .30 | - .34 |
| Interpersonal | | | | | | .44 | 2.81 | .01* | .50 | .49 |
| | | | | | | | | | | |
| d. MAQ | .38 | .17 | 3.52 | 2, 25 | .05 | | | | | |
| Interpersonal | | | | | | .42 | 2.55 | .02* | .50 | .45 |
| | | | | | | | | | | |
| e. SP | .37 | .15 | 3.04 | 2, 25 | .07 | | | | | |
| Interpersonal | | | | | | .41 | 2.47 | .02* | .50 | .44 |
| | | | | | | | | | | |
| f. Nondisclose | .37 | .16 | 3.13 | 2, 25 | .06 | | | | | |
| Interpersonal | | | | | | .41 | 2.49 | .02* | .50 | .45 |
| | | | | | | | | | | |
| g. Nondisplay | .39 | .15 | 3.00 | 2, 25 | .07 | | | | | |
| Interpersonal | | | | | | .40 | 2.33 | .03* | .50 | .42 |

*Note*. Interpersonal = Interpersonal Loss, SCC = Self-Concept Clarity, MAQ = Maternal Attitudes Questionnaire (Unrealistic Expectations for Motherhood), SP = Self Promotion, Nondisclose = Nondisclosure of Imperfection, Nondisplay = Nondisplay of Imperfection

* *p* < .05

Appendix AA: Supplementary Figures for Interactions Predicting Bonding with Baby
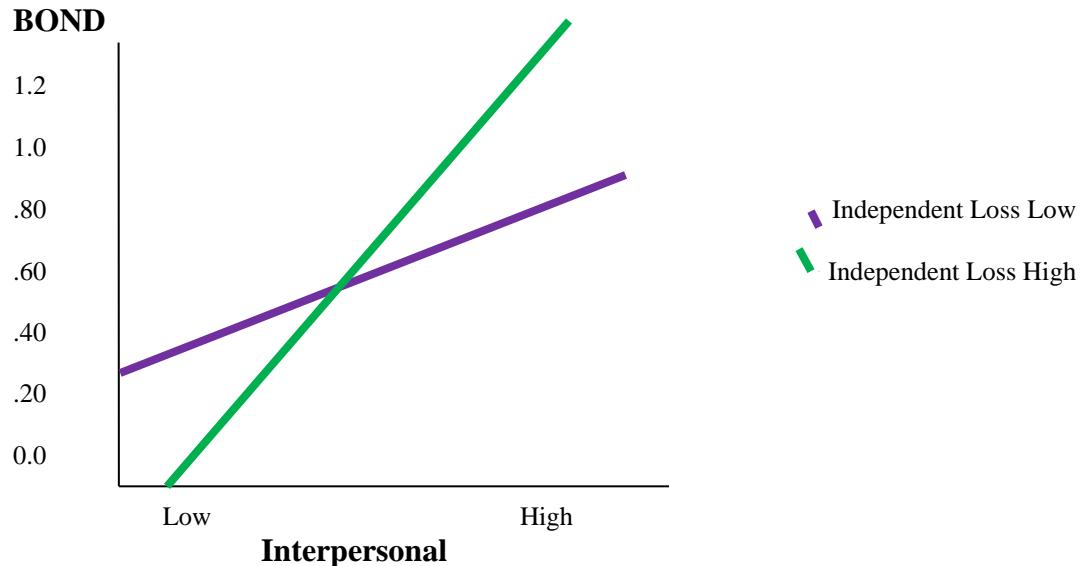


*Figure 15 e).* Bonding with Baby scores as a function of Interpersonal Loss and Independent Loss for Women High on Self Concept Clarity
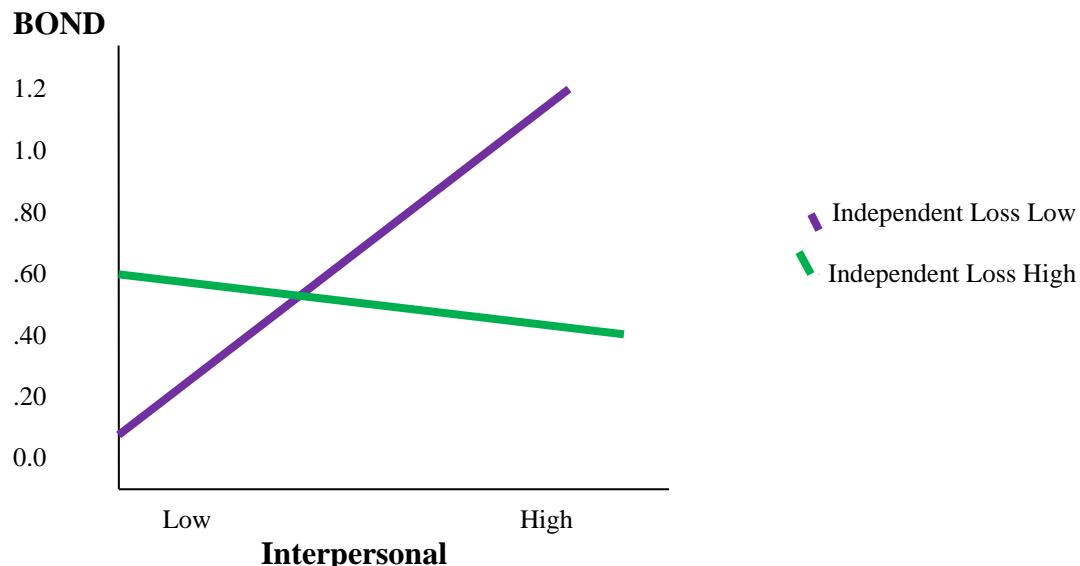


*Figure 15 f).* Bonding with Baby scores as a function of Interpersonal Loss and Independent Loss for Women Low on Self Concept Clarity

Appendix AB: Summary of Hypotheses and Findings

| Hypotheses | Analysis | Results | Replicated and Novel Findings |
|---|---|---|---|
| **1.** PP Women: **a)** and **b)** ↑ Anxiety, **c)** Perfectionistic Self Presentation, **d)** Unrealistic Expectations for Motherhood, **g)** Relatedness, **h)** Loss, and **e)** ↓ Self-Concept Clarity, **f)** Dependency, **i)** Relationship Adjustment with Partner and Mother (i.e., ↑ Maladjustment)<br><br>**2.** ↑ Depression (EPDS) | Between Subjects Comparison with NPP women: ANOVAs, Kruskal Wallis H, and t-Tests | PP Women: ↑ **Depression (EPDS), Unrealistic Expectations** and ↓ **Self-Concept Clarity**<br><br>Nonsignificant:<br>↑ Trait Anxiety, Dependency, Relatedness, Loss, Relationship Adjustment with partner<br><br>NPP Women: ↑ Nondisclosure of imperfection and ↓ Relationship Adjustment with Partner | Replication - Depression severity, Unrealistic Expectations<br><br>Novel - EPDS, SCC, sample and measure for unrealistic expectations |
| **3.** PP women: **c)** Nonmatch Effect **d)** ↑ Self Criticism, **f)** ↑ Relatedness, and ↓ Dependency > Depression **e)** Independent Orientation will be more important/powerful predictor<br><br>NPP Women: **b)** Match Effect | Hierarchical Multiple Regression | PP and NPP Women:<br>**Self-Criticism X Independent Loss** (Match)<br><br>NPP: **Self-Efficacy X Independent Loss** (Match) | Replication<br><br>Replication |

| | | | |
|---|---|---|---|
| **4.** Predicting Depression:<br><br>PP: **a)** ↑ Unrealistic Expectations for Motherhood, Perfectionistic Self Presentation, Anxiety, Loss, and ↓ Self-Concept Clarity<br>**b)** ↑ Both types of loss<br><br>NPP: **c)** Good fit<br>Different models for different measures of depression (BDI or EPDS)<br>**e)** Interaction model predicting depression measured by BDI (criterion) will be best fit. | Hierarchical Multiple Regression | PP: **EPDS** - **State Anxiety, Unrealistic Expectations**<br><br>**BDI** - **Unrealistic Expectations**<br><br>NPP: **BDI** - **Trait Anxiety, Nondisclosure**<br><br><u>Two-Way Independent</u> - **State, Nondisclosure, Nondisplay**<br><br><u>Two-Way Interpersonal:</u> **State, Nondisclosure**<br><br><u>Three-Way -</u> **SCC X Interpersonal X Independent.**<br><br>**Independent Loss**: Strong Effect - Depression<br><br>**EPDS** - NS | Replication<br>Novel - Model with loss, maternal specific attitudes<br><br><br>Replication (Novel with mothers for PSP)<br><br>Novel<br><br>Novel - population with mothers and CDS model with loss<br><br>Replication (Novel with mothers and CDS model with loss)<br><br>Replication |
| 4. **a)** and **d)** Predicting Relationship Maladjustment:<br>PP: ↑ Unrealistic Expectations for Motherhood, Perfectionistic Self Presentation, Anxiety, Loss, and ↓ Self-Concept Clarity<br>Both types of loss<br>Good fit<br>4. **a)** and **e)** NPP: Different model is best fit<br>Different cognitive vulnerabilities and facets of perfectionism as predictors | Hierarchical Multiple Regression | | |

| | | | |
|---|---|---|---|
| Predicting Maladjustment in Original Mother Relationship | | PP: ↑ **Self-Concept Clarity** | Novel |
| | | NPP: NS | Novel |
| Predicting Maladjustment in Partner Relationship | | PP: ↓ **Self-Concept Clarity**, ↑ **Nondisplay** | Novel |
| | | Three-Way: **Self Promotion X Interpersonal X Independent Loss** | Novel |
| | | NPP: **State Anxiety** | Replication |
| | | Two-Way: **Interpersonal Loss** | Replication |
| Predicting Bonding with Baby (Poor) | | PP: ↑ **Self -Concept Clarity, Unrealistic Expectations for Motherhood** | Novel - SCC and different aspects of maladjustment for Expectations (depression and bonding) |
| | | Three-Way: **Self-Concept Clarity X Interpersonal X Independent Loss** | Novel - different levels of SCC as vulnerability (high and low) |

*Note.* Significant Effects are presented in bold, NS = Nonsignificant Findings

Appendix AC: Treatment Implications

**Between Subjects Comparison (Distinction Hypothesis)**
- Use EPDS for screening, diagnosis, and monitoring symptoms
- Optimism (expectations, depression and bonding, early intervention, focus on specific relevant areas to PP women) - reduce future vulnerability/recurrence of PPD
- Facilitate Productive Self-Awareness
- Mindful of Destabilization of already poorly defined self-structure
- Acceptance and Commitment Therapy to facilitate identifying values, opinions (increase self concept clarity)
- Individual CBT or IPT
- Psychoeducation

**Nonmatch Hypothesis**
- Reduce Self-Criticism and mindful of combination with loss of independence
- Mindful of high value on interpersonal goals during PP period
- NPP: Increase Self-Efficacy and decrease Self-Criticism

**Cognitive Diathesis-Stress Model**
- Target improving expectations with women with unsettled infants (Expectations)
- Address unstable self-concept in the face of changes to self and relationships (SCC)
- Address rigidity of self-concept structure - Optimal Level (SCC)
- Facilitate integration of new aspects of self (SCC)
- Bonding with Baby presents unique challenge to confident, consistent self-concept (SCC)
- Dialectical Behavior Therapy approaches/skills: Mindfulness and Validation/Self-Compassion (SCC)
- Relationship with Therapist/or Health-care professional important: i.e., close, validating, knowledgeable
- Address ruminative thinking (SCC, Unrealistic Expectations > Bonding)
- Address negative affect (Bonding)
- Early screening, intervention, and prevention: assessment with measures of SCC and Unrealistic Expectations
- Individual CBT and IPT
- In-home CBT (different approaches for different stages of PP)
- Promote Disclosure (PSP)
- "Homing"/ "Time Away"
- Identify specific and important key losses (related to cognitive vulnerability)
- Grief tools (perceptions of loss)
- Reframe fulfillment of interpersonal and independent needs (perceptions of loss)
- Include close others in individual IPT
- Group IPT (Relationship Maladjustment)
- Connecting to social media related to motherhood and PPD: blogs, online support groups
- Creative approaches
- Qualities of health professionals and settings/organizations: i.e., positive views, flexible
- Promote practice of vulnerability and authenticity (PSP)
- Promote shame resilience (PSP, reduce shame, guilt, and stigma for PP and NPP mothers)
- Focus on improving depressive symptoms, care of infants, and relationships and support from mother and partner

(all aspects of PPM)