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Self-Efficacy in the Transition to Parenthood

Nicole Marsden
nicoleamarsden@gmail.com

Self-Efficacy in the Transition to Parenthood

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Nicole A. Marsden, M.S.

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PsyD Clinical Dissertation Signature Page

This Clinical Dissertation, written under the direction of the student's Clinical Dissertation Chair and Committee and approved by Members of the Committee, has been presented to and accepted by the faculty of the Clinical Psychology PsyD Program in partial fulfillment of the requirements for the degree of Doctor of Psychology. The content and research methodologies presented in this work represent the work of the student alone.

Student Signature

Nicole Marsden, M.S. Nicole Marsden M.S.	7/7/2020
Student	Date

Clinical Dissertation Committee Member Signatures

Dhara Meghani, Ph.D. Dhara Meghani	7/7/20
Committee Chair	Date
William Bosl, Ph.D. William J. Bosl	8 July 2020
Committee Member	Date
Brent Ferm, Ph.D. Brent R Ferm	7/8/20
Committee Member	Date
Committee Member (if applicable)	Date

Administrator Signatures

David A. Martínez, Ph.D. David A Martinez	7/10/20
Program Director, Clinical Psychology PsyD Program	Date
Margaret Baker	7/14/20
Dean, School of Nursing and Health Professions	Date

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Dedications and Acknowledgements

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Abstract

The transition to parenthood is considered both an exciting and inherently stressful time. The related changes and challenges may be associated with increased levels of anxiety and depression. Parental self-efficacy (PSE), or parents' perceived ability to succeed at parenting-related tasks and challenges, may be both a product and predictor of mental health during this time. There is little research on the relationship between general self-efficacy (GSE) and PSE, although theory suggests that GSE may influence PSE. This quantitative study utilizes a longitudinal and dyadic design to examine the relationship between GSE, PSE, and mental health across the transition to parenthood for first-time mothers and fathers. 24 heterosexual couples (*n* = 48) participated in the study. Participants completed a questionnaire during the third trimester of pregnancy and at approximately three months postpartum. Questionnaires assessed perceived GSE, PSE, anxiety, depression, and levels of infant fussiness. Mixed effects modeling was used on a nested data set to test all hypotheses. Exploratory analyses examined differences between mothers and fathers. Results suggest that GSE is a significant predictor of PSE, and that PSE is a significant predictor of postnatal anxiety and depression. Exploratory analyses reveal that these results may be significant for mothers, but not fathers, suggesting differences between parenting partners, though more research is needed in this area. Clinical implications include targeting self-efficacy in perinatal support programs and interventions in order to mitigate mental health symptoms during the transition to parenthood. Additional research is warranted to further examine influences of one partner on another.

Self-Efficacy in the Transition to Parenthood

The transition to parenthood can be both an exciting and challenging time for new parents. This time is often marked by changes in lifestyle, identity, relationships, and physical and mental health. Furthermore, parents who are co-parenting for the first time may find themselves facing new obstacles as a couple. In general, the transition to parenthood is considered a time of heightened vulnerability (Slade et al., 2009). Furthermore, in encountering new parenting related challenges, parents' cognitions and perceptions of their own parenting abilities, or what is commonly referred to as "parental self-efficacy," as well as their mental health may be impacted. Parents may also face a variety of other challenges such as a particularly fussy infant, partner or familial conflict, and identity and role transformations. Although many of these challenges are developmentally predictable and surmountable, some parents experience more distress or negative mental health outcomes than others.

The transition to parenthood has been associated with increased levels of anxiety and depression during both pregnancy and the postpartum period (Parfitt & Ayers, 2014). According to the American Psychological Association (2007), 1 in 7 women experience perinatal depression and it is considered one of the most common medical complications for women during the perinatal period (ACOG, 2015). Although research on fathers is far behind that of mothers, it is also estimated that between 7 and 10% of men experience depression during the perinatal period (Davis et al., 2011; O'Brien et al., 2017; Paulson et al., 2010).

Furthermore, there is increasing concern for the prevalence of anxiety during the perinatal period, as it is often comorbid with depression (Kessler et al., 2001) and has been associated with negative child outcomes such as low birth weight (Ding et al., 2014; Hedegaard et al., 1993) and behavioral and emotional issues (O'Connor et al., 2002; O'Donnell et al., 2014).

Anxiety is rarely if ever, measured by a healthcare professionals perinatally, and is often overshadowed by discussions of perinatal depression.

Documented rates of perinatal mood and anxiety among mothers and fathers are likely an underestimate as parents often do not attribute problematic symptoms to a mental health diagnosis, especially when having their first child. Additionally, barriers exist with regard to adequate screening and diagnosis during the postpartum period, particularly when parents may otherwise present as "low-risk." This is concerning given that mood disorders and symptoms during the perinatal period can be debilitating for parents, decreasing their quality of life, hindering their ability to parent, and possibility putting them at risk for ongoing mental health issues (Goodman, 2009). There is additional cause for concern when new parents encounter mental health challenges as there is a robust association between poor perinatal parental mental health and negative infant and child outcomes (Cummings & Davies, 1994; Glasheen et al., 2009; Goodman & Gotlib, 1999; Rees et al., 2018; Stein et al., 2014).

There has been growing interest in parental self-efficacy within the transition to parenthood literature (Chau & Giallo, 2015; Fulton et al., 2012; Gross & Marcussen, 2017; Kunseler et al., 2014). Although some studies have examined the relationships among perinatal mood and anxiety and parental self-efficacy (Cutrona & Troutman, 1987; Howell et al., 2006; Kunseler et al., 2014; Leahy-Warren et al., 2011; Porter & Hsu, 2003; Teti & Gelfand, 1991; Wernand et al., 2014), none have considered an individual's general level of self-efficacy during pregnancy and its potential impact on postpartum mental health and parental self-efficacy. Longitudinal research during the transition to parenthood can further shed light on the contributions of factors such as infant fussiness, partner well-being, and changes in self-efficacy to perinatal mental health. This study examined the role of general and parental self-efficacy in

the transition to parenthood as well the relationship between parental self-efficacy and postnatal mental health in mothers and fathers during this time period. This study also examined perceived infant fussiness and partner postnatal mental health as potential moderators of the relationship between general self-efficacy and parental self-efficacy.

Definition of Terms

General Self-Efficacy

Self-efficacy refers to the extent to which an individual feels competent and effective. Gecas (1989) describes self-efficacy as stemming from issues regarding human agency, control, and mastery. According to Bandura (1989), a strong sense of self-efficacy is required for individuals to remain focused and maintain an efficient level of cognitive functioning (specifically analytical thinking) in the face of challenging and complex scenarios. Higher levels of perceived self-efficacy serve as cognitive motivation that allow individuals to imagine themselves as successful. The more an individual is able to imagine themself as successful, the more they are able to envision and practice effective solutions, and in turn, their performance is typically enhanced. Bandura also hypothesized that "expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences" (p. 191). Self-efficacy is an important construct to examine in the transition to parenthood because it may contribute to the ability of a new parent to cope in the face of new and challenging parental tasks.

Parental Self-Efficacy

Parental self-efficacy **(**PSE) refers to "parents' beliefs regarding their capabilities to perform the numerous and changing tasks associated with parenting" (Troutman et al., 2012, p. 45). It stems from general self-efficacy literature but differs in that the extent to which an

individual feels competent and effective is applied specifically to the tasks and skills related to parenting. Parental self-efficacy has come to be of particular interest in studies regarding the transition to parenthood because it is associated with a variety of outcomes for both parents and children including parental competence and warmth and child social-emotional and behavioral functioning (Jones & Prinz, 2005).

Infant Fussiness

Infant fussiness is a factor that was examined in this study as a potential correlate and/ or moderator of parental self-efficacy and parental perinatal mental health. Infant fussiness has been defined as an aspect of infant difficultness that involves how frequently an infant cries, their soothability, general mood, and how easily an infant becomes upset (based on the Infant Characteristics Questionnaire by Bates et al., 1979). In general, infant fussiness has traditionally been defined and measured as an aspect of infant temperament, or more specifically, negative emotionality (Lipscomb et al., 2011; Troutman et al., 2012; Verhage et al., 2015). In medical literature, infant fussiness is thought to occur as a result of gastrointestinal distress or colic, which relies on objective, quantifiable measurement, most commonly using "Wessel's rule of 3" (Wessel et al., 1954). Wessel's rule of 3 states that colic is present when an infant cries for more than three hours per day, at least three days per week, for more than three weeks. More recent literature has acknowledged that infant fussiness is a broader category than colic and also recognizes that it may not necessarily be the *amount*, but rather the subjective *perception* that a parent has of their infant's fussing or crying that may have a greater impact on parental well-being and self-efficacy. Based upon this latter way of measuring infant fussiness, and because evidence indicates that subjective parent experience of infant fussiness is a better predictor of parent well-being than of objective measurements (Pauli-Pott et al., 2000; Radesky et al., 2013;

Russell & Lincoln, 2016), the current study used a measure that asked for parental perceptions of their infant's fussiness.

Critical Literature Review

The transition to parenthood represents an assortment of exciting and difficult experiences for first-time parents. Although there is no simple formula for making this transition seamless, it appears that there are associated factors that allow some parents to more easily cope with the challenges than others. For some parents, the transition may be especially difficult due to circumstances which may range, for example, from having a difficult-to-soothe infant, to experiencing challenges with infant feeding, or experiencing postpartum depression and/or anxiety. Many of these challenges cannot be predicted by parents; however, as research in the field of infant mental health progresses, science can provide more information regarding the specific variables that have a unique and substantial impact on the transition to parenthood. There are a variety of factors related to the parent, the infant, and their environment that may be critical to consider in this period. The following literature review will describe and synthesize factors that are of particular interest in the current study including: general self-efficacy, parental self-efficacy, perinatal depression and anxiety, and perceptions of infant fussiness.

The Transition to Parenthood

Frameworks for Understanding Challenges During the Transition to Parenthood

Over the past sixty years, our understanding of the transition to parenthood and the implications it can have on mental health has changed. Beginning in the 1950s, researchers described the individual, interpersonal, and environmental upheaval of the transition to parenthood in the context of a "crisis" (Dyer, 1963; LeMasters, 1957; Russel, 1974). The "crisis" was defined by the apparent inadequacy of old behavior or

coping patterns with the introduction of the first infant (Miller & Sollie, 1980), and a subsequent need for reorganization of roles and relationships. Hobbs (1965) argued that a more precise definition of "crisis" was needed, and that it was perhaps not as generalizable to the experience of the transition to parenthood as previous researchers had suggested (Dyer, 1963; LeMasters, 1957). Similarly, a review of studies that examined parenthood as "crisis" (Jacoby, 1969) called for re-examination of the "crisis" explanation as well as more standardized measurements of both the challenges and gratifications of the transition to parenthood.

More recently, researchers and reviewers have argued that to describe the transition to parenthood as a "crisis" is to emphasize the negative experiences and overshadow the possible positive experiences. Research has moved toward describing the time period as more developmental and transient in nature as opposed to the acute and negative connotation implied by "crisis." Along these lines, some researchers have used the term "*developmental* crisis" (Epifanio et al., 2015; Slade et al., 2009) in order to normalize the changes experienced, while still implying the intense vulnerability of the transition. The description of the transition to parenthood as a developmental phase has led to a focus on the adaptations and coping required of parents during this time (Alexander et al., 2001).

One theory on stress and coping put forth by Lazarus and Folkman (1984) can be particularly helpful in understanding why mental health specifically may falter during times of transition, such as the transition to parenthood. Their theory describes a dynamic relationship between an individual and their environment that is mediated by the individual's cognitive appraisal of how taxing their environment is, as well as their

coping abilities. Adapted to the transition to parenthood, this theory would suggest that a parent's level of stress will depend upon their appraisal and subsequent perception of how stressful their situation is (e.g. being a parent is difficult/easy; I am [not] a good enough parent), as well as how well they are able to cope with given stressors (e.g. a crying infant; feeling inadequate as a parent). Although there are many unique stressors that a parent may encounter in the transition to parenthood, we must also consider the relative normal vulnerability of this period, and the expected stressors that come about.

Individual Vulnerability during the Transition to Parenthood

The transition to parenthood is often considered a vulnerable and physically and emotionally draining time for new parents. Even with the ideal supports and resources, caring for a new infant is not a simple task. Although some parents do experience increases in well-being postpartum (Brandel et al., 2018), this time is more commonly complicated with the experience of negative mood and anxiety symptoms and decreases in overall well-being. There are many individual differences across parents' experiences of the transition to parenthood, which makes it a complex period for study.

Theorists and researchers have generally identified the transition to parenthood as a time of increased vulnerability (Slade et al., 2009), which may be one way to explain the decline in mental health that often occurs during this time. For instance, the literature indicates that both mothers and fathers experience similar physiological and hormonal changes during the perinatal period (Storey et al., 2000; Ziegler & Snowdon, 2004). These changes have been noticed to include higher prolactic and cortisol concentrations prenatally, and decreased sex hormone level (e.g. testosterone and estradiol) postnatally (Storey et al., 2000). Researchers have hypothesized that hormonal changes may

contribute to a vulnerability for mental health issues during the perinatal period (Moses-Kolko & Feintuch, 2002; Ross et al., 2004). The transition to parenthood is also typically marked by increased fatigue and sleep disruption in both mothers and fathers (Gay et al., 2004), particularly in the postpartum period. Although fatigue and sleep disruption are often considered a natural consequence of infant caregiving tasks (such as breastfeeding and nighttime caregiving/feeding) (McQueen & Mander, 2003), they are also associated with poor mental health (Fisher et al., 2004; Giallo et al., 2011) as well as negative parenting behaviors and low parenting self-efficacy (Dunning & Giallo, 2012). Evidently, some of the expected characteristics of the transition to parenthood can have concerning implications for parents during this time, making it a crucial stage of development to consider. As aforementioned, one possible implication of this transition, is changes to feelings of self-efficacy.

Self-Efficacy in the Transition to Parenthood

Self-efficacy can be examined on different levels including general, domain-specific, or task-specific. General self-efficacy (GSE) refers to a stable and broad sense of one's ability to succeed at new tasks or situations, based on previous experiences of successes and failures (Sherer et al., 1982). Domain/realm or task-specific self-efficacy refers to one's perceived ability to succeed. When an individual encounters a substantial change in role which requires adapting to the new demands, it is conceivable that one's sense of efficacy will be challenged. Below, I discuss the separate constructs of GSE and parental self-efficacy, and the potential relationship between them.

General Self-Efficacy

One's sense of self-efficacy can be a driving force for action, meaning that the more self-efficacious one feels, the more likely they are to act (Bandura, 1997). According to Bandura (1989), a strong sense of self-efficacy is required for individuals to remain focused and maintain an efficient level of cognitive functioning (specifically, analytical thinking) in the face of challenging and complex scenarios. Essentially, higher levels of perceived self-efficacy serve as cognitive motivation that allow individuals to imagine themselves as successful. The more an individual is able to imagine themselves as successful, the more they are able to envision and practice effective solutions, and in turn their performance is typically enhanced. Bandura (1977) also hypothesized that "expectations of personal efficacy determine whether coping behavior will be initiated, how much effort will be expended, and how long it will be sustained in the face of obstacles and aversive experiences" (p. 191).

Self-efficacy is thought to be derived from and shaped by four sources: 1) performance accomplishments; 2) vicarious experience; 3) verbal persuasion; and 4) physiological states (Bandura, 1977). "Performance accomplishments" refer to the influence that personal mastery can have on self-efficacy. For example, an individual's ability to succeed at a task, particularly one that is perceived to be difficult, is more likely to raise self-efficacy than will repeatedly failing at a task, which according to theory, is likely to lower self-efficacy. "Vicarious experience" is the efficacy information that one receives by observing others cope with a challenge or succeed at a task and is thought to affect one's own self-efficacy based upon appraisal of one's own capabilities compared to someone else. In the context of the transition to parenthood, this might consist of one parent basing their own ability to complete a parenting task by observing their partner. "Verbal persuasion" is the efficacy information collected via suggestion, and often stems from encouragement or faith in ability from significant others.

Lastly, "physiological states" are theorized to help shape self-efficacy by providing information on emotional states triggered by aversive stimuli. For instance, an infant who continues to cry may trigger feelings of anxiety, in turn debilitating the parent's ability to continue trying to soothe their infant (Bandura et al., 1977).

General Self-Efficacy during the Perinatal Period. There has only been one study to date on GSE during the perinatal period. This study was conducted in Taiwan and found that web-based prenatal care education improved GSE, after measuring it during pregnancy and four months postpartum using the General Self Efficacy Scale by Schwarzer and Jerusalem (1995) (Tsai et al., 2018).

General Self-Efficacy and Health. Although research on GSE during the transition to parenthood is sparse, research on the construct in other contexts suggests that it can have significant health implications. A study conducted in Germany found that self-efficacy buffered against the effects of daily stress on mental health (Schönfled et al., 2016). Several other studies have found that self-efficacy may serve as a protective factor feor mental health challenges and reduce the risk of depression for individuals with acute or chronic medical conditions (Bisschop et al., 2004; Mystakidou et al., 2010).

Parental Self-Efficacy

Parental self-efficacy (PSE) refers to "parents' beliefs regarding their capabilities to perform the numerous and changing tasks associated with parenting" (Troutman et al., 2012, p. 45). Much of Bandura's work related to GSE has been translated to the current understanding of PSE. Leahy-Warren et al. (2011) list the "attributes" of PSE to include 1) personal beliefs; 2) capabilities and power; and 3) ability to organize and execute actions which produce results (p.

389). PSE is thought to be one of the factors of successful adaption to the transition to parenthood (Reece & Harckless, 1998; Teti et al., 1996).

The Relationship Between General Self-Efficacy and Parental Self-Efficacy

At the time of this writing, I am aware of three prior studies examining the relationship between GSE and PSE in parents of preschool and elementary school age children (Coleman & Karraker, 2000; Murdock, 2013; Sevigny and Loutzenhiser, 2010). Notably, these studies all measured GSE and PSE simultaneously; I did not identify any existing studies that examined the relationship between these variables longitudinally. Coleman and Karraker (2000) found that GSE predicted domain-specific PSE in parents of school-aged children. Sevigny and Loutzenhiser (2010) found a positive association between GSE and maternal self-efficacy in a sample of parents of preschool age children. Murdock (2013) was the first to identify a significant positive association between general self-efficacy and PSE in a sample that consisted of mothers and fathers of preschool age children.

To my knowledge, there are no published studies to date that have considered the relationship between prenatal GSE and domain-specific PSE during the perinatal period. As such, the results of this dissertation narrow the gap on research on this topic by providing additional context to the relationships between GSE and PSE during the transition to parenthood, as well as insight into other factors that can affect self-efficacy; namely, mental health, and characteristics of the infant (e.g. infant fussiness).

Perinatal Anxiety and Depression in the Transition to Parenthood

Prevalence Rates

Disturbances in mental health in the transition to parenthood are documented in new mothers and fathers; however, most studies have found new mothers to be more impacted (Parfitt

& Ayers, 2014; Sanadi, et al., 2016; Teixeira et al., 2009). Rates of perinatal anxiety in mothers range from 6.6% (Anderson et al., 2004) to 21.7% (Grant et al., 2008). Prevalence estimates for postnatal anxiety and postnatal depression in mothers have ranged from 10-20% and 6-16% respectively (Paul et al., 2013; Stuart et al., 1998). Postnatal anxiety rates in mothers are documented less often than postnatal depression in the literature; however, one study found a prevalence rate of 17% (much higher than the 6% postnatal depression rate found in the same study) (Paul et al., 2013). Rates for prenatal and postnatal depression in fathers are estimated to be around 10% (Paulson & Bazemore, 2010; Giallo et al., 2012; O'Brien et al., 2017). Prenatal anxiety in fathers is estimated to be between 4% and 16%, and postnatal anxiety is estimated between 2% and 18% in fathers (Leach et al., 2016; Matthey et al., 2003).

Estimates of rates of anxiety and depression in the transition to parenthood tend to span wide ranges, and are likely dependent on study methodology (i.e., differences in criteria used to determine presence of anxiety and depression symptoms), as well as participant demographics (Rich-Edwards et al., 2006). Despite the frequent co-occurrence of postpartum depression and anxiety (Maser, 1990), as well as indications that postpartum anxiety is more prevalent than postpartum depression (Wenzel et al., 2005), anxiety is significantly less represented in the literature compared with depression (Farr et al., 2013). It is additionally important to note that prevalence estimates are only generalizable to the populations and communities in which the rates are measured.

Presentation of Perinatal Depression and Anxiety

Perinatal depression is not currently listed as a separate diagnosis in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). Within the diagnostic category of major depressive disorder, the specifier "perinatal onset" is a new addition

within DSM-5, and can be applied to individuals experiencing pregnancy-related depression or postpartum depression up to four weeks following delivery (APA, 2013). This specifier is limiting, considering that the onset of depression can occur late in the postpartum period, and left untreated, may have a course that persists well into the first year or more following birth. Although many symptoms of the disorder may overlap with the symptoms of major depressive disorder, some unique symptoms for mothers postpartum include: being unable to sleep when their baby is asleep, having trouble bonding or forming an emotional attachment with their baby, persistently doubting their ability to care for their baby, and thinking about harming themselves or their baby (U.S. Department of Health and Human Services, 2016). Postpartum depression can last anywhere from weeks to months and treatment is typically required for full recovery (Nonacs & Cohen, 1998).

Perinatal anxiety is less concretely defined in the both psychological and medical literature; however, its symptoms are distinct from those of perinatal depression and generalized anxiety, and encompass characteristics unique to the perinatal period. Wenzel (2011) describes “warning signs” for women that may be experiencing perinatal anxiety including: missing pregnancy related medical appointments, tearfulness regarding worries about their own or their infant’s health, and “what if” questions.

The Course of Perinatal Anxiety and Depression

Longitudinal studies on psychological well-being in the transition to parenthood have explored trajectories of anxiety and depression from pregnancy to the first year postpartum (Condon et al., 2004; Don et al., 2014). Some studies have indicated that the directionality of trajectories may be dependent on the initial level of anxiety or depression during pregnancy or

even before pregnancy (Grant et al., 2008; Matthey et al., 2003), suggesting that prenatal examination of these levels can potentially help predict postpartum outcomes. Conversely, another study described stability in anxiety and depression from pregnancy through the postnatal period (Grant et al., 2008). Another study found levels of anxiety to increase briefly in the first weeks postpartum and then to return to baseline (Behringer et al., 2011). Even in samples considered "low-risk," it is not uncommon for parents to struggle with moderate levels of anxiety after the birth of their child, regardless of their anxiety levels prenatally (Don et al., 2014).

Implications of Perinatal Anxiety and Depression

Research on the prevalence of anxiety and depression is important not only for understanding the experience of parents during the transition to parenthood but also for identifying possible implications and outcomes for the infant. Studies have found that perinatal mental health concerns can contribute to long-term negative effects on the infant including cognitive delays, behavior problems, and physical health problems (Beardslee et al., 1998; Grace et al., 2003).

Furthermore, studies have examined a multitude of variables correlated with depressive and anxious symptoms during the transition to parenthood. Variables found to be predictive of perinatal depressive and anxious symptoms include: cognitive factors such as sense of control (Keeton et al., 2008), relationship factors such as relationship adjustment (Whisman et al., 2011), perceived social support and sense of competence (Chavis, 2016), prenatal stress (Coburn et al., 2016), maternal age (Bottino et al., 2012; Katon et al., 2014), financial hardship (Rich-Edwards et al., 2006), unmatched expectations pre- and postnatally of parenthood (Harwood et al., 2007), and physical symptom burden (Howell et al., 2006). Evidently there are a variety of factors that play into any one individual's risk of, or protection from, mental

health challenges during this time. The following section will explore one of these factors in particular.

The Relationship Between Perinatal Mental Health and Parental Self-Efficacy in the Transition to Parenthood

Many studies have demonstrated a relationship between anxiety and depression and PSE (Howell et al., 2006; Kunseler et al., 2014; Leahy-Warren et al., 2011; Teti et al., 1996). However, the direction of this relationship is not clear, as there is potential for the relationship between mental health and self-efficacy to be bi-directional and dependent on the time span in which these variables are measured. For instance, Kunsler et al. (2014) found that PSE was both the result of mental health and a predictor of mental health across the transition to parenthood in first time mothers, indicating a bi-directional relationship.

PSE has also been shown to be negatively associated with postpartum depression for mother and fathers (Gross & Marcussen, 2017). Similarly, higher levels of PSE are associated with lower levels of postnatal depression in mothers (Leahy-Warren et al., 2011; Teti & Gelfand, 1991).

When considering the relationship between anxiety and PSE, one study used a prenatal PSE scale and found that prenatal anxiety symptoms are more accurate than depressive symptoms at predicting prenatal PSE (Wernand et al., 2014). Another study conducted with fathers showed that prenatal anxiety symptoms had main effects on fathers' PSE both prenatally and postnatally: fathers with more anxious symptoms had lower levels of PSE prenatally and experienced less of an increase in PSE postnatally (Pinto et al., 2016). Few if any studies have explored the relationship between *postnatal* anxiety and PSE for mothers and fathers. The

following section will continue to address the relationship between mental health and PSE, in the context of potential moderators.

Moderators in the Relationship between Postnatal Mental Health and Parental Self-Efficacy

Infant Fussiness.

Patterns of Infant Crying. The patterns, circumstances, and developmental significance of infant crying have been well established (Brazelton, 1962; Barr, 2006) and it is clear that there is an increase in crying during the first few months of life. Crying is an expected and healthy aspect of infant development and it tends to follow a somewhat predictable trajectory, often referred to as the crying curve. Following the curve, infant crying seems to peak at around four to six weeks, with crying often reaching about three hours a day, and it usually begins to decline around eight to twelve weeks. Although most infants tend to follow the curve, it is not an exact science and babies cry at different times and for different amounts of time; there can be both low and high criers. Infants whose crying curves are higher than average, are commonly referred to as excessive criers. Although excessive crying or colic is conceptualized as a reasonable variation of typical infant development (Lester et al., 2007) it can be deemed problematic based upon the challenges that it poses for parents and caregivers. In fact, recent literature has indicated that it may be more helpful to base problematic crying on parental perspective as a means to more accurately identify parents and caregivers in need of support or intervention (Pauli-Pott et al., 2000; Radesky et al., 2013; Russell & Lincoln, 2016).

Impact of Infant Crying. An infant's level of fussiness, or the amount of time that an infant spends crying can have an impact on both maternal and paternal well-being. Many studies have focused on the relationship between infant crying and maternal postpartum depression, concluding that excessive infant crying may be associated with high maternal depression

(Maxted et al., 2005; Papousek & von Hofacker, 1998; St. James-Roberts et al., 1998; Vik et al, 2009). Not surprisingly, infant crying is also associated with experiences of tiredness and fatigue in new mothers (Kurth et al., 2011). Although fewer studies have focused on the impact that infant crying has on fathers, there is evidence that fathers can experience increased anxiety due to infant crying (Wilkie & Ames, 1986). Previous studies have indicated a relationship between infant fussiness and lower levels of PSE for mothers in the postpartum period (Porter and Hsu, 2003; Stifter et al., 2003; Troutman et al., 2012). Of particular interest to the present study, is the impact that perceived infant fussiness may have on general self-efficacy and in turn how this may have implications for parental self-efficacy.

Partner Influence. Although some studies have examined the influence that partners' mental health can have on each other in the perinatal period (Paulson & Bazemore, 2011; Wee et al., 2011), few studies have explored the influence that partners have on each other's self-efficacy. In fact, I have only found one study that explored how a co-parent impacts partner PSE (Biehle & Mickelson, 2011). In their study, Biehle and Mickelson (2011) looked at mothers' and fathers' mental health and PSE across the transition to parenthood (collecting data across three time points: the third trimester, and 1 and 4 months postpartum), and found that father's postnatal depression predicted mother's postnatal PSE.

The Present Study

The purpose of this study was to examine the relationships between GSE, PSE, and mental health, in mothers and fathers across the transition to parenthood, and to expand on and address gaps in the literature reviewed above. As described, the transition to parenthood is a particularly vulnerable and even tumultuous time for new parents. The characteristics of this developmental period are marked by many challenges (e.g. lack of sleep, hormonal changes,

infant fussiness, caregiving tasks) which can put some parents at risk for or exacerbate mental health issues such as depression and anxiety (Parfitt & Ayers, 2014) during the prenatal and postnatal periods (together referred to as the perinatal period). This is also problematic in that for some parents, these challenges can impact feelings and cognitions around their ability to parent successfully. Furthermore, the combination of perinatal mental health issues and low PSE in early parenthood can hinder competent parenting (Gondoli & Silverberg, 1997) and in turn pose a risk to the parent-child relationship.

Considering all of the aforementioned factors, it can be asked, would an individual who feels generally efficacious in their life before becoming a parent, be likely to feel efficacious as a parent as well? Or, do the challenges and vulnerabilities present in the transition to parenthood, get in the way of this? This question has not previously been addressed in existing literature, and thus is a primary focus of the present study. In addition to understanding the relationship between GSE and PSE, this study attempted to identify potential moderators of this relationship, as well as expand upon the role that mental health plays in this picture.

Clinical and Theoretical Relevance

This project is clinically relevant because it expands on and clarifies the knowledge base surrounding variables that are implicated in the transition to parenthood, including the mental health of new parents. The innate vulnerability of the transition to parenthood is well established, and parents can struggle significantly during this time. By exploring the relationship between mental health and variables such as self-efficacy and infant fussiness, across the perinatal period, and between co-parents, this study provides further understanding on parents' experiences during the transition to parenthood. This is particularly important, because understanding parents' experiences is critical in the development of treatment and interventions for those who are

struggling. Although the purpose of this study was not to design an intervention, it is hoped that the results of this study can help to inform future research on mental health in the transition to parenthood, as well as the development of much needed resources, screeners, and interventions for this population.

This study also serves to further demonstrate and publicize the very real challenges and triumphs of the transitions to parenthood, as well as the not so uncommon mental health concerns that come along for the ride. By focusing this study on mental health in the transition to parenthood I hope to further open up and normalize conversations about mental health and related factors in pregnancy and early parenthood in the hope that the more these issues are talked about openly, the more support and resources can be offered to this population.

Research Questions and Conceptual Hypotheses

This study addressed the following research questions:

1. What is the relationship between GSE prenatally and PSE in the early postpartum period for first-time mothers and fathers?
    a. Does infant fussiness moderate this relationship?
    b. Does partner postnatal anxiety and/or depression moderate this relationship?
2. What is the relationship between postnatal anxiety and PSE for first-time mothers and fathers?
3. What is the relationship between postnatal depression and PSE for first-time mothers and fathers?

Based on the above research questions, I hypothesized the following:

1. GSE would predict postnatal PSE in mothers and fathers across the transition to parenthood.

   a. Perceptions of infant fussiness would moderate the relationship between GSE and PSE in mothers and fathers in that higher levels of GSE would predict higher levels of PSE only when perceptions of infant fussiness were low.
   b. Partner postnatal anxiety and depression would moderate the relationship between GSE and PSE in mothers and fathers in that higher levels of GSE would predict higher levels of PSE only when partner mental health (anxiety and depression) were low.
2. Lower levels of PSE would be predictive of higher levels of postnatal anxiety.
3. Lower levels of PSE would be predictive of higher levels of postnatal depression.

Method

This study was a non-experimental/descriptive, quantitative and longitudinal study. Expecting heterosexual couples were recruited and asked to complete two questionnaires across the transition to parenthood, once prenatally during the third trimester, and once at approximately three months postpartum. Recruitment for this study was approved by the Institutional Review Board for the Protection of Human Subjects (IRBPHS) at the University of San Francisco (Appendix A).

Participants

Eligibility Criteria

Eligible participants were primiparous, heterosexual couples in which the mother-to-be was in her third trimester of pregnancy. Eligibility criteria included: a) Heterosexual couples that lived together and would be considering themselves as co-parents, b) first-time parents with the pregnant partner in her third trimester (between 27-40 weeks) of pregnancy, c) each partner was at least 18 years of age, d) each partner did not have current or past psychiatric hospitalization, e)

both partners in a couple were willing to participate, and f) couples had a reliable way to access internet in order to complete online questionnaires.

Although the issues in the proposed study are relevant to non-heterosexual couples as well, for this study heterosexual couples were recruited for the purpose of being able to compare mothers' and fathers' experiences within a couple dynamic and to reduce possible confounding factors that might come from the unique experiences of queer or same-sex identified couples.

Sample

A total of 24 self-identified heterosexual couples (48 individuals) who resided across the United States participated in this study. Majority of the sample identified as White, non-Hispanic (79.2%, *n* = 38), followed by Asian/Pacific Islander (12.5%, *n* = 6), other (4.2%, *n* = 2; specified as "Armenian" and "Half-white, half Asian"), Hispanic/Latino (2.1%, *n* = 1), and multiracial/ethnic (2.1%, *n* = 1). Majority of participants also resided in the Western region of the country (70.8%, *n* = 34). Notably, 62.5% (*n* = 28) of participants resided in the San Francisco Bay Area and 20.8% (*n* = 10) resided in the greater Chicago area (this is likely due to convenience sampling based on my location during recruitment). 95.8% of the sample had a bachelor's degree or a graduate level degree (58.3%, *n* = 28; 37.5%, *n* = 18, respectively). Among participants who provided their age at the time that they took the first questionnaire (*n* = 43), the average age was 33.3 (*SD* = 3.59) and age ranged from 26 to 42. Majority of individuals reported a combined family income of over $100,000 (81.25%, *n* = 39). Further details on general demographic information are reported in Table 1.

Table 1

Sample Demographics

Demographic Characteristics	N = 48	%
Ethnicity		

American Indian/Alaskan Native	0	--
Asian/Pacific Islander	6	12.5%
Hispanic/Latino	1	2.1%
Black, non-Hispanic	0	--
White, non-Hispanic	38	79.2%
Multiracial/Ethnic	1	2.1%
Other	2	4.2%
Geographic Location		
Northeast	2	4.2%
Midwest	12	25%
South	0	--
West	34	70.8%
Highest Level of Education		
Grade School	0	--
High School/ GED	2	4.2%
Associates Degree	0	--
Bachelor's Degree	28	58.3%
Graduate Degree	18	37.5%
Combined Family Income		
>$100, 000	39	81.25%
$50,000 - $100,000	7	14.6%
<$50, 000	2	4.2%
I receive public assistance	0	--

Couples. Per inclusion criteria, all couples were living together and identified as co-parents. When asked about marital status, all but one couple reported being married; in one couple, both partners identified as "single," suggesting they were co-parents in an intimate relationship but not legally married. Most individuals reported that they had been with their partner for at least 6 years (68.75%) with 35.4% of individuals reporting that they had been with their partner for over 10 years.

Labor and Delivery. One participant mother reported that the pregnancy was unplanned, and all other participants reported a planned pregnancy. Two participant mothers reported pregnancy related complications including gestational diabetes, gestational hypertension, and gestational proteinuria. At time 1, no participant mothers (n = 24) reported that they were having a planned c-section.

At time 2, which occurred at approximately three months postpartum, questions regarding the baby were only included in mother's questionnaires since they concerned behaviors that were specifically about the mothers' experiences of labor and delivery and breastfeeding. Of the mothers who responded to the time 2 questionnaire (n = 21), majority reported vaginal deliveries (85.7 %, n = 18) with remaining mothers reporting emergency c-sections (14.3%, n = 3). Majority of mothers reported that they were exclusively breast feeding (66.67%, n = 14), followed by 23.8% (n = 5) who reported they were using a combination of breastfeeding and formula, and 9.5% (n = 2) who reported using formula only. Mothers were also asked to rate their experience of how challenging breastfeeding had been for them on a scale of 1 to 5 with 5 being the most challenging. 28.6% of mothers (n = 6) rated their experience as a 4 or higher, indicating perceived above average difficulty with breastfeeding. 71.4% of mothers (n = 15), rated their experience as a 3 or below indicating average or below average perceived difficulty. Support received in the home as reported by mothers at time 2 is depicted in Table 2, and included partners, family members, night nurses, nanny/babysitters, postpartum doulas and friends**.** At time 2, which was completed at approximately three months postpartum, 57.1% of mothers (n = 12) reported working full-time and 38.1% of mothers (n = 8) reported not working at all. One mother reported working part-time. Notably, 80% of fathers at time 2 (n =16) were working full-time, 15% were not working at all (n = 3) and one father was working part-time.

Table 2

In Home Supports

Support	N = 21	%
Partner	20	95.2
Family Members	18	85.7
Night Nurse	3	14.3
Nanny/Babysitter	2	9.5

Postpartum Doula	3	14.3
Others: (i.e. “friends”)	1	4.8

Note. This table describes types of in-home supports reported by participant mothers at time 2.

Procedures

Recruitment

Recruitment took place over the course of approximately one year (January 2019 to December 2019). Study participants were recruited via convenience sampling with targeted recruitment using both in-person and online strategies. In-person recruitment occurred at community organizations, programs, and pediatrician practices that were local to where I resided at the time of recruitment (San Francisco and Chicago were the primary recruitment locations). Recruitment sessions were held in correspondence with various community events such as parenting classes and pregnancy and birthing workshops and were coordinated with program staff. At these events, the study was introduced (either by myself or the community program representative) as voluntary and unrelated to their membership to the community program and/or pediatric practice. Eligible participants were given the option to fill out the time 1 survey on site or they provided their contact information on a sign-up sheet and were later sent a link to the initial screening, consent form (Appendix B), and first questionnaire. In addition to in-person recruiting, participants were also recruited online via community forums and websites such as NextDoor and Reddit as well as several perinatal focused email listservs. See Appendix C for a general script used to introduce the study in person or online.

Study Administration

Over the course of the study, participants completed two online questionnaires via their phone or computer (or on my computer if recruited in-person). See Appendix D for a breakdown of each questionnaire. The questionnaires assessed parents’ well-being (as measured by their

current anxiety and depression levels), perceived parental and GSE, and perceptions of their infant's fussiness. The time 1 questionnaire took place during the third trimester. Around the participant mother's due date, I emailed both partners to confirm their baby's birth date in order to determine when to send the second questionnaire. The time 2 questionnaire was sent to participants' provided email addresses at approximately 3 months postpartum. Up to 3 reminder emails were sent to participants who did not complete the time 2 questionnaire within the first 1-2 weeks of receiving it. Notably, several participants did complete the questionnaires after receiving reminders. As such, time 2 survey completion occurred within a range of 3 to approximately 4.5 months postpartum, with most participants completing within their third postpartum month. In order to incentive participation, following each questionnaire completion participants were entered into a drawing to win one of two $25 Amazon gift cards.

Measures

General Self-Efficacy

GSE was measured prenatally via the General Self-Efficacy Scale (GSES; Schwarzer & Jerusalem, 1995). The GSES is a 10-item self-report measure aimed to predict coping ability for daily life hassles and stressful life events. Each item on the questionnaire describes successful coping (e.g., *I can always manage to solve difficult problems if I try hard enough*) and is rated on a 4-point Likert scale from 1 (*not true at all*) to 4 (*exactly true*). Total scores can range from 10-40, with higher scores indicating higher perceived self-efficacy. The GSES is recommended for use with general adult populations and has been demonstrated to have adequate internal reliability in studies from 23 different nations, with Cronbach's alphas ranging from .76 to .90. I have found one other study to date in which the GSES was used with parents of young children (Murdock, 2013). The internal consistency of the GSES for the aforementioned study was

adequate (α = .85). Similar to my research questions, this study explored the association and predictive relationship between GSE and PSE. In the present study, internal consistency for the GSES was also adequate (α = .80).

Parental Self Efficacy

The Maternal Efficacy Questionnaire (MEQ) was developed by Teti and Gelfand (1991) to assess for the domain-specific construct of perceived PSE. The questionnaire is made up of 10 items that assess for parents' feelings of efficacy regarding specific infant parenting tasks (e.g. soothing the baby, making baby smile, understanding what baby wants, etc.) and one question that address the parents' overall feeling of parenting efficacy. The questionnaire uses a four-point rating scale ranging from 1 (*not very good*) to 4 (*very good*). The score range is 10-40, with higher scores indicating feelings of greater efficacy. Cronbach's alpha was .79 based on a pilot sample of 29 mothers, and .86 in the 1991 study with a sample of 48 mothers. Leerkes and Crockenberg (2002) used the MEQ with a sample of 92 primparous mothers in their study on the relationship between maternal self-efficacy and maternal behavior. Although the MEQ has been primarily used with mothers, this study utilized the questionnaire with participant fathers as well. The language in the questions were neutralized to be appropriate for parents in general. To date I have found one other study where the Maternal Efficacy Scale was used with fathers (Leerkes & Burney, 2007); reliability for a sample of 73 fathers and 115 mothers in this study was .84 and .86, respectively. The MEQ was administered at time 2 and Cronbach's alpha for the MEQ in the present study was .88.

Prenatal and Postpartum Depression

The Edinburgh Prenatal/Postnatal Depression Scale (EPDS) was developed by Cox et al. (1987) in order to address the lack of assessment and treatment of postpartum depression (PPD).

The measure is a 10 item self-report that assesses for common symptoms among mothers experiencing depression during pregnancy or within one year following the birth of a child. Mothers are asked to identify 1 of 4 responses that best represent how she has been feeling over the past seven days. Responses are scored on a scale of 0 to 3 based on severity of symptoms, with higher scores indicating endorsement of PPD symptoms. Total scores can range from 0 to 30. A cutoff score of 9 is used to indicate need for follow up assessment of mood and safety, and a cutoff score of 12 or indication of suicidal thought indicates the need for more extensive assessment and immediate intervention and referral. Cronbach's alpha was .87, indicating high internal consistency for this population, and split-half reliability was .88. The sensitivity of the scale is 86% and the specificity of the scale is 78%. The positive predictive value of the scale is 73%. The split-half reliability of the scale is .88.

The EPDS has been used with fathers (Areias et al., 1996; Ballard et al., 1994; Dragonas et al., 1992; Lan et al., 1997) and studies have explored differing cut-off scores for men and women. Matthey et al. (2001) conducted the first validation study of the EPDS with fathers in Australia and established Cronbach's alpha as .81 and an optimum cutoff score for men as 9 or 10.

For the purpose of this study, the EPDS was used to assess depression levels at time 1 and 2 in both mothers and fathers. In the present study, Cronbach's alpha for the EPDS at time 1 and time 2, was .83 and .76, respectively.

Anxiety

The Perinatal Anxiety Screening Scale (PASS; Somerville et. al, 2014) is a 31-item self-report measure used to screen for problematic anxiety in prenatal and postnatal women. It takes approximately 5-10 minutes to complete. The PASS is not a diagnostic scale. The PASS consists

of four subscales including: Excessive worry and specific fears (Questions #1-10); perfectionism, control and trauma (Questions #11-18); social anxiety (Questions #19-23); and acute anxiety and adjustment (Questions #24-31). Of note, the answer to question 7 is meant to be looked at individually as it is a clinical indicator of phobia. On the PASS, mothers are asked to self-rate anxiety symptoms by indicating the frequency of the symptoms in the last month. Items are answered on a scale of 0 to 3, where 0 = *not at all* and 3 = *almost always*. Scores from each item are summed to derive the total score, which can range from 0 to 93. It is recommended that a cut-off score of 26 is used to distinguish between high and low risk for an anxiety disorder. This cut-off was demonstrated to have sensitivity of 0.7 and specificity of 0.3 in terms of accurately detecting anxiety. Cronbach's alpha ranged from 0.86 to 0.90 for the four subscales indicating high reliability. Furthermore, Cronbach's alpha for the entire scale was 0.96 indicating excellent reliability.

I have not found the PASS used with fathers in any studies to date, however according to the authors it was purposefully written in gender neutral language so that it could theoretically be used with fathers. For the purpose of this study, the PASS was used for mothers and fathers. Of note, given the lack of information on anxiety during the perinatal period, I purposefully chose to measure it separately from depression for this study in order to obtain distinct depression and anxiety data. In the present study, Cronbach's alpha for the PASS at time 1 and time 2 was .92 and .92 respectively.

Infant Fussiness

The Infant Crying and Parent Well-being (ICPW) screening tool was developed by Katch and Burkhardt (2015) to assist in recognizing perceived crying problems in infants, and in turn identify parents potentially in need of support. Scores are based on parents' perception of crying

rather than actual amount of crying because it may be a better predictor of parent wellbeing. The screener contains five items regarding infant crying/fussing, perceptions of parent's ability to soothe their infants, and perceptions of parents on their co-parents' ability to soothe their infant. The score range is 0-8 with 3 being the cutoff to signify to the clinician to explore/offer additional support. Using level of parenting stress as an indication of parents in need of support, the ICPW showed a sensitivity of 87.5% and specificity of 73.5% in a sample of 299 parents of infants under the age of one. Scores were also positively correlated with depression (r = .24), parenting stress (r = .44), and lack of co-parent confidence (r = .23). Although this screening tool has not been widely used yet, the authors of the tool and I agreed that my study could be used to contribute to further validation of the scale. I was in contact with the authors of this measure throughout the study and consulted with them as needed regarding its usage.

It should be noted that due to researcher error, one item (item 4: "Does your co-parent feel s/he has ways of soothing your baby when s/he cries?") from the ICPW was not included in the questionnaire completed by participants in this study. As such, the range of possible scores based on items presented to participants was 0 to 6 (rather than 0 to 8). Due to the accidental omission of one item from the questionnaire, I consulted with Katch and Burkhardt to determine how to use and interpret the results from my sample. They confirmed that the results could still be interpreted and recommended a cut-off score of 2, rather than 3, because it would statistically align with the original cut-off score and yield clinically meaningful information. In the present study, Cronbach's alpha for the ICPW (based on the first 3 items of the tool) was .68.

Demographics

A demographics questionnaire was used in this study to gather demographic characteristics about each partner of each couple enrolled in the study. There was a

prenatal (Appendix E) and postnatal version (Appendix F) with the postnatal version asking more questions about the baby. The prenatal demographics questionnaire asked about factors such as age, ethnicity/race, income, job, education level, amount of intended parental leave, as well information about the pregnancy and the couple's history together. The postnatal questionnaire asked participants questions about the birth of their baby, plans for returning to work, support in the home, and breastfeeding (for mothers). The questionnaires employed gender neutral language, and many questions were asked of both mothers and fathers; however, surveys differed slightly between mothers and fathers.

Data Analysis Plan

Data Preparation

Nested Data Design

All participants who completed both time points of the study (n = 40) were included in at least some of the analyses, even if their partner did not complete the second questionnaire. The decision to include all participants who completed questionnaires for time 1 and time 2 even if their partner did not (which was the case for only three participants) was an attempt to increase my sample size and give sufficient power to my analyses. Thus, the data set used in my final analyses represents a partially nested design. Partially nested designs are used for data sets which include groupings of participants that hold something in common (this design is often utilized in studies that examine outcomes for different clinical intervention groups). Partially nested designs account for the fact that data for participants in the same grouping may be correlated and would thus contradict the assumption of independence needed for standard designs (Candish et al., 2018). By using a nested design, I was able to include all participants in one model while

accounting for the fact that some participants in the sample were part of a couple, while others where not (meaning their partner did not complete the time 2 questionnaire).

In order to account for the possible non-random effects of some individuals in the data set being a part of a couple and others not being a part of a couple, I used a linear mixed-effects model which is a type of regression model that accounts for both fixed and random effects and can be used with nested data sets (Candish et al., 2018). In my analyses I accounted for fixed effects of the variables, random effects, and non-random effects of the couples.

Notably, due to my small sample size, I was unable to conduct the dyadic analyses necessary to directly compare mothers and fathers with interpretable results in one model. As such, the results of my final analyses are representative of the whole sample of mothers and fathers and do not distinguish between mother and fathers. However, as part of my exploratory analyses I ran simpler models (simple linear regression) separately for mothers and father in order to identify possible differences between mothers and fathers regarding my research questions.

Data Cleaning

Prior to conducting my analyses, I cleaned and coded my data set. All variables were visually examined using boxplots for outliers (both as part of the complete data set and separately for mothers and fathers). Outliers were deemed to be values over or under 1.5 times the interquartile range (IQR). Several outliers were identified in both the total data set and when variables were examined separately among mothers and fathers. Based on review of all responses for participants who were associated with outliers, the identified outliers were deemed to be true data points sampled from the population and not errors. Although outliers deemed as true errors are sometimes removed from data sets prior to analyses, outliers assumed to be accurate data

points from a population, should not necessarily be treated as harmful (Aguinis et al., 2013). In fact, removing outliers that represent accurate data points can lead to artificial range restriction (McNamara et al., 2005). As such, the identified outliers in the sample of this study were included in most analyses; however, analyses were also run on the data with outliers removed in order to compare results and determine any possible significant impact of outliers on results. Any differences are described below. Before beginning my final analyses, I also confirmed that my model met all assumptions for running mixed effects models which included testing and visually (using histograms and scatter plots) checking my data for linearity and homogeneity of a variance or homoscedasticity. All analyses were conducted in R using the NLME package (Pinheiro et al., 2020).

Results

Bivariate Statistics

Descriptive Data

I ran descriptive statistics for all variables and included all participants who completed at least the time 1 questionnaire. All descriptive data is provided in Table 3, broken down by time point and distinguished between mothers and fathers. Notably, I identified three outliers: One for mothers' anxiety at time 2 (x = 35), a second for fathers' GSE at time 1 (x = 23), and a third for fathers' PSE at time 2 (x = 25). Each outlier was associated with a different participant and as aforementioned, each outlier was deemed to be an accurate score, likely reflective of a small sample with limited range, rather than error.

Table 3

Descriptive Data: Main Study Variables

	Mothers			Fathers		
Variable	*N*	*M (SD)*	Range	*N*	*M(SD)*	Range
Depression						
Time 1	24	4.46 (3.64)	1-12	24	4.38 (3.87)	0-14
Time 2	20	3.6 (2.96)	0-9	20	3.95 (3.8)	0-11
Anxiety						
Time 1	24	16.70 (12.12)	1-45	24	14.75 (8.92)	2-38
Time 2	21	12.86 (8.77)	4-35	20	14.4 (10.86)	2-39
General Self-Efficacy	24	33.21 (3.18)	26-38	24	33.54 (3.44)	23-39
Parental Self-Efficacy	20	34.95 (4.37)	24-40	20	32.1 (3.86)	25-39
Infant Fussiness	20	1.2 (1.7)	0-5	20	2.1 (2.13)	0-5

As aforementioned, due to researcher error, one item was left off the Infant Crying and Parent Well-being (ICPW) tool. However, per the authors' recommendation, I used a cut-off score of 2 to determine participants for whom which a referral might be warranted. In total, 30% (n = 6) of mother's responses and 50% (n = 10) of father's responses indicated perceived infant fussiness to the point that a referral could be warranted.

Correlations

Correlation matrices of all variables for time 1 and time 2 are provided in Table 4 and 5 for mothers and fathers, respectively. Correlation coefficients were only calculated for participants who fully completed both time points (mothers: n = 20; fathers: n = 20), in order to be able to examine the relationships between time 1 and 2 variables (one participant only partially completed time 2 and was removed from the correlation analyses). Due to the small sample size, only correlations with a p <.01 significance level were interpreted.

Mothers. Table 4 indicates intercorrelations for all study variables at time 1 and time 2 for mothers. In total, there were 7 statistically significant (p < .01) correlations among these

variables. Notably, there was a moderate positive correlation between GSE and PSE (r = .56). There were also moderate to strong negative correlations between prenatal anxiety and depression and PSE; however, there were no significant correlations between postnatal anxiety or depression and PSE. There was a moderate negative correlation between GSE and postnatal anxiety (r = -.51). There was also a moderate negative correlation between GSE and perceived infant fussiness (r = -.56); however, there was notably not a significant correlation between PSE and infant fussiness.

Table 4

Mothers: Means, standard deviations, and correlations with confidence intervals

Variable	*M*	*SD*	1	2	3	4	5	6
1. GSE	33.30	3.29						
2. T1. Anx.	14.95	11.41	-.32 [-.67, .14]					
3. T1 Dep.	4.20	3.61	-.35 [-.69, .11]	.88** [.72, .95]				
4. PSE	34.95	4.37	.56* [.15, .80]	-.69** [-.87, -.35]	-.47* [-.75, -.03]			
5. T2 Anx.	11.95	7.92	-.51* [-.78, -.08]	.76** [.47, .90]	.64** [.28, .85]	-.64** [-.84, -.28]		
6. T2 Dep.	3.60	2.96	-.33 [-.68, .13]	.53* [.11, .79]	.33 [-.13, .68]	-.56* [-.80, -.15]	.75** [.46, .90]	
7. Infant Fuss.	1.20	1.70	-.56** [-.81, -.16]	.20 [-.27, .59]	.15 [-.32, .55]	-.38 [-.70, .08]	.46* [.02, .75]	.24 [-.23, .61]

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$.
GSE = General Self-Efficacy; T1 Anx. = Prenatal Anxiety; T1 Dep. = Prenatal Depression; PSE = Parental Self-Efficacy; T2 Anx. = Postnatal Anxiety; T2 Dep. = Postnatal Depression; Infant Fuss. = Infant Fussiness.

Fathers. Table 5 indicates intercorrelations for all study variables at time 1 and time 2 for fathers. In total, there were 5 statistically significant ($p < .01$) correlations among these variables. All significant correlations were between pre- and postnatal anxiety and pre- and postnatal depression. Notably, there were no significant correlations for fathers, between GSE, PSE, perceived infant fussiness, and any other variables.

Table 5

Fathers: Means, standard deviations, and correlations with confidence intervals

Variable	*M*	*SD*	1	2	3	4	5	6
1. GSE	33.35	3.75						
2. T1 Anx.	14.80	9.22	-.44 [-.74, .01]					
3. T1 Dep.	3.85	3.53	-.31 [-.66, .16]	.74** [.45, .89]				
4. PSE	32.10	3.86	.13 [-.33, .54]	-.08 [-.51, .38]	-.10 [-.52, .36]			
5.T2 Anx.	14.40	10.86	-.20	.75**	.51*	-.17		

			[-.59, .26]	[.45, .89]	[.09, .78]	[-.57, .30]		
6. T2 Dep.	3.95	3.80	-.01 [-.45, .44]	.59** [.21, .82]	.75** [.46, .89]	-.20 [-.59, .27]	.63** [.27, .84]	
7. Infant Fuss.	2.10	2.13	-.07 [-.50, .38]	-.02 [-.46, .43]	.17 [-.29, .57]	-.23 [-.61, .23]	.28 [-.18, .64]	.27 [-.20, .63]

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$.

GSE = General Self-Efficacy; T1 Anx. = Prenatal Anxiety; T1 Dep. = Prenatal Depression; PSE = Parental Self-Efficacy; T2 Anx. = Postnatal Anxiety; T2 Dep. = Postnatal Depression; Infant Fuss. = Infant Fussiness.

Multivariate Statistics

After running all descriptive and bivariate analyses, analyses were run for the purpose of answering the research questions of this study. For these questions, in order to run all data in one model, a nested data set including all participants (mothers and fathers) who completed time 1 and 2 was used for all questions except those that required dyadic data (i.e. partner mental health as a moderator). As aforementioned, outliers were not removed from these analyses as they were deemed true data points and more likely a reflection of the small sample size and limited range of responses than inaccuracy. In order to determine if results were significantly different with and without outliers, the model was run in both circumstances, and instances where there were differences in statistical significance are noted.

Question 1: What is the relationship between general self-efficacy prenatally and parental self-efficacy in the early postpartum period for first-time mothers and fathers?

I hypothesized that prenatal GSE would predict postnatal PSE. Results showed that prenatal GSE statistically significantly predicted postnatal PSE (b = 0.42, t (17) = 2.24, p = 0.039, 95% *CI* [0.03, 0.84]). GSE accounted for 29% of the variance in PSE indicating a small to medium effect (R^2 = 0.29). It should be noted that when the model was run on the same data but with outliers removed, the results trended toward significance (p = 0.059).

Question 1A: Does infant fussiness moderate this relationship? I hypothesized that perceived infant fussiness would moderate the relationship between prenatal GSE and postnatal PSE. Results showed that perceived infant fussiness was not a significant moderator between prenatal GSE and postnatal PSE (b = 0.42, t(15) = 1.27, p = 0.222, 95% *CI* [-0.28, 1.11]).

Question 1B: Does partner postnatal anxiety and/or depression moderate this relationship? I hypothesized that partner postnatal anxiety levels and partner postnatal depression levels would moderate the relationship between prenatal GSE and postnatal PSE. Due to the fact that these moderation questions called for dyadic data, only couple data (i.e., where both partners completed both timepoint questionnaires) were used for this question. Notably, the model was able to examine partner data as a moderator variable; however, it was not able to examine differences between mothers and fathers, as this would have required a more complicated data analysis method (Actor Partner Interdependence Model) that I was not able to utilize with my sample size. Results of the present model indicated that partner postnatal anxiety levels did not moderate the relationship between prenatal GSE and postnatal PSE (b = 0.15, t (15) = 0.49, p = 0.631, *95%* [-0.51, 0.81]). Results indicated that partner postnatal depression

levels also did not moderate the relationship between prenatal GSE and postnatal PSE (b = 0.30, t (15) = 1.05, p = 0.308, *95%* [-0.31, 0.92]).

Question 2: What is the relationship between postnatal depression and parental self-efficacy for first-time mothers and fathers.

I hypothesized that PSE would predict postnatal depression in the postpartum period. Results showed that PSE significantly predicted postnatal depression (b=-0.24, t (17) = -2.19, p = 0.043, 95% *CI* [-0.48, -0.01]). PSE accounted for 11.5% of the variance in postnatal depression indicating a small effect (R^2 = 0.115).

Question 3: What is the relationship between postnatal anxiety and parental self-efficacy for first-time mothers and fathers?

I hypothesized that PSE would predict postnatal anxiety in the postpartum period. Results showed that PSE also significantly predicted postnatal anxiety (b = -0.73, t (17) = -2.90, p = 0.011, 95% *CI* [-1.27, -0.19]). PSE accounted for 19.5% of the variance in postnatal anxiety indicating a small effect (R^2 = 0.195).

Exploratory Analyses

For studies that involve dyadic data, employing a methodology such as Actor- Partner Interdependence Model (APIM) is ideal. APIM is a model that measures the bidirectional effects of dyadic data, thus accounting for the relationship between partners or pairs in a data set (Cook & Kenny, 2005). Due to the small sample size in my study, I was not able to use this method. Below, I report results from exploratory analyses using simple linear regression models that examine mother and father data separately; however, conclusions cannot be drawn regarding actual group differences because these analyses do not account for the dyadic nature of the data.

Question 1: What is the relationship between general self-efficacy prenatally and parental self-efficacy in the early postpartum period for first-time mothers and fathers?

Results for mothers showed that prenatal GSE significantly predicted postnatal PSE (b = 0.74, $t(18) = 2.84$, $p = 0.011$, 95% CI[0.19, 1.28]). Prenatal GSE accounted for 31% of the variance in PSE indicating a small to medium effect ($R^2 = 0.31$). Results for fathers alone showed that prenatal GSE did not significantly predict postnatal PSE ($b = 0.13$, $t(18) = 0.56$, p = 0.579, 95% CI[-0.37, 0.64]).

Question 1A: Does infant fussiness moderate this relationship? Perceived infant fussiness was not a significant moderator between prenatal GSE and postnatal PSE for mothers ($b = 0.66$, $t(17) = 2.07$, $p = 0.05$, 95% CI [-0.01, 1.34]) or fathers ($b = 0.12$, $t(17) = 0.49$, p = 0.627, 95% CI [-0.39, 0.63]).

Question 1B: Does partner postnatal anxiety and/or depression moderate this relationship? For mothers, partner postnatal depression was a significant moderator of the relationship between GSE and PSE ($b = 0.72$, $t(15)$, $p = 0.026$, CI [0.10, 1.33]). Partner postnatal depression accounted for 29% of the variance indicating a small to medium effect ($R^2 = 0.29$). Partner postnatal anxiety was also a significant moderator of the relationship between GSE and PSE for mothers ($b = 0.69$, $t(15)$, $p = 0.035$, CI [0.55, 1.32]). Partner postnatal anxiety also accounted for 29% of the variance indicating a small to medium effect ($R^2 = 0.29$).

Conversely, for fathers, neither partner postnatal depression ($b = 0.27$, $t(15)$, $p = 0.327$, CI [-0.30, 0.85]) nor postnatal anxiety ($b = 0.16$, $t(15)$, $p = 0.528$, CI [-0.37, 0.70]), were significant moderators for the relationship between GSE and PSE.

Question 2: What is the relationship between postnatal depression and parental self-efficacy for first-time mothers and fathers.

For mothers, results showed that PSE significantly predicted postnatal depression (b= -0.38, t (18) = -2.86, p = 0.010, 95% *CI* [-0.66, -0.10]). PSE accounted for 31.2% of the variance in PSE indicating a small to medium effect (R^2 = 0.312). Results for fathers were not significant (b= -0.20, t (18) = -0.87, p = 0.398, 95% *CI* [-0.69, -0.29]).

Question 3: What is the relationship between postnatal anxiety and parental self-efficacy for first-time mothers and fathers?

Postnatal anxiety significantly predicted postnatal PSE for mothers (b=-1.16, t (18) = -3.54, p = 0.002, 95% *CI*[-1.85, -0.47]). Postnatal anxiety accounted for 41% of the variance in PSE indicating a small to medium effect (R^2 = 0.410). Conversely, results were not significant for fathers (b = -0.46, t(18) = -0.71, p = 0.486, 95% *CI* [-1.84, 0.91]).

Discussion

The purpose of this study was to examine self-efficacy and mental health in the transition to parenthood among first-time mothers and fathers in a sample of dyadic data. Specifically, this study examined variables including GSE, PSE, anxiety, depression, and perceived infant fussiness/problematic crying. Data were collected across the transition to parenthood, with time 1 being during the prenatal period (third trimester), and time 2 being around three months postpartum. Of particular interest in this study was the construct of PSE and the relationship between PSE and hypothesized predictor variable, GSE. I also sought to understand the role of infant fussiness and partner postnatal mental health as potential moderators between this relationship. Lastly, this study also examined PSE as a predictor for postnatal anxiety and depression.

Summary of Findings

General Self-Efficacy and Parental Self-Efficacy

When I examined mother and father data together in a nested data set, results supported my first hypothesis, indicating that prenatal GSE was a significant predictor of postnatal PSE. This finding suggests that, for participants in this study, one's general sense of their ability to succeed and face challenges in life before having a baby may significantly impact their perceived ability to succeed in tasks and face challenges that are related specifically to parenting after they have a baby.

One explanation for these findings is that there is substantial overlap between the behaviors and attitudes of GSE and PSE, the primary difference being that PSE is domain specific (i.e. behaviors and cognitions are specific to parenting). Self-efficacy appears to develop based on previous experiences of success and failures in various life domains. As described by Bandura (1989), a strong sense of self-efficacy is required for individuals to remain focused and maintain an efficient level of cognitive functioning in the face of challenging and complex scenarios. Parenting is a complex and challenging scenario. With this in mind, individuals with higher levels of GSE, who perceive themselves as generally able to face new challenges and succeed at new tasks, might be in a position to more easily deal with the challenges that come specifically with parenting. Those with lower levels of GSE may experience the challenges of parenting as another new task with which they are struggling. Bandura (1977) also explained that self-efficacy can determine whether coping behaviors get initiated, and if so, and how long they will be sustained. Accordingly, if parents enter parenthood with a higher sense of GSE, they may be more likely to engage in and sustain important coping skills that in turn translate to their higher levels of perceived PSE.

Notably, in the exploratory analyses, only the sub-sample of mothers demonstrated that GSE was a significant predictor of PSE. Interestingly, these results are in line with findings from

Sevigny and Loutzenhiser (2010) who found that in a sample of parents of toddlers, there was a positive correlation in the relationship between GSE and PSE in mothers but not in fathers. As Sevigny and Loutzenhiser proposed, the reasoning for the differences between mothers and fathers, may be because fathers conceptualize the skills and tasks associated with PSE as fundamentally different from those applicable to other domains of life. Sevigny and Loutzenhiser also suggest that the difference in conceptualization may be due to parenting being more salient in mothers' personalities than fathers, which can be traced back to historical roots of mothers traditionally and stereotypically being caretakers in the home and completing majority of parenting tasks. The present study did not gather data on partner involvement in various parenting tasks so it is not clear if involvement in parenting tasks may have influenced the relationship between GSE and PSE for mothers and fathers.

As discussed in the literature review, there has been very little prior research examining the role of GSE during the perinatal period (Tsai et al., 2018) and no prior research examining the relationship between GSE and PSE in the perinatal period. However, as described above, there is some research on the relationship between GSE and PSE for parents of toddlers (Sevigny & Loutzenhiser, 2010) and also school age children (Coleman & Karraker, 2000) to suggest that GSE influences PSE. Results from the current study support and add to this previous research by examining the relationship between GSE and postnatal PSE during the perinatal period specifically.

Infant Fussiness and Partner Postnatal Mental Health Moderators. My hypothesis was that infant fussiness would moderate the relationship between GSE and PSE; that is, I theorized that parents who reported having a fussy infant would experience lower levels of PSE, even if they had high levels of GSE. This study did not provide supportive evidence to suggest

that perceived infant fussiness was a significant moderator for the overall sample of the study, or for mothers and fathers separately. In the current sample, parents' perceptions of their infant's fussiness did not appear to translate to a significant negative impact on their own sense of PSE and in fact the relationship between GSE and PSE was not significantly impacted by changes in perceived infant fussiness. Additionally, there was no correlation between PSE and infant fussiness in the sample of this study; however, there was a significant negative correlation between GSE and infant fussiness for mothers.

Although there have been no previous studies examining infant fussiness as a moderator in the relationship between GSE and PSE, previous studies have indicated a relationship between infant fussiness and lower levels of PSE for mothers in the postpartum period (Porter and Hsu, 2003; Stifter et al., 2003; Troutman et al., 2012). For instance, Porter and Hsu examined the relationship between perceptions of infant temperament (including infant fussiness) and maternal self-efficacy at both 1 month and 3 months postpartum. They found that perceptions of infant fussiness accounted for a significant portion of the variance of postnatal maternal self-efficacy at 3 months postpartum.

Generally, previous researchers have explained the relationship between infant fussiness and PSE as reflection of Bandura's (1982) framework for self-efficacy which indicates that one's perception of their ability to succeed or fail at a particularly difficult task translates to increases or decreases in self-efficacy. In the context of infant fussiness, parents who perhaps struggle initially with soothing a fussy infant but are then able to find ways to feel successful in soothing their infant (or at least are able to externalize the fussiness) may experience higher levels of PSE. Whereas, parents who find their infant's fussiness as a challenge that they are not able to

overcome, may end up perceiving the experience of soothing their infant as their own failure, consequently leading to decreased levels of self-efficacy.

One possible explanation for the findings in this study is that parents did not interpret their infant's fussiness as a result of their own parental inadequacies. This is notable, because results did indicate that 30% of mothers and 50% of fathers endorsed this infant's crying as problematic on the ICPW to the extent that a referral could be warranted. What is more apparent, is that *despite* perceptions of infant fussiness, parents' sense of PSE was not significantly impacted. This could suggest that parents who identified their infant as fussy were able to externalize the fussiness from their own parental abilities.

Another possible explanation for the results could be that infant fussiness was assessed at a time point later than when peak crying of many infants is typically seen. Previous research on infant crying trajectories (Barr, 2006; Brazelton, 1962) has established that infant crying tends to peak at about three to six weeks and often starts to decline at around eight to twelve weeks. The second questionnaire of this study was provided to participants at about twelve weeks postpartum. Consequently, participants may have been reflecting on their infants' fussiness at a point when they were no longer dealing with as intense levels of crying or fussiness as they might have previously been facing.

It should also be noted that this sample was comprised of predominantly middle to high socioeconomic status (SES) parents. Interestingly, Ventura and Stevenson (1986) found that parents of higher SES status perceived their infants as fussier and less soothable than parents of lower SES. Although the present study did not compare perceptions of infant fussiness among variations in SES, results of the present study do not appear to indicate that perceptions of infant fussiness were having significant negative implications on PSE or postnatal mental health.

In addition to infant fussiness, I also hypothesized that partner postnatal mental health (anxiety and depression) would moderate the relationship between GSE and PSE. Results from the nested data set model did not support this hypothesis in regard to either partner postnatal anxiety and postnatal depression, suggesting that for the overall sample, the mental health variables examined did not significantly alter the strength of the relationship between GSE and PSE. However, as described in the exploratory analyses, for mothers, partner postnatal anxiety and depression were both separately significant moderators of the relationship between GSE and PSE. Although these results should be interpreted with caution due to the fact that they came from a small sample and did not account for the dyadic nature of the data, they do suggest that partner postnatal mental health could influence the strength of the relationship between GSE and PSE.

One possible explanation for why partner mental health did not appear to be a significant moderator in the overall nested sample is that mean postnatal anxiety and depression scores for mothers and father in this study sample were relatively low. Additionally, the range of scores was also small. In general, it seems that the participants in this study had a relatively low severity of symptoms. The low severity of symptoms (along with the small sample size) may have made it difficult to determine the appropriateness of the model used in this study. It is possible that greater variance in participant postnatal mental health symptoms as well as a larger sample size would indicate a more noticeable impact in the moderator model. Notably, results from the exploratory analyses regarding mothers corroborate previous research from Biehle and Mickelson (2011), which found that father's postnatal depression predicted mother's postnatal PSE.

There is very little research on the relationship between partner mental health and PSE, thus the results of this study are not supported by or in conflict with any prior research. However, prior research that does exist (Biehle & Mickelson, 2011) has highlighted the importance of actor-partner effects (examined through dyadic data analyses) that were ultimately not able to be determined in this study. Evidently, further clarification on actor-partner effects on the variables examined in this study would be helpful.

Parental Self-Efficacy and Postnatal Mental Health

Hypothesis 2 and 3 of this study tested whether PSE predicted postnatal anxiety and depression. Results supported hypotheses indicating that the overall sample of mothers and fathers' PSE significantly predicted both postnatal anxiety and postnatal depression, separately. It should also be noted that once again, when analyses were run on mothers and fathers separately, only mothers demonstrated significant results. As such, it is possible that mothers in the overall sample contributed to the overall significant findings. This possibility is further supported by the fact that significant correlations between PSE and postnatal mental health were found only for mothers, and not fathers.

Results from analyses of the overall sample support previous findings of a relationship in general between PSE and mood symptoms which has been established in prior research (Wernand et al., 2014; Pinto et al., 2016). As mentioned in the literature review, previous studies have also demonstrated mixed results when it comes to the direction and nature of the relationship between mood symptoms and PSE. For instance, Kunsler et al. (2014) found that PSE was both the result of mental health and a predictor of mental health across the transition to parenthood in first time mothers, indicating a bi-directional relationship. They explained this dynamic by suggesting that PSE and mental health are "mutually reinforcing," and that an

increase in PSE results in more positive mental health and vice versa. As such, the results of this study which focused on postnatal mental health added to previous findings suggesting a relationship between prenatal anxiety, depression, and PSE.

One possible explanation for why participant PSE would be predictive of postnatal mental health in the present study is that parents' sense of their ability to generally succeed in the tasks related to parenting an infant resulted in positive mood symptoms and reduced concerns and worries which might otherwise be associated with elevated level of postnatal anxiety. If a parent were to experience low levels of PSE postpartum, they would be more likely to view themselves at failing at certain parenting tasks, in turn putting them at risk for negative cognitions of the self and anxious rumination regarding their parenting abilities. Such an association might be more salient for mothers than fathers, because as aforementioned, mothers may be engaging in more caregiving tasks, especially in the first three months; however, this study did not collect information on actual mother and father involvement in infant caregiving tasks, so this cannot be assumed to be the case for this sample and should be further explored in future research.

It should also be again noted, that the mean scores of depression and anxiety in this sample were relatively low (both prenatally and postnatally) and the self-efficacy scores (both general and parental) were relatively high. Additionally, participants in this sample were of a higher SES, and received postpartum support outside of their partner (i.e. family members, doulas, babysitters, etc.). As such the participant sample of this study may reflect a relatively high functioning and well-resourced group of parents. If self-efficacy or mood symptoms scores had been more variable, results may have differed.

Limitations

One of the primary limitations of this study was the small sample size and subsequent difficulties with data analyses. As aforementioned, challenges in recruitment and data collection, particularly having to do with seeking both partners in a couple to participate in the study, led to a smaller than expected sample size. Although all research questions were ultimately addressed, several changes in the statistical analysis plan were necessary in order to accommodate the sample. Mostly notably, ideal dyadic data analysis methods were not possible. As such, results for questions that involved partner data were not able to fully account for the dyadic nature of the data lending to cautionary interpretation. Furthermore, the results of this study in general cannot fully account for partners influence on each other's responses (even though questionnaires were all completed separately).

Additionally, although some research questions in this study yielded significant results, the effect sizes were relatively small for most results. This suggests that despite results of this study providing support for the relevance of relationships between GSE, PSE, depression, and anxiety during the perinatal period, there are likely other variable and factors that account for additional variability in outcomes of the models run in this study. Additionally, for several questions, when mothers and fathers were examined separately, as part of exploratory analyses, only mothers yield significant results; as such, it is possible that mothers in the overall sample contributed to significant findings.

Due the small sample size used in this study, results should be considered specific to the sample and cannot be generalized to all new parents. Additional limitations of this study include the use of self-report measures to collect data on all study variables. Furthermore, because this study only utilized two time points for data collection, results cannot be generalized past the first three months of parenthood. Lastly, the sample of this study was not particularly diverse and

included heterosexual couples who were predominantly white, middle to high socioeconomic statuses, and resided in the same general areas of the country, limiting the external validity of the data.

Research Implications and Recommendations

Despite the limitations, this study highlights the importance of examining GSE and PSE during the transition to parenthood. Future research with a larger dyadic sample might be able to further illuminate the results found in this dissertation study. Importantly, a bigger sample size of couples would also provide more opportunity for more complex and preferable statistical analysis methods such as Actor Partner Interdependence Model (APIM). Such methods would provide needed clarification on the partner influence and significant differences between partners.

Future studies should also seek a more diverse sample in regard to demographic variables including sexuality, race and ethnicity, socioeconomic status, and geography. Researchers may choose to examine the variables in this study within specific populations, such as the queer community for whom there continues to be a dearth of literature regarding the experiences of pregnancy and the transition to parenthood. Previous research (Caro et al., 2017) on same-sex couples has indicated that same-sex couples are more likely experience certain stressors related to identity development than different-sex couples due to multiple-minority identity statuses. Additionally, levels of anxiety and depression during the perinatal period may be related to specific experiences of queer-identified individuals such as internalized homophobia, community acceptance of LGBTQ+ individuals, and living in a heterosexist society (Goldberg & Smith, 2011). Evidently, there are likely specific factors and variables relevant to the experiences of

queer and same-sex couples that would be important to consider when examining self-efficacy across the transition to parenthood that were not examined in the present study.

Additionally, although this study collected demographic data on couples, not all of this information was included in analyses due to the limited nature of this dissertation study. Future research may further examine such demographic details such as parental leave, age, income, etc. and their relationship to self-efficacy during the transition to parenthood. Additionally, given that a high percentage (85.7%) of the sample in this study reported receiving in-home family support (aside from their partner) after the birth of their baby, the role of support in the postpartum period may be an important factor to consider in future research on self-efficacy during the transition to parenthood.

Lastly, researchers with the ability to conduct a longer longitudinal study into the first year of parenthood might be able to capture additional nuances and parenting challenges within the first year that may impact the variables analyzed in this study.

Clinical Implications and Recommendations

The results of this study demonstrate important implications for clinical work because they point to several variables or areas that could be targets for intervention or education for expecting or new parents. For instance, if we assume that GSE may be an important predictor of PSE postpartum, and we know that lower levels of PSE may have negative impacts on mental health, then it would make sense to attempt to intervene at the level of GSE during the prenatal period.

Although there has been little prior research on GSE in the perinatal period, one prior study has suggested that intervention at the prenatal period can improve GSE for women during pregnancy (Tsai et al., 2018). This specific study implemented a web-based prenatal care

education intervention which provided access to health education and provided a platform for participants to store and easily access their own pregnancy and birth related health information and records. Results of the study suggested that the web-based intervention was effective in improving participants' levels of GSE, which authors suggested might have had to do with prompting participants to be more actively engaged with their prenatal care. Although this study did not examine how these results translated across the perinatal period to PSE, it offers the idea that interventions geared toward GSE can be productive. Perhaps, pregnant people and their partners who are screened and identified as having low levels of GSE might be a good fit for extra educational or support services geared toward increasing their general sense of efficacy (and likely their PSE) before their baby is even born. Furthermore, it could be argued that perinatal programs such as the one utilized by Tsai et al. (2018) are worth implementing more universally for all first-time parents, as a proactive way to boost self-efficacy through active engagement during pregnancy and access to educational materials.

Another clinical implication of this study revolves around the possibility that PSE can be predictive of postnatal mental health. Although there are screeners for mental health symptoms such as anxiety and depression, research and clinical accounts indicate that mental health during the postpartum period is a commonly overlooked and underreported concern. By adding some of the focus to PSE either through screeners at doctors' appointments or as part of parenting classes or organization, we may be able to better identify individuals at risk for postnatal mental health issues. Individuals identified as having low levels of general or PSE during the perinatal period may benefit from support and intervention (framed either as therapeutic, educational, or skills based) which could perhaps prevent against the development of depressive and/or anxiety symptoms. Additionally, healthcare providers who suspect that low PSE is a contributor of poor

mental health and stress in new parents may consider referrals to psychotherapy and recommend skills-based resources. Particularly in cases where mental health symptoms are less severe, these options might be more appropriate than initiating pharmacological treatment (which some parents may be more hesitant to begin).

Notably, although many existing perinatal interventions are focused on skills and education, psychotherapy interventions geared toward enhancing self-efficacy may be particularly successful if they focus on supporting parents to internalize a sense of competence and self-efficacy regarding their parenting abilities (Coleman & Karraker, 1997) even in the face of challenges, such as soothing a fussy infant. As such, taking a Cognitive Behavioral Therapy (CBT) approach may be helpful in aiding parents in increasing their skills and knowledge but also encouraging a shift in thinking and addressing any possible cognitive distortions or persistent negative thoughts and beliefs related to parenting efficacy and abilities.

Another possible way to increase self-efficacy in new or expecting parents, particularly those who may have had challenging early experiences or formed insecure attachments with their own caregivers, may be to engage parents in attachment-focused treatments. Such treatments may focus on increasing mentalization and reflective functioning, which are cognitive abilities that allow an individual to understand their own and others' behaviors in terms of mental states (Bateman & Fonagy, 2012). These cognitive abilities may increase parents' ability to navigate and reframe complex and challenging parenting situations so that they are more likely to feel competent and successful. Notably, a study by Staines et al. (2019) suggested that adoptive parents who participated in an attachment-based group intervention demonstrated increased confidence in their parenting as well as increased reflective functioning and PSE.

At the time of this writing, I have found no existing interventions focused on self-efficacy in the perinatal period specifically; however, a meta-analysis focused on parenting interventions for parents of preschoolers (Wittkowski et al., 2016), did find a significant benefit from group interventions on PSE.

Although infant fussiness was not the primary variable of concern in this study, nor was it a significant moderator between GSE and PSE, the results indicate that many parents in this sample were struggling with perceived infant fussiness or excessive crying to the extent that they viewed it as at least somewhat problematic: 30% of mothers and 50% of fathers indicated referral worthy levels of perceived infant fussiness. Despite these levels of perceived problematic infant fussiness, there were no significant correlations between perceived infant fussiness and postnatal mental health symptoms or PSE. It does not appear that in this sample, perceived infant fussiness had significant negative implications on PSE or postnatal mental health.

Additionally, previous research has demonstrated that infant fussiness and negative emotionality can contribute to heightened stress, anxiety, and depression for parents (Maxted et al., 2005; Papousek & von Hofacker, 1998; St. James-Roberts et al., 1998; Vik et al, 2009; Wilkie & Ames, 1986) and leads to increased risk for abuse (Bechtel et al., 2004; Casanueva et al., 2010). As such, although results did not support my hypothesis, the construct of infant fussiness was still clinically useful to examine and consider. Furthermore, regardless of whether or not there is a relationship between infant fussiness and self-efficacy, many new parents would likely benefit from interventions or support around infant crying/fussiness that might also be geared toward enhancing PSE.

Conclusions

Both predictor variables examined in this study, GSE and PSE, demonstrated significant effects on outcome variables, PSE and postnatal mental health, respectively. Notably, perceived infant fussiness and partner postnatal mental health did not present as significant moderators of the relationship between GSE and PSE. Although previous studies have demonstrated a relationship between mental health and PSE, the results of this study regarding GSE provide a new perspective and bring to a light an additional and potentially important variable at play. Additionally, this study supported previous research demonstrating a relationship between PSE, anxiety, and depression, but also brought to light these relationships during the postnatal period.

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Appendices

Appendix A

IRBPHS - Approval Notification

To: Nicole Marsden
From: Terence Patterson, IRB Chair
Subject: Protocol #1126
Date: 10/18/2018

The Institutional Review Board for the Protection of Human Subjects (IRBPHS) at the University of San Francisco (USF) has reviewed your request for human subjects approval regarding your study.

Your research (IRB Protocol **#1126**) with the project title **Self-Efficacy in the Transition to Parenthood** has been approved by the IRB Chair under the rules for expedited review on **10/18/2018**.

Any modifications, adverse reactions or complications must be reported using a modification application to the IRBPHS within ten (10) working days.

If you have any questions, please contact the IRBPHS via email at IRBPHS@usfca.edu. Please include the Protocol number assigned to your application in your correspondence.

On behalf of the IRBPHS committee, I wish you much success in your research.

Sincerely,

Terence Patterson, EdD, ABPP
Professor & Chair, Institutional Review Board for the Protection of Human Subjects
University of San Francisco
irbphs@usfca.edu
USF IRBPHS Website

Appendix B

Consent Form

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Below is a description of the research procedures and an explanation of your rights as a research participant. You should read this information carefully. If you agree to participate, you will sign in the space provided to indicate that you have read and understand the information on this consent form. You are entitled to and will receive a copy of this form.

You have been asked to participate in a research study conducted by Nicole A. Marsden a graduate student in the Department of Integrated Healthcare at University of San Francisco. This faculty supervisor for this study is Dhara T. Meghani, Ph.D., a professor in the Department of Integrated Healthcare at University of San Francisco.

WHAT THE STUDY IS ABOUT:
The purpose of this study is to examine the relationships between general self-efficacy, parental self-efficacy, and mental health, in mothers and fathers across the transition to parenthood.

WHAT WE WILL ASK YOU TO DO:
Upon consent and enrollment in the study, you and your partner will be asked to fill out a survey online that will take approximately 15 minutes to complete. This survey will ask questions about your well-being, feelings of efficacy, and general demographics. Three months after your baby is born, you and your partner with be sent a second questionnaire about your well-being, feelings of efficacy about being a parent, as well as some questions about your baby. This questionnaire will take 15-20 minutes to complete.

DURATION AND LOCATION OF THE STUDY:
Your participation in this study will involve completing two 15-20 minutes long online questionnaires. One survey will be completed when you or your partner is in the third trimester of pregnancy, and the second survey will be completed three months after your baby is born. At each time point you and your partner will fill out the questionnaire separately. There are no in-person requirements for this study. Both questionnaires can be filled out online and a link can be sent via email.

POTENTIAL RISKS AND DISCOMFORTS:
The research procedures described above may involve the following risks and/or discomforts: It is possible that completing online questionnaires in the study may cause mild discomfort. If you

wish, you may choose to withdraw your consent and discontinue your participation at any time during the study without penalty.

BENEFITS:
You will receive no direct benefit from your participation in this study; however, this study may benefit others in the future by providing important information on mothers' and fathers' experiences of the transition to parenthood. This study may also provide direction for future interventions and services for new parents.

PRIVACY/CONFIDENTIALITY:
Any data you provide in this study will be kept confidential unless disclosure is required by law. In any report we publish, we will not include information that will make it possible to identify you or any individual participant. Specifically, we will keep your name and any other identifying information separate from the data that we analyze regarding your well-being and parenting experiences, and your responses will be recorded un an ID code. One password-protected master list will contain a link between your name, other identifying information, and your unique study ID in order to facilitate communication with you and to send you online questionnaires throughout the course of the study. The master list will be stored on the main researcher's computer which is password protected.

COMPENSATION/PAYMENT FOR PARTICIPATION: After each questionnaire is completed you will be entered into a drawing to receive one of two $25 amazon gift cards for your participation in this study.

VOLUNTARY NATURE OF THE STUDY:
Your participation is voluntary, and you may refuse to participate without penalty. Furthermore, you may skip any questions or tasks that make you uncomfortable and may discontinue your participation at any time without penalty. In addition, the researcher has the right to withdraw you from participation in the study at any time.

OFFER TO ANSWER QUESTIONS:
Please ask any questions you have now. If you have questions later, you should contact the principal investigator: Nicole Marsden, M.S. at (415) 342-9863 or namarsden@usfca.edu. If you have questions or concerns about your rights as a participant in this study, you may contact the University of San Francisco Institutional Review Board at IRBPHS@usfca.edu.

I HAVE READ THE ABOVE INFORMATION. ANY QUESTIONS I HAVE ASKED HAVE BEEN ANSWERED. I AGREE TO PARTICIPATE IN THIS RESEARCH PROJECT AND I WILL RECEIVE A COPY OF THIS CONSENT FORM.

PARTICIPANT'S SIGNATURE *DATE*

Appendix C

Study Introduction Script

A clinical psychology graduate student at the University of San Francisco is seeking couples to participate in a research study on mothers' and fathers' experiences during the transition to parenthood! In order to participate in the study, couples should be first-time parents who are currently in their third trimester of pregnancy (27-40 weeks). Participants will be asked to complete two online questionnaires, once during pregnancy and once postpartum. All participants will be entered into a drawing to win one of two $25 amazon gift cards after each questionnaire completion. If you and your partner are interested in participating or learning more about this study, please reach out to Nicole Marsden, MS at (415) 342-9863 or namarsden@usfca.edu.

Appendix D

Questionnaire Breakdown	
Time 1: 3rd Trimester	**Time 2: 3 months postpartum**
General Self-Efficacy Scale (10 Questions)	Maternal Self-Efficacy Questionnaire (10 Questions)
Edinburgh Postnatal Depression Scale (10 Questions)	Edinburgh Postnatal Depression Scale (10 Questions)
Perinatal Anxiety Screening Scale (31 Questions)	Perinatal Anxiety Screening Scale (31 Questions)
--	Infant Crying and Parent Well-Being Screening Tool (5 Questions)
Prenatal Demographics Questionnaire (9 Questions)	Postnatal Demographics Questionnaire (11 Questions)
Total Questions: 60 Estimated Total Time: 10-15 minutes	Total Questions: 67 Estimated Total Time: 15 minutes

Appendix E

Time 1 Demographics Questionnaire

1. What is your age?
    a. 18-25
    b. 26-35
    c. 36-45
    d. 46 or above
2. How many weeks pregnant are you/is your partner?
    a. 27-30
    b. 31-34
    c. 34-40
3. With what racial group do you identify?
    a. White, non-Hispanic
    b. Black, non-Hispanic,
    c. Hispanic/Latino
    d. Asian/Pacific Islander
    e. American Indian/Alaskan Native
    f. Multiracial/Ethnic
    g. Other
4. What is your marital status?
    a. Single
    b. Married
    c. Domestic Partnership
    d. Other _____
5. How long have you been with your partner?
    a. 0-2 years
    b. 3-5 years
    c. 6-10 years
    d. 10 or more years
6. What is your total annual family income?
    a. I receive public assistance
    b. Less than $50, 000
    c. $50-100,000
    d. More than $100,000
7. What do you do for a living?
    a. _____ (Fill in)
8. What is your highest level of education?
    a. Grade school
    b. High School/ GED
    c. Associates Degree
    d. Bachelor's Degree
    e. Graduate Degree
9. Do you plan on taking maternity/paternity leave?
    a. Yes (insert amount) _____

b. No

Appendix F

Time 2 Demographics Questionnaire

1. What is the date of birth of your baby?
2. What is the sex of your baby?
3. Did you have any birth complications?
    a. Yes, _____
    b. No.
4. Mode of delivery
    a. Vaginal
    b. Emergency caesarean
    c. Planned caesarean
5. What was your baby's length at birth?
    a. _____
6. What was your baby's height at birth?
    a. _____
7. How are you feeding your baby?
    a. Breastfeeding
    b. Breastfeeding and formula
    c. Formula
8. If you are currently breastfeeding or have tried breastfeeding, on a scale of 1-5 (with 5 being the most difficult) how challenging has it been to breastfeed? ____
9. Have you had any other support in your home since your baby was born (check all that apply)?
    a. Partner
    b. Family members
    c. Night nurse
    d. Nanny/babysitter
    e. Other _____
10. Are you currently working?
    a. Yes, full time.
    b. Yes, part-time.
    c. No.
11. If you are on maternity/paternity leave, when do you return to work?
    a. _____