FINDING MEANING IN UNINTENDED PREGNANCY AND MOTHERHOOD: EXPLORING DECISION-MAKING PROCESSES AND THE IMPORTANCE OF PRENATAL ATTACHMENT FOR POSTNATAL MOTHER-INFANT BONDING AND POSTPARTUM DEPRESSIVE SYMPTOMATOLOGY

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Abstract:

The aim of this mixed-methods dissertation was to examine the experience of unintended pregnancy and motherhood; including relevant processes and outcomes associated with the event, in relation to pregnancy continuation vs. termination, prenatal attachment, postnatal mother-infant bonding, and levels of postpartum depressive symptomatology in a state that has notable issues with poor mother-infant outcomes. Two different data sets were used and both qualitative and quantitative data analysis were employed to provide a comprehensive overview of the experience of unintended motherhood. The qualitative portion of this dissertation sought to examine the meanings women attribute to their unintended pregnancies and how narratives differ for women who chose to continue their pregnancies versus those who opted for termination in a sample of women with at least some college education. The quantitative portions of this dissertation aimed to examine what happens after a woman decides to continue her unintended pregnancy as she may be faced with additional challenges, such as disrupted mother-infant bonding and a greater risk of postpartum depressive symptoms. Pregnancy and the postpartum period were investigated in union with one another to better understand the operation and development of constructs such as prenatal attachment, postnatal mother-infant bonding, and postpartum depression during the transition to motherhood; with special focus on multiple dimensions of pregnancy intentions (wantedness, timing, and happiness). Qualitative findings highlight the importance of cognitive appraisal of contextual factors, particularly that of perceived support, personality/attitudinal characteristics, and ability to visualize the future (ideal life vs. life as a mother), in the decisions women make regarding their unwanted or mistimed pregnancies. Quantitative findings indicate that pregnancy intentions are significantly associated with prenatal attachment, which is significantly associated with postnatal mother-infant bonding, as such we can infer that pregnancy intentions impact postnatal mother-infant bonding through prenatal attachment. Additionally, wanting a baby and higher levels of happiness about expecting a baby were predictive of lower levels of postpartum depressive symptoms and higher levels of depressive symptoms were predicted by mistimed pregnancy. Higher levels of prenatal attachment were also predictive of lesser postpartum depressive symptomatology; which was found to have a mediation effect on pregnancy wantedness and timing, suggesting a potential protective quality.

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CHAPTER I

INTRODUCTION

Approximately half of all pregnancies in the United States are unintended, which constitutes both unwanted or mistimed experiences of motherhood (Finer & Zolna, 2014; Finer & Zolna, 2011). A disproportionate number of unintended pregnancies occur among younger, minority, unmarried, lower-income and less-educated women (Finer & Zolna, 2014; Finer & Zolna, 2011). While around 51% of all pregnancies in the United States are unintended (Finer & Zolna, 2014; Finer & Zolna, 2011), only around 25-35% of births are reported as unintended (Chandra et al., 2005). Prior research has explained this discrepancy due to failure to recognize a pregnancy as unintended once the baby is born (David, 2006; Mercier, Garrett, Thorp, & Siega-Riz, 2013), as well as spontaneous and induced abortions, which together, may account for the difference (David, 2006; 2013; Jones & Kavanaugh, 2011; Mercier, Garrett, Thorp, & Siega-Riz,; Venture, Abma, Mosher, & Henshaw, 2008). Abortion is on the decline (Jones, Zohn, Henshaw, & Finer, 2008), yet remains most common in the context of unintended pregnancy (Finer & Henshaw, 2006). Within the United States around 22% of all viable pregnancies end in abortion, with around 30% of women experiencing at least one abortion before the age of 45 (Jones & Kavanaugh, 2011; Jones & Kooistra, 2011). While many unintended pregnancies end in termination, approximately 58% result in live births (Finer &

Zolna, 2011). Unintended births are often linked to a number of serious consequences, including poorer maternal and child health, and social and economic consequences (Brown & Eisenberg, 1995), including tobacco and alcohol exposure (DHHS, 2006; Institute of Medicine, 1995), exposure to potential teratogens (Han, Nava-Ocampo, & Koren, 2005; Than et al., 2005), preterm birth, low infant birth weight, delay in or lack of prenatal care utilization, failure to breastfeed, physical abuse of one's child (Cheng et al., 2009; Institute of Medicine, 1995; Shah et al. 2011) .

Unintended motherhood, for aforementioned reasons, represents a risk to both mother and infant within the postpartum period (Finer & Zolna, 2011). However, it should be noted that the postpartum period itself is fraught with inherent transitions and challenges and has thus been cited as a time of increased vulnerability for new mothers and is associated with onset of mood disorders (Cohen & Nonacs, 2005). The most frequently occurring mood disorder is postpartum depression, affecting between 10% and 15% of mothers post-birth (Miller, 2002). In addition to mothers who meet clinical diagnosis of postpartum depression, an additional 15-30% report experiencing nonclinical levels of depressive symptoms post-birth (Goodman, 2004), which may still lead to adverse outcomes. Previous research demonstrates that postpartum depressive symptoms are associated with maternal maladjustment during the postpartum period, which has been shown to be linked to significant detrimental effects on the child and the family system (Cummings, Keller, & Davies, 2005). Assessing and addressing maternal needs is imperative for positive mother-infant outcomes. It is important to identify potential risk and protective processes inherent in pregnancy so effective prevention and intervention programs can be designed and implemented for first time mothers, particularly those for whom motherhood was unintended.

One such protective process worthy of exploration is that of prenatal attachment. Prenatal attachment describes the affectionate relationship a mother develops with her fetus during pregnancy (Brandon, Pitts, Denton, Stringer, & Evans, 2009; Cranley, 1981; Müller & Mercer, 1993); a relationship that may be disrupted for unintended mothers (Damato, 2004), particularly for those women who hold negative feelings about the impending birth and the motherhood role (Hart & McMahon, 2006; Rubertsson, Pallant, Sydsjö, Haines, & Hildingsson 2014). This is worthy of further inquiry as research indicates that prenatal attachment influences the postnatal mother-infant bonding relationship (Dubber, Reck, Müller, & Gawlik, 2015; Figueiredo & Costa, 2009; Müller, 1996; van Bussel, Spitz, & Demyttenaere, 2010) and the quality of maternal care provided (Siddiqui & Hagglof, 2000). Therefore, it could be thought that increasing prenatal attachment for unintended mothers could lead to better postnatal mother-infant bonding, lower levels of postpartum depressive symptoms, and therefore more favorable mother-infant outcomes.

The aim of this mixed-methods investigation was to examine the experience of unintended motherhood; including relevant processes and outcomes associated with the event. Intendedness of motherhood was examined in relation to pregnancy termination, prenatal attachment, postnatal mother-infant bonding, and postpartum depressive symptomatology in a state that has notable issues with poor mother-infant outcomes. Two different data sets were used and both qualitative and quantitative data analysis was employed to provide a comprehensive overview of the experience of unintended motherhood.

The qualitative portion of this dissertation sought to examine the meanings women attribute to their unintended pregnancies and how narratives differ for women who chose to continue their pregnancies versus those who opted for termination in a sample of women

with at least some college education. A qualitative approach was employed to give voice to mothers, allowing them to share their own unique experiences in words that resonated with them. Personal narratives were drawn upon to portray motivational depth, illuminate personal meaning, and to give vivid color to human emotion, all while allowing readers the sense of "being there," something that can not be done through numerical data alone (Ambert, Adler, Adler, & Detzner, 1995). With an emergent design utilizing an open-ended question format, mothers were constricted to previously created responses, but could describe the story of their journey of being faced with unintended motherhood based on their emotional responses, personal context, and experiences; giving added dimension to the inquiry.

The quantitative portions of this dissertation aimed to examine what happens after a woman decides to continue her unintended pregnancy as she may be faced with additional challenges, such as reduced maternal-fetal attachment, disrupted mother-infant bonding, and a greater risk of postnatal depressive symptoms. Unintended mothers may be at risk of both short and long-term effects on maternal wellbeing, which may lead to adverse infant outcomes (Mercier, Garrett, Thorp, & Siega-Riz, 2013). Pregnancy and the postpartum period were investigated in union with one another in an attempt to better understand the operation and development of constructs such as prenatal attachment, postnatal mother-infant bonding, and postpartum depression during the transition to motherhood; with a special focus on the intendedness of motherhood. This dissertation sought to explore the dynamic process of attachment that begins during pregnancy and continues after birth in hopes of uncovering processes in pregnancy that protect against adverse or maladaptive outcomes during the transition to motherhood, particularly for those entering motherhood without intention.

CHAPTER II

THEORETICAL FOUNDATIONS AND REVIEW OF LITERATURE

Introduction

The overall dissertation will be nested within a symbolic interaction perspective (Blumer, 1969), since much of pregnancy and the transition to motherhood can be seen as socially constructed, thereby holding differing meanings for each woman. Symbolic interactionism allows for perceptive influence, socially constructed definitions and expectations, and personal meaning making which is imperative to understanding the experience of unintended motherhood. While the qualitative portion of the study better lends itself to this theory, it can also be a guide for interpreting quantitative portions of the study, as individuals live their lives in context. As such, symbolic interactionism is a relevant theory as answering any question involves some form of interpretation and meaning making. This is especially true when we consider how intendedness of motherhood and the experience of pregnancy impact one's postpartum transition to motherhood, including postnatal mother-infant attachment and levels of postpartum depression. This study will also draw from both attachment theory (Bowlby, 1980) and risk and resilience theory (Cicchetti & Rizley, 1981; Conger & Conger, 2002; Hawley & DeHann 1996; Luthar, Cicchetti, & Becker, 2000; Luthar, 2006; Masten & Coatsworth, 1998; Patterson, 2002) to explain relative processes and outcomes inherent in the

transition to motherhood. Attachment theory will be utilized to explain how attachments form, the importance of early attachments, and to explain how prenatal attachment may affect mother-infant bonding in the postnatal period. Resilience theory will be drawn from to describe risk and protective processes inherent in the transition to motherhood, particularly for those with unintended pregnancies, and to illustrate differences in outcomes.

Symbolic Interactionism

Symbolic interactionism is a theory derived from the field of sociology based on the self, interactions with society, symbols, and meaning making. This theory is derived mostly from works by Charles H. Cooley (1902), W. I. Thomas (1931), George H. Mead (1934), and Herbert Blumber (1969), who studied under Mead and later coined the term symbolic interactionism, the name by which the theory is now known. Within symbolic interactionism, life is viewed as a symbolic domain, wherein symbols have shared meanings that are culturally and socially derived and maintained. Symbols are reinforced and transmitted through language and communication and therefore reality is largely a social product dependent upon interpretations of symbols and meanings (Blumer, 1969).

The symbolic interaction perspective describes a largely socially constructed world people abide in, whereby the meanings of objects, behaviors, and events derive from the interpretations people create about them. In symbolic interactionism, a physical reality exists, although individuals do not respond directly to reality, *per se*, but to their perception and social understanding of their interpretation of the reality that they have constructed based on meanings they attribute to them. Herbert Blumer (1969) argued that

in symbolic interactionism humans act according to the meanings they ascribe to physical objects, actions, concepts, experiences, people, and processes. Individuals then make meaning of these based on the social interactions one has had with others in society. These meanings are then modified, interpreted, and organized during social interactions and encounters with the world. The emphasis here is on meaning, which is defined in terms of an action and its consequences, wherein a meaning of a thing resides in the action it elicits.

The concept of the self is an essential component of symbolic interactionism. The self is a reflexive entity that allows individuals to act towards themselves as objects, to be self-reflexive, self-evaluative, self-argumentative, and to see themselves from the perspective of another, thereby allowing them to form a self-concept (Cooley, 1902; Stryker, 1980). The self is a social entity, which reflects the culture and organization of social structure. Roles are often socially defined and represent an important aspect of the self. Roles are internalized as role-identities that include behavioral expectations within one's social and relational statuses. Role-identities have been noted to encompass much of the composition of self-concepts, or the way one thinks about the self (Stryker, 1980). Individuals act in accordance with their interpretation of a particular role identity and do what they can to maintain and protect it. Roles are developed during a socialization process that takes place within the family and the greater social environment and are linked to values, beliefs, attitudes, and behaviors (Stryker, 1980).

Within symbolic interactionism, an individual must be understood as a social being, whose behavior is dependent upon interactions in society in the present time and throughout one's lifetime. Social interaction is central to how one interprets the world

and makes meaning of their situation and circumstances. An individual must also be recognized as a thinking being, whereby ideas, attitudes, and values are constructed through an ongoing process of thinking. Individuals engage in social interactions which influence their thoughts and how they view and understand the world. Social interaction and reflective thinking influences how individuals sense their environments and define their situations, which then comprises their personal narratives, or the story they tell themselves about their lives. In symbolic interactionism, human beings are actively involved in the construction, definition, processing, and interpretation of their reality (Charon, 2004). However, it should be noted that defining a situation is a dynamic, non-static process, whereby an initial definition is made based on past experiences and cultural expectations, but may later be redefined based on new interactions, interpretations, impression management, or status disparities (Goffman, 1959; Scott & Lyman, 1968).

Symbolic interaction theory purports that behavior is understood by the meaning it holds for the individual. For the scope of this paper, this would entail how women make meaning of their pregnancies and postpartum experiences based on their perceptions of the world, their identities, personal narratives, situational narratives, social narratives, and all that those encompass, including such constructs as one's unique context, life experiences, self-concept, health, supports, relationships, etc. In order to comprehend someone's behavior and way of relating to the world, we must first understand how an individual interprets his/her personal reality (Blumer, 1969) and how that contributes to one's personal narrative. Symbolic interaction contends that what individuals define as real has real consequences (Thomas, 1931), meaning how a

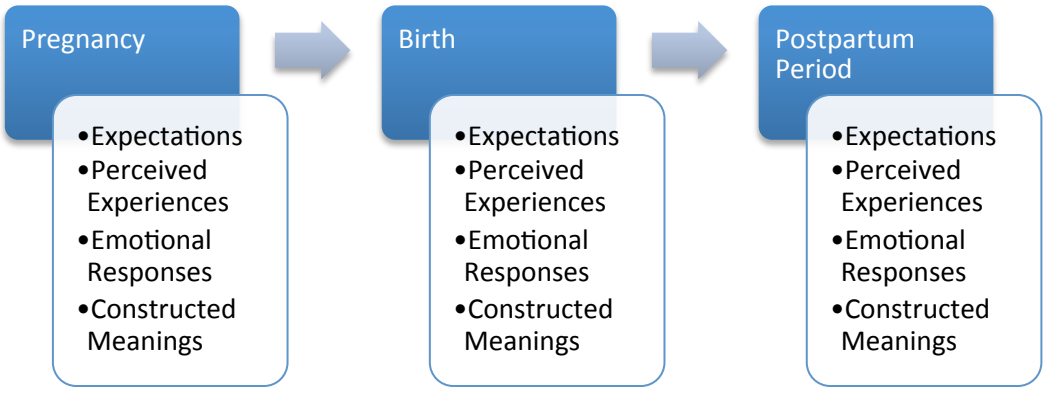
situation is perceived and defined determines how one acts or feels about an event or experience. Therefore, definitions and interpretations, whether in line with or at odds with "objective" reality, have real consequences for an individual's perceptions regarding experiences, actions, and behaviors.

It is advantageous to view pregnancy, birth, and the postpartum period from a symbolic interaction perspective because it allows for a greater understanding of how individuals make meaning of their experiences and how perceptions play a role in one's personal narrative. Within this inquiry, this theory has the ability to provide insight into the decision making process women are faced with upon discovering they are pregnant, the dynamic process of attachment that occurs prenatally between mother and fetus, and the postpartum transition to motherhood. This theory can help to explore issues regarding why some mothers struggle during various aspects of childbearing and others do not. This theory embraces individual truths and perceptive realities, which is imperative to understanding how women create meaning surrounding the event of bringing a child into the world (Blumer, 1969), particularly for women for whom motherhood was not intended. It is my hope, that armed with a greater understanding of the meaning making processes women go through when faced with impending motherhood, that risk and protective processes can be identified to assist women prenatally in order to lead to the best possible outcomes for mothers and their infants.

Theoretical Model: Symbolic Interactionism Applied to Pregnancy, Birth, and the Postpartum Period

For the sake of this inquiry, I created a theoretical model to describe and explain the meaning making process during the childbearing experience. This model is comprised of three stages: pregnancy (or the prenatal period), the birth—including labor and delivery, and the postpartum (or postnatal period). The theoretical model proposed herein posits that the way a woman makes meaning in one stage of childbearing may impact meaning making, including thoughts, actions, and behaviors, in other stages of the childbearing process. For example, how a woman perceives and makes meaning of her pregnancy may influence her birthing experience, which may then influence her postpartum experience. Although birth is not specifically examined within this study so that pregnancy and the postpartum period can benefit from more in-depth inquiry, it would theoretically still factor into how a woman perceives her pregnancy experience and the transition to motherhood. Please refer to Figure 1 for a diagram.

Figure 1: Narrative Experience of Pregnancy, Birth, and the Postpartum Period



Throughout each stage, a woman's personal narrative is comprised of four aspects: (1) expectations; (2) perceived experiences; (3) emotional responses; and (4) constructed meanings. *Expectations* entail the hopes, expectancies, beliefs, anticipations, probabilities, and possibilities about a particular stage based on one's social interactions and prior encounters with the world. An example of this might be that a woman expects to have a natural childbirth without medications or interventions, which she feels is best for her and her baby based on what she has seen on birthing shows, read in parenting books, and from personal accounts from her friends. The *perceived experience* of a particular stage is the reality of the experience through the eyes of the individual experiencing it, which therefore makes it a perceived experience. An example of this would be that instead of having a natural childbirth, a woman is forced to have a C-section due to fetal distress, which she perceives as the worst case scenario for bringing her baby into the world. *Emotional responses* are feelings that are influenced by

expectations and the perceived experience. An example of this would be that the woman is overcome with feelings of depression, inadequacy, and failure because she was not able to have the birth she expected and instead had to endure the perceived "worst case scenario" experience. Constructed meanings refers to the meaning making process that entails aspects of the individual's expectations, perceived experience, and emotional responses, which all come together to create meaning which is portrayed through one's personal narrative. An example of this would be the woman having her expectations unmet and instead having a perceived experience of a worst case scenario C-section which led to feelings of depression, inadequacy, and failure which spilled over into her role as a new mother, which she also felt she would be a failure at since she was having trouble connecting to her baby due to feelings of depression and physical pain from her C-section. These four aspects: expectations, perceived experiences, emotional responses, and constructed meanings represent how a woman makes meaning of the various stages of her childbearing experience and embodies one's personal narrative.

It should be noted that the flow from one stage of childbearing to the next does not necessarily proceed in a solely linear progression. How a woman makes meaning of herself as a mother may entail varying amounts of expectations, perceived experiences, emotional responses, and constructed meanings from each stage. Moreover, the events in one pregnancy may in-turn impact the expectations, perceived experiences, emotional responses, and constructed meanings for subsequent pregnancies. Please refer to Figure 2 for a diagram.

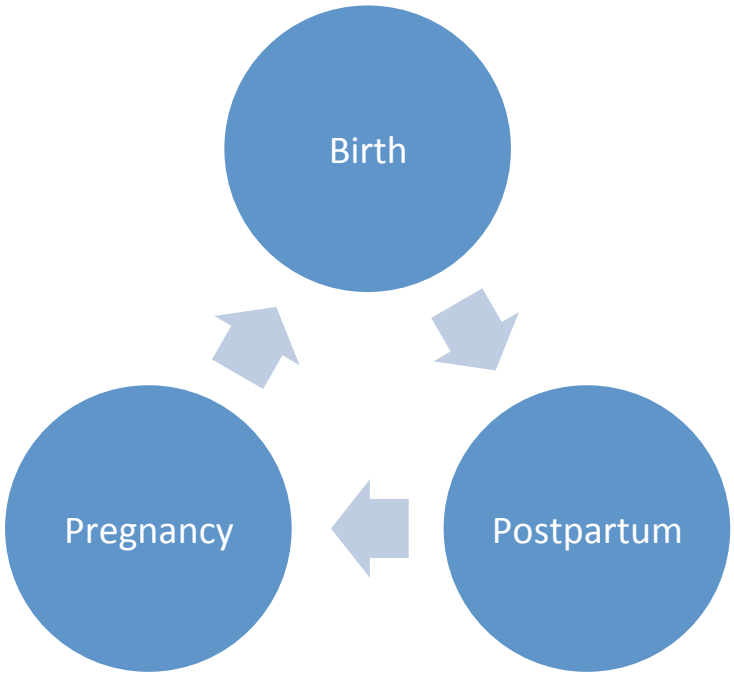


Figure 2: Reciprocal Influence of the Pregnancy, Birth, and Postpartum Cycle

For the scope of this dissertation, in an attempt to garner adequate depth and breadth on the subject, the personal narrative will be investigated qualitatively in a comparison of how women's narratives differ for those who continue an unintended pregnancy verses those who opt to terminate. Quantitative analyses will further examine aspects related to identity and situational narrative, in addition to one's personal narrative. An individual's identity would include socio-demographic aspects such as sex, gender, age, etc. One's situational narrative would include all aspects of one's personal context and would be comprised of one's health, housing, SES, levels of physical and emotional support, intendedness of pregnancy, employment, relationship status, income, religious affiliation, educational level, etc. One's social narrative would be made up of larger societal level influences such as culture, social expectations and norms, time in history, etc. and may

factor into aspects of personal and situational narrative, but will not be examined within this dissertation. Please refer to Figure 3.

Figure 3: The Pregnancy Experience as Constructed by an Individual

Symbolic Interactionism and Childbearing: The Why. It is advantageous to view the childbearing experience through the lens of symbolic interactionism as it allows for examination of pregnancy, birth, and the postpartum period as a cohesive and interdependent phenomenon and speaks to how one phase of childbearing impacts the others. Through use of qualitative methods, insights can be drawn about how individuals make meaning of their childbearing experience and what role expectations, perceptions, and emotional responses play in the construction of one's personal narrative.

Furthermore, dynamic processes can be explored that begin during pregnancy, continue through the birth, and extend into the postpartum period; which can provide insight into issues regarding why some mothers struggle during various aspects of childbearing and others do not. While not all mothers choose to bring a baby into their lives, narratives of mothers who do not continue their pregnancy are also essential as they provide insight into the decision making process that occurs surrounding unintended pregnancy and the choices women make based on their situational narrative (also known as contextual factors), as well as their identity and personal narrative. It is my hope that through the use of qualitative methods, utilizing personal narratives examining meaning making processes, viewed through the lens of symbolic interactionism, that risk and protective processes can be identified throughout the childbearing experience that will lead to the best possible outcomes.

Attachment Theory

Yet another theory that lends itself well to this examination is that of attachment theory (Bowlby, 1980). In developing attachment theory, John Bowlby drew from his own childhood experiences in upper-middle-class London (Van Der Horst & Van Der Veer, 2009), along with his work with children in hospital settings and orphanages in post-World War II England, all which encompassed components of infant attachment and maternal deprivation. In both professional settings he observed children suffering from physical, emotional, and cognitive issues, despite receiving adequate physical care; a finding that substantiated to Bowlby the importance of early attachment on later development and assisted him in formulating his theories on attachment (Mooney, 2009).

Attachment theory contends that child behavior has its origins in the family system; that first relationships in infancy set the tone for all later love relationships, and that poor quality or disruption to these early relationships account for much of the troubling behaviors in childhood, adolescence, and adulthood (Bowlby, 1980). While attachment theory does not dismiss the importance of genetics; Bowlby doubted that genetics would lead to neurosis without exacerbation by environmental factors. Bowlby contended that troubled youth experienced problems due to external causes rooted in their homes and in their early experiences that occurred, or that did not occur, but ideally should have. Bowlby believed that even without actual cruelty or abuse, children could be at risk for mental health issues if raised in homes where parents employed unresponsive or manipulative parenting styles (Bowlby, 1980). Contrary to beliefs of the time, Bowlby believed what mattered most for healthy development was not the physical or religious aspects of the home and family, but the emotional quality of the home going back to birth and even before. Bowlby contended that maternal separation and a mother's emotional attitude towards her child were two environmental factors that were paramount in infancy and early childhood (Mooney, 2009).

At the heart of Bowlby's attachment theory is the belief that early disruptive experiences in parent-child relationships would be carried forward in development, influencing later psychosocial functioning. He posited that aberrant parenting experiences increased a child's likelihood of developing psychopathology (Madigan, Moran, Schuengel, Pederson, & Otten, 2007). Bowlby viewed attachment as a dynamic process in which caregiving characteristics are reciprocal to, and develop parallel with the child's attachment system. He proposed that the attachment system itself could serve as a

mediator in the association between a child's environment and their development of healthy or deviant outcomes (Madigan et al., 2007).

Bowlby was one of the first theorists to note the importance of the early relationship between mother and child, both in the immediate and for later functioning (Bowlby, 1980). He noticed that children experience extreme distress when separated from their mothers, even if they were fed and cared for by an alternate individual (Bowlby & Robertson, 1952). This notion contradicted dominant theories of the time, that suggested ties to the mother were based on her feeding of the infant (Bowlby & Robertson, 1952).

In Bowlby's work with James Robertson on hospitalized children, the pair identified three phases in children's common reaction to separation from their mother. These phases were labeled protest, despair, and denial (Bowlby & Robertson, 1952). During the first phase, protest, the anxious child has a strong need for his/her mother and calls out or cries for her in expectation that she will respond. In the second phase, despair, the child's cries become monotonous and intermittent as he/she gives up an active search for mother and resorts to feelings of hopelessness about her return. In the third and final phase, denial, the child's cries cease and he/she becomes more engaged in their surroundings. However, Bowlby warns this is not to be misinterpreted as recovery from the loss, but as a coping mechanism employed by the child to help bear the loss and tolerate the intense distress of maternal separation (Bowlby & Robertson, 1952).

Drawing from various fields including developmental psychology, cognitive science, evolutionary biology, ethology, and control systems theory, Bowlby devised a theory that postulated that childhood attachments were greatly evolutionary, arising from

a biological need and desire for proximity that resulted from natural selection (Slater, 2007). He contended that the development of selective attachments, such as mother-child attachment, provides a child with emotional security, physical safety, and protection against stress. Bowlby proposed that the organization of the attachment behavioral systems involve a cognitive component; mental representations of the attachment figure, the self, and the environment that are constructed primarily through experiences. Bowlby referred to these representations as "internal working models" (Bowlby, 1980). Bowlby believed that attachment behaviors have a predictable outcome of increasing the proximity of the child to the attachment figure and described them as being organized into an "attachment behavioral system" (Bowlby, 1980). He proposed that attachment behaviors were signaling behaviors biologically designed to alert the attachment figure to the child's interest in interaction. These signaling behaviors are things such as smiling, cooing, and gurgling, which often serve to bring the attachment figure closer to the child. Other behaviors such as crying are seen as aversive, bringing the attachment figure closer to extinguish the behavior. In contrast, behaviors such as following or approaching are seen as active and move the child towards the attachment figure (Bowlby, 1980).

Attachment and Motherhood

Attachment theory above all else is a theory of human connection; whereby humans are hardwired to seek out and connect with others in intimate relationships, first with parents and then with special others (Bowlby, 1988). The need for intimacy begins in infancy and is carried forth indefinitely. Early experiences set the stage for later attachment: thus the way infants and children are treated by parents, particularly mothers, has a powerful influence on later development and relationship tendencies (Bowlby,

1988). Children's earliest attachment relationships, usually with the mother, create a template for expectations surrounding future relationships (Siegel & Hartzell, 2003). The mother-child reciprocal relationship teaches a child rules in respect to relationships, including attunement, self-regulation, social pace, and conversational principles (Goleman, 2006). This provides an internal working model for establishing and maintaining relationships through internalization of early mother-child attachment experiences (Schore, 1994).

Attachment theory within the current study will be used to describe and explain the relationship between prenatal attachment and postnatal mother-infant bonding. Attachment theory will also be drawn upon to illustrate the speculated relationship between prenatal attachment, postnatal attachment, and postpartum depressive symptoms. It can be postulated from an attachment theory perspective that greater prenatal attachment would lead to greater attachment post-birth, much like early attachment in infancy may lead to greater future attachment (Bowlby, 1988). Furthermore, one could contend that individuals who report greater prenatal attachment and/or postnatal attachment, would also report fewer postpartum depression symptoms since attunement and positive interactions with one's child may serve as a protective process (Schore, 1994).

Risk and Resilience Theory

Resilience as a conceptual framework is a non-static, ever-changing and evolving, dynamic process (Cicchetti & Rizley, 1981; Conger & Conger, 2002; Hawley & DeHann 1996; Luthar, Cicchetti, & Becker, 2000; Luthar, 2006) and is context and time specific; whereby an individual can demonstrate resilience in one context, at one time, or with one

particular circumstance, and not another (Conger & Conger, 2002; Masten & Coatsworth, 1998; Patterson, 2002). Resilience is not a perpetual or enduring entity, as with developmental progression and life changes come new vulnerabilities and strengths, and new chances for risk and opportunities for protection (Luthar, 2006). Changes in situation or circumstance, may cause a change in resilience. (Conger & Conger, 2002; Masten & Coatsworth, 1998; Patterson, 2002). This speaks to the importance of examining individuals in context, as the capacity to be resilient can be dependent on a match between individual strengths and the circumstances of a given situation or stressor (Hawley & DeHann, 1996).

Wright, Masten, & Narayan (2013) argue that "resilience does not necessarily mean that one is unaffected or untouched by the trauma one has endured nor does it mean that one always functions well" (p. 19). Resilience is demonstrated through positive adaptation and manifested competence of a dynamic system to endure and recover from threats to well-being that may negatively impact the stability, viability, and development of the system (Masten & Coatsworth, 1998; Wright, Masten, & Narayan, 2013). Resilience may be present in both short-term and long-term patterns of competence, mastery, and positive coping styles, especially when there is an emphasis on flexibility and adaptability in the long-term. However, when looking across extended durations of time, it is essential to identify behaviors and processes that are not pathological at the current time or in the current context, but that may set the stage for later maladjustment (Hawley & Dehann, 1996), such a poor prenatal attachment leading to postnatal mother-infant attachment disturbances or greater postpartum depressive symptoms; issues that will be explored within this inquiry.

In order for resilience to be present, two criteria must be met. First, there must be exposure to significant risk in the form of adversity, trauma, a pile-up of normative or non-normative stressors, or simply "life as a risk," all of which have the potential to lead to maladaptation and poor levels of functioning on one or more dimensions (Luther, Cicchetti, & Becker, 2000; Luthar 2006; Masten, 2001; Masten & Coatsworth, 1998). Also, the perception of risk can also influence how individuals process, appraise, and make meaning of a situation; thereby subjective assessment of risk or protective processes can be as significant as the actual objectively measured experience (Patterson, 2002). For the sake of this inquiry, the postpartum period and transition to motherhood will be explored as a time of increased vulnerability, particularly for unintended mothers (Brown & Eisenberg, 1995), due to associations with a variety of possible maladaptive outcomes (Brown & Eisenberg, 1995; Cohen & Nonacs, 2005); with potential postpartum attachment disturbances and depressive symptoms explored herein.

The second criteria that must be satisfied is the presence and demonstration of positive adaptation or competence in the face of risk, adversity, or severe stress, and having returned to or exceeded pre-crisis levels of functioning (Conger & Conger, 2002; Hawley & DeHann, 1996; Luther, Cicchetti, & Becker, 2000; Luthar 2006; Masten 2001, Masten & Coatsworth, 1998; Patterson, 2002; Walsh, 2012). Positive adaptation, especially during the transition to motherhood, is often measured in terms of social and instrumental competence, and a lack of emotional or behavioral disturbances (Conger & Conger, 2002). Competence is defined by Masten et. al (1995) as a pattern of effective adaptation in the environment, either broadly defined in terms of reasonable success with major tasks in the context of one's culture, society, and time or more narrowly defined in

terms of specific domains of achievement. For the transition to motherhood, developing affectionate bonds, caring for one's child, completing home and work tasks, maintaining relationships, and being of sound mental health would be considered competence or positive adaptation.

It must be noted that resilience cannot be defined in terms of good outcomes alone, as without risk, one would simply be viewed as competent, well-adjusted, or normal. Risk is what is seen to activate the process of resilience and bring into play vulnerabilities and compensatory mechanisms (Masten, Cutuli, Herbers, & Reed, 2009). For this inquiry, unintended motherhood will be explored as a risk process, along with a variety of demographic features, and the assumption of the postnatal period as an inherent time of risk and vulnerability. Furthermore, it is not enough to demonstrate positive adaptation internally or externally alone, an individual must demonstrate both internal and external adaptation by showing both competence in at least one dimension or aspect thought to be impacted by the risk/stressor and by remaining free of internalizing symptoms, internal maladaptive processes, and psychopathology (Wright, Masten, & Narayan, 2013). In the case of motherhood this would mean positive mental health and competence with appropriate tasks and role responsibilities, at the level expected on an individual in a particular culture. Meaning it may be socially appropriate for a new mother to miss bathing for a day, however, it would not be normal to put off bathing for a week in a culture that bathes daily.

Important components embedded in the concept of resilience, are the idea of risk and protection. Risk processes are entities that increase the probability of maladaptation, where as protection characterizes attributes, strengths, relationships, and environments

that serve to ameliorate or minimize effects of stressors or high-risk situations (Hawley & DeHann, 1996; Rutter, 1987). Protective processes are factors that are seen to counter or minimize risk in favor of adaptation over vulnerability or maladaptation (Rutter, 1987). Most risks or stressors are not present in an isolated period of time or context, but are an evolving representation of conditions and circumstances with a past history and a future course (Walsh, 2012; Wright, Masten, & Narayan, 2013). Hawley and DeHann (1996) argue that,

> what is important to consider about risk and protective factors is that they are not static entities, but are elastic and changing in nature—The goal therefore is not to uncover static traits or experiences that produce risk or provide comfort, but to develop possible trajectories or developmental pathways of how life circumstances may interact with development in positive or negative ways (p. 289)

It is important for this study to note that risk or protective processes have a future trajectory and are not static in nature (Hawley & DeHann, 1996; Walsh, 2012; Wright, Masten, & Narayan, 2013), especially when examining constructs such as attachment as we know early attachment sets the course for later attachments (Bowlby, 1980). For this study, that would entail identifying which processes, if any, are important during pregnancy and prenatal attachment that may impact postnatal attachment and how that factors into maternal reports of postpartum depressive symptoms.

Just as risk and protection do not exist in a static time, they are do not exist in a vacuum and must be examined contextually. Risk and protective processes are embedded in an individual's and family's context, with factors such as timing of experience,

environment, temperament, past coping behaviors, etc. influencing how risk or protection is experienced (Rutter, 1987). Furthermore, protective factors can be rooted in culture (Wright, Masten & Narayan, 2013), and may draw forth from individual family members, the family unit, and from community contexts (Patterson, 2002). Well-known and documented protective factors include close family relationships, parent-child attachment, and higher IQ's to name a few (Wright et al., 2013). For this inquiry, unintended motherhood will act as a contextual factor when looking at mother's who terminate vs. those who continue a pregnancy and when examining both prenatal and postnatal attachment, and postpartum depression.

Constructs similar to that of protective factors or processes are that of assets and human adaptive systems. Sesma, Mannes, & Scales (2013) describe the concept of assets, which are set of internal and external qualities consisting of interrelated experiences, relationships, values, skills, etc., that are thought to be linked to positive adaptation. The difference between protective processes and assets, are that assets are presumed to operate regardless of whether there is risk present, unlike protective processes that only come into play or are relevant when there is some aspect of risk present (Sesma et al., 2013), whereby they serve to moderate the impact of adversity or stress on levels of adaptation (Wright et al., 2013).

In regard to human adaptive systems and their impact on protection, Masten, Cutuli, Herbers, & Reed (2009) contend that "resilience arises from basic adaptation systems that protect human development under diverse conditions" (p. 117). These fundamental human adaptation systems are utilized to keep development on course and assist with recovery from significant stress and adversity. These systems are thought to

have emerged from basic human biological and cultural processes and are somewhat inherent within the individual—including constructs such as attachment relationships in parenting; self-regulatory systems for emotion, arousal and behavior; pleasure in mastery motivational systems, etc. (Masten, 2001). For the sake of this inquiry, the prenatal attachment relationship will be examined to determine if it operates as a form of protection for encouraging postnatal bonding and/or elusion of postpartum depressive symptoms.

In regard to the role of risk and protection in the process of resilience, there are several important attributes to consider. First, risk and protective processes are often renegotiated, with what could be seen as a protective processes in a current time or context, becoming a risk mechanism for the future (Hawley & DeHann, 1996). Risk and protective processes may also be seen as existing on a continuum, with one extreme leading to vulnerability and the other providing protection (Wright et al., 2013). The concept of risk and protection is also shaped by the meanings that individuals and families assign to certain circumstances or problems or to strengths and assets, therefore, the perception of risk or protection can be just as critical as actual objectively measured risk or protection (Patterson, 2002). Viewing this study from a symbolic interaction framework lends itself well to meaning making in the resilience process, as what individuals define as real has real consequences (Blumer, 1969).

Yet another dimension of risk and protection can be examined in conjuncture with the inoculation theory of risk, whereby the protection stems from interaction with the risk, much like a vaccine helps to protect an individual from a deadly or debilitating

disease by exposing them to a lesser or deadened form of the disease/risk (Patterson, 2002; Rutter, 1987). Rutter (1987) contents that,

> whether the process serves to increase or decrease the risk has no necessary connection with whether the variable (i.e. attribute or experience) itself would ordinarily be thought of as positive or negative. Protection is not a matter of pleasant happenings or socially desirable qualities of the individual. The search is not for factors that make us feel good, but for processes that protect us again risk mechanisms—Protection in this case resides, not in the evasion of the risk, but in successful engagement with it (p. 318).

Therefore, situations where risk is present does not mean that a negative outcome is assured; risk can also strengthen an individual or change a trajectory towards a positive course. Trajectories are fluid; as such, indicators that at one point may represent risk, may later prove to have provided protection. The inoculation theory of risk may lend itself well to inquiry regarding unintended motherhood, as a disproportionate number of those who experience unintended pregnancies are younger, minority, unmarried, lower-income and less-educated women (Finer & Zolna, 2014). As such, it is likely these women have already encountered risk processes in their lives that may have strengthened them against future threats to resilience and may provide protection against risk associated with unintended motherhood, such as poorer maternal and child health and negative social and economic consequences (Brown & Eisenberg, 1995).

Risk and resilience theory will be utilized within this dissertation to explain potential risks inherent in the transition to motherhood, along with opportunities for protection. The postnatal period will be viewed as a time of increased risk and

vulnerability, particularly for unintended mothers as both the postnatal period and unintended pregnancy have been linked to potential maladaptive outcomes, including postpartum attachment disturbances and depressive symptomatology (Brown & Eisenberg, 1995; Cohen & Nonacs, 2005). This theory will also be used to help identify prenatal attachment as a form of protection that may impact postnatal mother-infant bonding and how that factors into maternal reports of postpartum depressive symptoms with a ultimate goal of finding associations that will assist with the design and implementation of effective prevention and intervention programs for women becoming first time mothers, particularly those for whom motherhood was unintended.

Motherhood Literature: Pregnancy Intention and Postpartum Challenges

Unintended Motherhood

Around half of all pregnancies in the United States are unintended (Finer & Henshaw, 2006; Finer & Zola, 2014; Finer & Zolna, 2011). Unintended pregnancy includes unwanted and mistimed experiences of motherhood (Finer & Henshaw, 2006; Finer & Zola, 2011). According to the National Survey of Family Growth (Chandra, Martinez, Mosher, Abma, & Jones, 2005), unwanted births are not wanted in the present or at any time in the future, whereas mistimed birth represents a pregnancy not wanted at the current time, but at some future point. According to NSFG data, around 21% of all births are mistimed, whereas 14% of all births are unwanted (Chandra et al., 2005). Approximately 51% of all pregnancies in the U. S. are unintended (Finer & Zolna, 2014), however, only around 25-35% of births are reported as unintended (Chandra et al., 2005). Prior research has explained this discrepancy indicating that spontaneous and induced abortions may account for the difference (Jones & Kavanaugh, 2011; Venture, Abma,

Mosher, & Henshaw, 2008). Differences may also be due to mother's not wanting to admit a pregnancy was unintended when reflecting back once the baby is born (David, 2006; Mercier, Garrett, Thorp, & Siega-Riz, 2013).

While many unintended pregnancies end in termination, approximately 58% result in live births (Finer & Zolna, 2011). Unintended births are often linked to a number of serious consequences which include; tobacco and alcohol exposure, delay in or lack of prenatal care utilization, low birth weight, preterm birth, failure to breastfeed, and physical abuse of one's child (Institute of Medicine, 1995; Shah et al. 2011). Women with unwanted pregnancies also have been shown to be less likely to take prenatal vitamins (Cheng, Schwartz, Douglas, & Horon, 2009; Rosenberg, Gelow, & Sandoval, 2003), with one study finding only 15% of mothers complied with the recommendation (Rosenberg, Gelow, & Sandoval, 2003). Prior studies have shown that when compared with women who intended to become mothers, women who experience an unintended pregnancy are more likely to subject their fetus to risk during the first trimester through delay of prenatal care (Cheng et al., 2009; Kost, Landry, & Joyce, 1998) and exposure to potential teratogens (Han, Nava-Ocampo, & Koren, 2005; Than et al., 2005), and are also twice as likely to continue to smoke while pregnant (DHHS, 2006). Unintended mothers were also more likely to breastfeed shorter durations (Joyce, Kaestner, & Korenman, 2000; Korenman, Kaestner, & Joyce, 2002; Taylor & Cabral, 2002) and to suffer from postpartum depression than women who had intended to become pregnant (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Mercier, Garrett, & Thorp, 2013; Nakku, Nakasi, & Mirembe, 2006).

Notable disparities in unintended pregnancy rates are present within factors such as age, relationship status, race, and socioeconomic status and differences within educational level, religiosity, and parity (Finer & Zolna, 2011). Finer and Henshaw (2006) found stark differences in unintended pregnancy by age with women 19 and under reporting rates at 47%, 20-24 at 22.5%, 25-34 at 24.8%, and women 35 and older at 5.6%. Of unintended pregnancies, 67% were unmarried and 73% reported cohabitating. Finer & Zolna (2011) found that cohabitating women represented the highest rate of unintended pregnancy.

Unintended pregnancy rates are also skewed by race with Black (46%) and Hispanic (37%) women reporting around twice the rate of Non-Hispanic White (17%) women (Finer & Henshaw, 2006). NSFG data demonstrates that black women have rates of unintended birth around 25%, whereas Non-Hispanic White women report rates at 9% (Chandra et al., 2005). Black women have been found to have the highest rates of unintended pregnancy for any minority (Finer & Zolna, 2011). Research has shown that minorities report higher levels of unintended pregnancy regardless of income level (Finer & Zola, 2011). That being said, unintended birth disproportionately afflicts those in poverty; with 50% of women near or below the poverty level reporting at least one unintended birth compared with only 22% of women at 300% poverty level or higher (Chandra et al., 2005). In a study by Finer & Zolna (2011) that looked at pregnancy rates instead of birth rates, the rate of unintended pregnancy for women in poverty was 5 times that of women in the highest income level.

Unintended pregnancy rates also shown dissimilarities based on educational attainment, religiosity, and number of prior births (parity). Educational attainment

appears to be protective against unintended pregnancy, at least to some extent. Around 13 of women ever reporting an unintended pregnancy graduated from college, compared to 23% with some college, 27% with a high school diploma, and 37% with less than a high school education (Finer & Henshaw, 2006). Therefore, women with the least education reported the highest rates of unintended pregnancy, and as education level increased, rates for unintended pregnancy decreased, a result found in other research as well (Finer & Zolna, 2011). Data from NSFG found that 61% of women who did not finish high school reported an unintended birth, compared with 18% of women who earned a college degree (Chandra et a., 2005). Religious affiliation has also been shown to provide some level of protection against unintended pregnancy, as women without any religious affiliation reported the highest rate of unintended pregnancy. Parity also impacted unintended pregnancy rates, with women with one prior birth reporting around twice the rate as women who had never given birth or who had two or more prior births (Finer & Zolna, 2011).

Transition to Motherhood: The Postpartum Period

The postpartum period is a time of transition and immense change; as such this can be a stress inducing time for mothers. The emerging identity of a baby is constructed in duality with the identity of his or her mother; both identities develop slowly throughout pregnancy and then suddenly at birth (Smith, 1991). This constructed parallel identity that is so essential during pregnancy, can be difficult to rectify after the birth as a mother seeks her own identity outside of her role as mother, while also desiring to remain intertwined with her baby (Smith, 1991).

Events perceived as stressful during the postpartum period may include unrealized expectations, feelings of losing touch with one's self and the world around them, stressful and unsupportive interaction with caregivers, contradictory information regarding childrearing, troubles with breastfeeding, and barriers to maternal self-care (Barkin & Wisner, 2013; Darvill, Skirton, & Farrand, 2010; Marshall et al., 2007; Razurel et al., 2011). During the postpartum period, mothers often express difficulty in finding a balance between managing daily routines; such as caring for other children, conducting housework, partaking in valued activities, and in returning to work (Darvill et al., 2010).

In a study conducted by Marshall et al. (2007), women described feeling the reality of motherhood was incompatible with their prior expectations and many found that they did not enjoy this aspect of childbearing. Women expressed emotional highs and lows, which several mothers described to be "like a rollercoaster." During this time, women shared feelings of "elation" which were quickly followed by extreme exhaustion and fatigue. In this study, mothers reported feeling a loss of control over their own lives due to meeting the needs of their infants, post-birth hormones, and other physical and emotional process that were at play during this postnatal phase (Marshall et al. 2007). Wilkins (2006) had similar findings, whereby mothers expressed the reality of motherhood was very different from what they had anticipated and actually came as quite a shock. These mothers felt pressured to fit into the super mother ideal and had feelings of self-doubt, guilt, and despair when they felt they fell short of meeting the needs of their babies.

Breastfeeding has been identified as a major source of stress during the postnatal phase and is associated with negative emotions, pain, high anxiety, and feeling

overwhelmed. In a study by Razurel et al. (2011) women reported they felt misled about the entire breastfeeding process in their prenatal classes; while others felt their breastfeeding education was idealized and did not paint a realistic picture or highlight possible disadvantages to breastfeeding (Darvill et al., 2010). Darvill et al. (2010) found that breastfeeding mothers, especially those with difficulties nursing, reported feeling that the reality did not live up to expectations and that is was more difficult than expected (Darvill et al., 2011).

Support is paramount theme in the postpartum period, and appears to influence the way the transition to motherhood is experienced (Marshall et al., 2007; Razurel et al., 2011; Wilkins, 2006), Lower levels of support have been shown to lead to feelings of loneliness and vulnerability, whereas women who report higher levels of support describe confidence in their new role as mother and tend to have positive perceptions about themselves (Marshal et al., 2007). Support is most often derived from professionals (primarily midwives), mothers and grandmothers, friends, and partners (Marshal et al., 2007).

In addition to support, another protective process within the postpartum period was that of maternal self-care: defined as a mother's willingness and ability to care for herself both physically and emotionally; including proper nourishment, tending to one's physical appearance, good hygiene, adequate sleep, setting boundaries, and willingness to delegate responsibilities in order to practice acts of self-care (Barkin & Wisner, 2013). In a study by Barkin & Wisner (2013) applications of self-care included acts such as exercising, taking a long shower, going out to dinner, applying cosmetics, socializing with peers, and going on dates with one's partner. Common barriers to practicing

maternal self-care included a lack of time, limited financial resources, appropriate and trusted childcare, difficulty accepting help from others especially with delegating childcare tasks and responsibilities, and trouble setting boundaries between providing excellent infant care and tending to their own physical and emotional needs. However, transcending the obstacles impeding their ability to care for themselves during the postpartum period was advantageous to both mother and infant. Mothers who took time out for self-care reported feeling more relaxed and better able to attend to their child after the period of self-care (Barkin & Wisner, 2013).

While the postpartum period is inherently laced with complexities, challenges, and great change, mothers in a study by Wilkins (2006) reported feeling balance returning to normal when they developed necessary skills, reconciled their roles as mothers, and integrated that role with their pre-mother identity. In time, new mothers developed organizational strategies and integrated new routines, which restored the ability to plan and brought balance once again to their lives. As the mother and infant spent more time together, mother's were able to not only meet basic needs, but to have a 'perceptive' and 'intuitive' understanding of their baby's needs and could meet them accordingly. Women also reported feeling more confident and in control as mothers once they restored some semblance of organization and planning into their lives and when they developed a routine with their baby and were able to anticipate and successfully respond to their infants' needs (Wilkins, 2006).

CHAPTER III

TOUGH DECISIONS:

EXPLORING WOMEN'S DECISIONS FOLLOWING UNINTENDED PREGNANCIES

Review of Literature

An estimated half (45-51%) of all pregnancies in the United States are unintended, with a disproportionate number occurring among younger, unmarried, minority, less-educated, and lower-income women (Finer & Zolna, 2014, 2016). Unintended pregnancy includes both unwanted and mistimed pregnancies (Finer & Henshaw, 2006; Finer & Zola, 2011). According to the National Survey of Family Growth (NSFG, 2005), a *mistimed* pregnancy is not wanted at the current time, but at some future point, whereas an *unwanted* pregnancy is not wanted in the present or at any time in the future. According to NSFG data, around 14% of all births are unwanted, whereas approximately 21% of all births are mistimed (Chandra et al., 2005). While around 45% of all pregnancies in the United States are unintended, down from 51%, just three years prior (Finer & Zolna, 2016), only an estimated 25-35% of births are reported as unintended (Chandra et al., 2005; Finer & Zolna, 2014). Previous research has described this discrepancy by indicating that spontaneous and induced abortions may account for differences (Jones & Kavanaugh, 2011; Venure, Abma, Mosher, & Henshaw,

2008), as well as a woman's failure to admit a pregnancy was unintended once the baby is born (David, 2006; Mercier, Garrett, Thorp, & Siega-Riz, 2013).

Abortion is a widespread procedure in the United States, occurring in approximately 22% of all viable pregnancies, with three in ten women experiencing at least one abortion before the age of 45 years (Jones & Kavanaugh, 2011; Jones & Kooistra, 2011). Although the occurrence of abortion has declined (Jones, Zohn, Henshaw, & Finer, 2008), it remains most common in the context of unintended pregnancy (Finer & Henshaw, 2006), where approximately 40% of such pregnancies end in induced abortion (Finer & Zolna, 2014), a figure significantly higher than the United States national average (Jones & Kavanaugh, 2011; Jones & Kooistra, 2011). Around 75% of women who opt to terminate a pregnancy are in their teens or twenties (Jones, Finer, & Singh, 2010). A large disparity exists in the rates of abortion between low-income women and women of color and their wealthier, white counterparts. The abortion rate for non-Hispanic white women in 2008 was 12 abortions per 1000, compared with 29 per 1000 for Hispanic women and 40 per 1000 for non-Hispanic black women (Jones & Kavanaugh, 2011). There is also a notable disparity between women of lower and higher SES, with those 100% below the federal poverty level (FPL) reporting over 5 times more abortions than those women with incomes greater than 200% FPL (Jones & Kavanaugh, 2011).

The United States has higher abortion rates than most other developed countries (World Abortion Policies, 2011), yet research shows most women fair well and have an overall positive outlook into the future (Quinley, Ratcliffe, & Schreiber, 2014). There is no evidence of significant increased risks for mental health disturbances for women

undergoing a single, legal, first trimester abortion of an unwanted pregnancy (APA, Task Force on Mental Health and Abortion, 2008). The number of women who experience post-abortion regret is minor (Adler, 1990; Charles, 2008; Major et al., 2000; Robinson et al, 2009), but that does not minimize the need for emotional care for those who experience negative emotions (Upadhyay, Cockrill, & Freedman, 2010).

While the majority of women report a sense of relief once the procedure is over (Major et al., 2000; Major et al. 2009; Quinley, Ratcliffe, & Schreiber, 2014), episodes of depression are not uncommon (Major et al., 2000; Major et al., 2009). Pre-abortion psychological state is one of the best indicators for how a woman will fair psychologically post-abortion (Quinley, Ratcliffe, & Schreiber, 2014). However, women without prior mental health concerns may also experience difficulty (Major, 2009). Women's perceived control regarding the decision to terminate a pregnancy is a predictor of post-abortion psychological stability, whereas women who felt coerced or pressured reported higher levels of distress (Kimport, Foster, & Weitz, 2011). More emotional distress may be present in situations where women isolate themselves from sources of support due to generally negative social attitudes regarding abortion (Shellenberg et al., 2011; Major & Gramzow, 1999); opting for secrecy over disclosure for fear of negative responses (Kimport, Foster, & Weitz, 2011; Major & Gramzow, 1999).

Social support is an important aspect of positive post-abortion mental health (Cozzarelli, Sumer, & Major, 1997; Major et al., 1999; Major et al., 1990; Kimport, Foster, & Weitz, 2011), because without social support there is a greater likelihood of negative psychological outcomes (Major et al., 1990). Women who chose to share about their abortion have reported strengthened relationships when responses were supportive;

whereas disclosures greeted by negative opinions or judgments may leave long-term consequences (Kimport, Foster, & Weitz, 2011).

Although many unintended pregnancies end in termination, an estimated 58 percent result in live births (Finer & Zolna, 2011). Unintended births show links to maternal and child health disturbances, in addition to both social and economic consequences (Brown & Eisenberg, 1995). Unintended pregnancies are more likely to be associated with tobacco and alcohol exposure, delay in or lack of prenatal care utilization, low birth weight infant, preterm birth, non-initiation and/or continuation of breastfeeding, physical abuse of one's child, (Institute of Medicine, 1995; Shah et al. 2011) and greater risk of postpartum depression (Abbasi, Chuang, Dagher, Zhu, & Kjerulff, 2013; Cheng, Schwarz, Douglas, & Horon, 2009; Karacam, Onel, & Gereck, 2011). Interpersonal characteristics are partially to blame for large disparities in unintended pregnancy rates (Finer & Zolna, 2011), yet causal factors of negative outcomes are not always well defined. While unintended pregnancies are more prevalent amongst women from disadvantaged backgrounds, consequences may be related to life history and not always pregnancy intention (Cheng et al., 2009).

While there has been considerable interest in attitudes towards abortion (e.g., Hans & Kimberly, 2014) and the outcomes of abortion, including women's psychological well-being (e.g., Charles et al., 2008) or socioeconomic status (e.g., Fergusson, Boden, & Horwood, 2007), there has been less investigation into the attitudinal and contextual factors that influence women's decision-making processes regarding abortion (Adamczyk, 2007). To better understand how women decide whether to terminate or continue with an unintended pregnancy, this study will employ a symbolic interaction

perspective. This theory has the ability to provide insight into issues regarding why some women choose to terminate while others opt to continue their unintended pregnancy and is imperative in understanding how women create meaning surrounding unintended pregnancy (Blumer, 1969).

Unintended pregnancy, as a multidimensional construct, calls for research that goes beyond the numbers to explore thoughts, feelings, behaviors, and contextual influences of women with lived experience (Charon, 2006). As such, this inquiry will examine narrative interviews and utilize women's own words and lived experiences to represent their stories. Narrative stories provide descriptive details of potential processes relevant in the decision making process that goes along with an unintended pregnancy, and may also speak to the unique stressors present for women who have experienced unintended pregnancy and the risk and protective mechanisms that lead to favorable vs. unfavorable outcomes. The sharing of narrative stories in this context allows a woman to voice her experience and make meaning of it, which may also bring clarity, closure, or healing (Charon, 2006). Examining narratives in the context of decisions women made in regard to their unintended pregnancy may yield useful information to be utilized for prevention campaigns, therapeutic interventions, counseling support, and identifying women who may be at risk for maladaptation.

Prior research has looked at narrative studies of adolescents facing unintended pregnancies (Brubaker & Wright, 2006; Spear, 2004; Spear & Lock, 2003). Unintended pregnancy in the college context remains understudied in this genre, however, with few extent narrative inquiries at the present date (Gray, 2015). Despite that in 2008 more than half (55%) of total unintended pregnancies occurred in women in their twenties, college-

aged women facing unintended motherhood remain a relatively unexplored population (The National Campaign to Prevent Teen and Unplanned Pregnancy, 2012).

For college-aged women, the issue of unintended pregnancy is a salient concern. Within the 20-something population, around 70% of pregnancies are reported as unintended (National Campaign to Prevent Teen and Unplanned Pregnancy, 2016). College enrollment rates are lower among mothers (Hofferth, Reid, & Mott, 2001; Levine & Painter, 2003), and the college drop-out rate is 64% higher in women who have had an unintended pregnancy than that of their childless counterparts (National Campaign to Prevent Teen and Unplanned Pregnancy, 2009). Around one-third of women who leave school do so in response to an unintended pregnancy, with many citing a lack of support as their main reasoning (Bridgeland, Dilulio, & Morrison, 2006).

Research indicates that young women who hold strong educational goals for themselves have a higher likelihood of terminating an unintended pregnancy than those who do not (Gomez-Scott & Clooney, 2014). Longitudinal research has found that women who terminate an unintended pregnancy are more likely to attend college and graduate than are women who continue their unintended pregnancy (Fergusson, Boden, & Horwood, 2007). Additionally, women who terminate their unintended pregnancy report greater overall educational attainment when compared with those who continue a pregnancy (Fergusson, Boden, and Horwood, 2007). Previous research indicates that most women who report pregnancy termination in their teens and twenties, retrospectively recall education and career plans as part of their rationale for termination (Broen et al., 2005; Finer et al., 2005), suggesting that young women tend to base pregnancy decisions heavily on educational and occupational trajectories. This study will

utilize a sample of women with at least some college education, either prior to, concurrent with, or post-abortion, and examine their decision to either terminate or continue an unintended pregnancy, in hopes to better understand the decision making process women go through when deciding how to proceed when faced with the prospect of unintended motherhood.

Data and Methods

Sample

Sixty-eight women living in an urban city in the South Central United States participated in a mixed-methods study on childbearing decisions. Women were recruited through flyers posted on a college campus and through social media and websites such as Craigslist. This study is restricted to the 33 women with some college education who reported having at least one unintended pregnancy as outcomes may differ by educational achievement (Bridgeland, Dilulio, & Morrison, 2006). Of these women, 20 decided to continue their pregnancies, three of whom opted to give their children up for adoption. At the time of this study, of the thirteen women who sought abortions for their unintended pregnancy, three women went on to have a second abortion for a future unintended pregnancy. All women who decided to terminate their pregnancies reported that they wanted, at some point, to be mothers.

Description of Researcher and Potential Biases

At the time of data analysis, the researcher was a 33-year-old happily married (for 7 years) woman sharing a life with her Air Force physician husband and attending Oklahoma State University as a doctoral student. During that time, the researcher was a mother of three young boys (ages 5, 3, and 1) and was pregnant with a baby girl.

However, at the end of the editing process the researcher is a mother of four children (7, 5, 3, & 1) and is pregnant with a baby boy. The researcher has a strong maternal identity and value for children and family that may have affected the way data was interpreted. The researcher had experienced infertility at the beginning of her marriage as well as a stillborn baby brother when she was 8 and therefore has strong feelings for the value of fetal life which she is aware may lead to researcher bias. The researcher made all efforts to write about the research from an outsider perspective so as to not put herself into the research, while simultaneously realizing that constructed meanings made by the researcher would inevitably contain bias due to her own thoughts, feelings, and beliefs surrounding the concepts of pregnancy, abortion, and motherhood. As such, a secondary coder will be utilized before publication to verify categories and themes and to discuss and rectify coding discrepancies to increase trustworthiness of the research.

Data Analysis

This chapter applies a grounded-theory methodology (Strauss & Corbin, 1998), which seeks to understand participants' thoughts, feelings, and experiences in order to comprehend their encounters with the world and explain a particular phenomenon (Glaser, 1998). Through use of the constant comparative method (Glaser & Strauss, 1967), code was analyzed, and sections of data compared in pursuit of elucidating similarities and differences between narratives. As concepts and categories emerged from the data, they were continuously, simultaneously, and methodically compared to all other data in order to draw out themes. Due to the nature of the grounded theory methodology, instead of beginning with a hypothesis, data were first collected through narrative interviews. After data were collected, key points were extracted from the text and coded

into concepts and then multiple categories, which were then used to generate theory (Glaser & Strauss, 1967). Data analysis began with open coding (aka substantive coding), during which time data were examined line by line for content and meaning as concepts and categories began to make themselves apparent. After open coding, axial coding was conducted; through which data were reintegrated in order to make meaningful connections between categories (Strauss & Corbin, 1990). Selective coding was then utilized after a core variable was identified; this core variable was then used to guide further coding. Coding was conducted until no other themes emerged and data were seemingly saturated (Strauss & Corbin, 1990). A core variable was sought and identified to explain processes existing within the majority of narratives. Through use of themes and quotes, a storyline was created to uncover an overarching theme that embodied the meanings women create surrounding either termination or continuation of an unintended pregnancy.

Presentation of Results

In presentation of the data, thick description was derived from women's narratives to portray an understanding of their experiences surrounding their unintended pregnancy. The presentation of data is one of the most unique and important aspects of qualitative research, and, as such, extreme mindfulness was exercised to ensure interpretive validity. Ambert et al. (1995) contends that, "the richness of quotes, the clarity of the examples and the depth of the illustrations in a qualitative study should seek to highlight the most salient features of the data" (p. 884). Therefore, direct quotations were used to drive home points, add depth to the analysis, and give personal meaning to the results.

Accounting for Researcher Subjectivity

In an attempt to combat researcher partiality and preference, reflexivity and journaling was employed while reading personal narratives. In order to ensure external validity and transferability extensive disclosure of sample selection, data collection, and data analysis was provided. As a way to safe guard interpretive validity, low inference descriptors were used and personal meaning and integrity of language was maintained to the best of the researchers knowledge. Direct quotes were utilized when necessary to portray meaning (Creswell, 2009).

Ensuring Trustworthiness

In an attempt to ensure trustworthiness the researcher utilized processes to establish credibility, transferability, confirmability, and dependability (Strauss and Corbin, 1998). Credibility was sought using triangulation (Denzin, 1978), including data triangulation, methodological triangulation, investigator triangulation, and theory triangulation. Data triangulation and methodological triangulation were accomplished through use of both in-person qualitative interviews regarding fertility intentions and survey data to collect demographic information as well as other childbearing and relationship related information. Investigator triangulation was achieved through use of two interviewers that collected data independently of the researcher who conducted analysis. Theory triangulation was accomplished through use of grounded theory in combination with symbolic interactionism to explore thematic coding and meaning making.

Transferability was sought through use of a purposive sample of women with at least some college education and disclosure of relative demographic information,

including age, race, and relationship status. Whenever possible, women's contextual factors disclosed within the data were reported along with quotes from the women's narratives. This thick description serves to demonstrate other contexts, circumstances, and situations in which study findings may be applicable. Confirmability was sought through disclosure of researcher biases and through reflexivity and journaling of the researcher. An audit trail can be provided through presentation of narrative packets with notes and highlighting throughout each step of the analysis. Dependability was partially accomplished through use of extensive disclosure of methods, however, a secondary coder will be utilized for an inquiry audit to ensure consistency of findings before publication is attempted.

Results

Although many women experience unintended pregnancy, the context of the event or the way they interpret and experience that event may differ. This paper describes the experiences of unintended mothers who made decisions to either terminate or continue an unwanted or mistimed pregnancy. Through use of personal narratives, women elaborate on the dynamics of their situations, providing context as to why they chose as they did for themselves and their unborn child. Drawing from a sample of women with at least some college education allows us to examine women who have higher socioeconomic status than many women typically included in abortion studies.

Sixty-eight women underwent in-depth qualitative interviews regarding their childbearing history and fertility intentions. After initial qualitative analysis, the sample was restricted to a purposive sampling of 33 women who experienced at least one unintended pregnancy and had a minimum of some college education in order to ensure

transferability of findings to a specific population or context. Within the subsample, 20 women continued their unintended pregnancies, including three women who decided to place their infants for adoption. These 20 women comprised 29.4% of the entire sample and 60.6% of the subsample. The subsample also consisted of thirteen women who reported having had at least one abortion, constituting 19.12% of women in the entire sample, and 39.4% of the subsample of women having experienced an unintended pregnancy. Of these women, three reported two or more abortions. Six women reported currently being without children, three experienced miscarriages after their abortions, and three disclosed issues with infertility post-abortion. The majority of abortions occurred during the women's late teens and early twenties, with only one reported after the age of 30. Approximately three-fourths of the participants disclosed not using any method of contraception when they became pregnant. All women reported wanting, at some point, to be mothers, regardless of their decision to continue vs. terminate their pregnancies.

Within the sample used in this chapter, women were divided into two groups; those who terminated their pregnancy and those who continued their pregnancy. Both groups of women experienced unintended pregnancies, but their cognitive appraisal of the event and the way they made meaning of their experience differed, as did contextual factors, and personality/attitudinal characteristics for some women. However, all women disclosed having had what they considered to be a "mistimed pregnancy," which comprises the overarching theme within the paper as it was identified within each narrative in both groups of women in the sample. While women in both groups noted their pregnancies as mistimed, the way in which women who sought pregnancy termination made meaning of the experience of an unplanned pregnancy was different

than those who continued their pregnancy. The women who opted for pregnancy termination felt unable to continue their pregnancy, as they did not have what they considered an ideal life to bring the baby into. Specifically, the women felt ideal circumstances for childbearing were not present at the time, such as a completed education, an established career, a suitable home, financial stability, and/or a committed and healthy partner. Many women who chose to continue their mistimed pregnancies noted similar obstacles but described situations of overcoming difficulties and making the best of the situation at hand. Women who continued their pregnancies were more likely to have reported having a steady partner, strong maternal identities, and/or a meaningful history with or value for children—descriptions that were absent from the narratives of women who terminated their pregnancies.

Deciding to Terminate

Core Theme: Having an Ideal Life before Baby. The core theme for women who opted to terminate their pregnancies was that of "having an ideal life before baby." This category included women who stated they wanted to accomplish personal goals in realms such as education, career, housing, and finances before becoming a mother. This category also included women who wanted to be in a healthy relationship or marriage before starting a family or adding more children to an already established family. For many women, being pregnant outside of ideal circumstances did not fit with the mental picture they had painted of how life should progress, and, as such, they sought an abortion to "get back on track" with their life plan. For example, one woman shared how her pregnancy did not fit with her mental picture of how she felt her life should play out. She stated,

> I always had the fantasy about going to college, graduate, meet the perfect guy, get married, and have kids. And that didn't happen. I knew at the time I didn't want any kids. I knew that my career was that important. This was a bump in the road and I didn't want it to get in the way. I know that this was a selfish reason, but… (47-year-old White, never-married female).

Another woman, who had elected to have an abortion on two separate occasions with the same father, shared she did so because it was not a good time to have a baby. She stated,

> I plan on being married when I have children. I'd like to be finished with school—And I'd like to, um, already be in a job where I have opportunities for advancement and can grow with the company so I can feel comfortable financially. And, I haven't bought a home or anything like that. I just live in an apartment right now, so I'd like to have purchased a home (24-year-old Black, dating female).

When speaking about the importance of getting her education based on what she had seen happen with other women she went to high school with that did not attend college, one woman shared,

> yeah, they were barely out of high school and you know then watching other people that I would consider smart in corporate America, you know—but, they're not making much money either, you know, because you know they had to work their way up for years. And I was like, 'I think I need to do something different than this', you know. And I knew that I probably couldn't do it with kids, so… (29-year-old White, never-married female)

Another woman shared her story about getting an abortion to continue her nursing education, she stated, “Career really matters. I feel selfish kind of in our society because—it’s getting better, but, I think women are pressured to have kids and stay at home and not have a full-time job” (27-year-old White, dating female).

Within this theme was an overall sense of not being ready for a child and not having themselves or their situations in a way that becoming a mother felt feasible or desirable at the time. One woman shared, “I think I was really focused on having a job and getting established and having a good job—Finishing college and trying to get that going” (early twenties White, never-married female). This sentiment was echoed in a statement by a woman who had two abortions and who shared feeling that her priority needed to be herself at that point in life as it was her time to “make something” of herself. She shared, “I have a sense of who I am and I didn’t want to, you know, be at the point of feeling any kind of resentment or anything like that. And I wanted to develop myself out more” (47-year-old Black, married female).

While another woman had seen many friends become young mothers and have to work hard with little to show for it, as such she disclosed feeling that she was not interested in that lifestyle, nor was she comfortable bringing a child into that situation. When speaking of her childbearing intentions and history, she shared, “My motto has always been, ‘If you can’t feed ‘em, don’t breed ‘em.’ Um, so it is pretty much going as planned. I am trying to get like everything in line before I have a child because I was raised by parents having to buy clothes at Walmart.” She stated that she would like to have a minimum of a “bachelor’s degree.” In regards to her unintended pregnancy and consequential termination, she divulged, “I was in the middle of trying to get my degree.

It was just completely unplanned and a surprise, so I decided to go ahead and terminate it because it was not a good time." She reasoned the timing was not ideal for a pregnancy because she had not met criteria necessary for motherhood, which for her included, "the whole like having education, and the money, and what not to do it. It's really, really important I think" (27-year-old White, cohabitating female).

Some women referred to unplanned pregnancies in situations were they opted to keep one child at one point and to terminate another unplanned pregnancy at another point; for those having had an abortion, timing seemed to be the key to whether unplanned pregnancies were continued or terminated. One woman asserted,

> It was just completely unplanned and a surprise, so I decided to go ahead and terminate it because it was not good time. At the time, I felt indifferent about that. Obviously, not everyone is going to look highly upon that decision. But you kinda have to make the choice for yourself and it's different when it's you (27-year-old White, cohabitating female).

Frequent concerns within this theme, beyond the desire for an ideal life before baby, included contextual factors such as unhealthy partnerships and financial instability that also influenced women's decisions to terminate. These contextual factors are reflected in the two subthemes, "unhealthy partner relationships" and "fear of not being able to provide for the child." For many women termination was not only a way to delay entry into motherhood until circumstances were ideal, but it was also a way to avoid bringing a child into an unhealthy or unstable situation. A majority of these women also noted that termination allowed them to continue education or pursue goals that would afford them a "better future."

Subtheme: Unhealthy partner relationship. Within the subtheme of "unhealthy partner relationship" women described various situations in which their choice of partner or the status of their relationship with the father of their unborn fetus was inadequate or unsuitable for co-parenting. Reasons for inadequacy of partner or undesirability of relationship included, but were not limited to; date rape, intimate partner violence, alcoholism, criminal activity, having different life goals, lack of motivation of the father, relationship turbulence, or dissolution of the relationship/marriage. Approximately half of these women described men who were abusive, controlling, or who had substance abuse issues. A woman who described her husband as a "very controlling alcoholic" with "raging behavior" stated, "I wanted kids, but not under that environment" (39-year-old Hispanic, married female). A 41-year-old White, married female with a "controlling, alcoholic husband" shared how her husband's actions swayed her towards termination of her pregnancy after his alcoholism resulted in a family car accident. Another woman described being romantically involved with and pregnant by a man who was married to another woman at the time. She shared having gone back and forth on her decision of whether to terminate, but was ultimately happy with her decision due to his ending the relationship. In reference to being content with her decision to terminate she shared,

> And especially because, just about a month after, he had to, we kind of broke up because he had to go, decided he had to go finish what was going on in his life, get his divorce and figure out his life. So, there I was now, by myself, like I can't believe, part of me said, 'I am so glad I didn't have that kid, because here I am by myself (33-year-old White, cohabitating female).

When discussing her partner one woman disclosed,

> The person I was dating at the time, who obviously would have been the other parent, they were just not motivated at all. It wasn't like—I'm going to marry him, it was like, I will do this for a while, I'm not doing anything else at the time. So, I kinda felt indifferent at the time (regarding the relationship). Now, it's the best choice (referring to the abortion) I probably ever made in my entire life because he ended up in prison (27-year-old White, cohabitating female).

A woman having experienced multiple abortions with the same partner cited her choice of partner as her reasoning for having abortions; she shared,

> Both pregnancies I was in a long-term relationship with the same individual, who I loved very much. I was young, but not too young where I felt like I couldn't have chosen to have the children. But, like I said, what weighs heavy on the decisions I've made is seeing other young women my age and my religious beliefs. And, uh, honestly, you know, I loved the guy, but I just knew—I knew because in being there are times, you know, when you are honest with yourself—like, I love this guy, I want us to be together… and times when you're dishonest with yourself, and times when your honest with yourself when you're like, I known I could never be with him—I know that he is not headed towards the same goals in life that I am (24-year-old Black, dating female).

One young woman who expressed regret for her decision to terminate shared that her relationship at the time heavily influenced her decision to terminate the pregnancy, despite her own wishes and values. She volunteered,

> I was, I was too young. And, I was, um, in a bad relationship. But, I wasn't, I didn't know it at the time, but apparently I was. And, um, when I found out, uh, I

had been brought up to be very against it, and I didn't really have anyone to talk to because I thought my parents would pretty much disown me, which apparently they didn't whenever I told them, but at the time that's what I thought and I kind of dealt with it on my own. And, uh, in the situation that I was in, I felt—I pretty much did whatever he wanted when he wanted and then I went ahead and went, well, went through with it because he promised me the world and then we broke up the very next day (23-year-old White, dating female).

Within the women's narratives were often reflected a dichotomy between the life women had always pictured bringing a child into and the partner they would share that experience with and the actual reality at hand. One woman summarized this phenomenon; she revealed,

> I just kind of pictured, you know… if I decide to have this baby…um…I just kind of pictured where, what it meant for myself, what it meant for him (the baby's father), what it would mean for the child. And, it wasn't a picture that, you know, that I wanted. It wasn't how I pictured things, and not what I would want for the child (24-year-old Black, dating female).

Women within this theme shared narratives including characteristics of partners and relationships that were significantly more dysfunctional than women who mentioned partners within the group who continued their pregnancies. Therefore, it could be concluded that relationship dynamics, personality and situational characteristics of the father, along with relationship contextual factors play into a woman's choice to terminate or continue an unintended pregnancy.

Subtheme: Fear of Not Being Able to Provide for the Child. Another theme that reflected why women chose to terminate their pregnancy included the "fear of not being able to provide for the child." Throughout this theme women shared feeling that their situation or circumstance caused them to worry that they would be unable financially and/or emotionally provide for a child and therefore opted for termination. One mother shared her ultimate justification was that she feared what the life would be like for the child if she were unable to provide, she stated, "I think the biggest reason why I chose that (referring to pregnancy termination) was because that I didn't want to not be able to provide" (37-year-old White, married female). This woman, a mother of closely spaced children, shared how her fears regarding not being able to provide impacted her decision to terminate her pregnancy; she explained,

> I took my birth control pills just the way I always did and I came up pregnant and I did not want that kid—I did not want that child, it was a bad time. It was just not the right time financially or even emotionally for me to have a baby. I thought about it long and hard and you know what—I thought abortion was the thing for me to do. I did not want to have an unwanted child. I didn't want to bring a kid in the world and then… I thought with me not really wanting that baby, not really wanting it at the time. With my first one, we planned for it, we saved for it, we had money—the resources for that child. But then at the time that that pregnancy came along, I wanted to give the second child those same advantages and we couldn't at that time. I thought, I am not ready for this baby. So, I had an abortion.

She later went on to divulge more about her thought process regarding termination, sharing,

> I really thought about it long and hard and it was a really hard decision to make. But, I had seen so many kids who are disadvantaged and you see so many families struggling because they can't afford these kids. So, at that time, I thought I don't want to have a kid that is unwanted. I don't want to have a kid we can't afford. I don't want to be struggling and stressed out. I thought that would affect that child if everybody around it stressed out. You look around and see all these unwanted kids. I thought—no, no. So, that is why I had the abortion. I thought, I am just not going to have that child.

A woman currently trying to conceive post-abortion shared her fears that led to termination; she stated,

> I wasn't financially ready and I am not necessarily saying I am now, but I am more mentally prepared where I know I could make ends meet. Then I wasn't. I was scared to death. My parents are going to kill me, even though I was 30-something years old, I still had that teenage 'oh my gosh' they are going to kill me, what am I going to do (33-year-old White, cohabitating female)?

Another woman discussed the barriers to raising an additional child as a single mother and how she didn't feel she could provide for another child as she had already been pushing herself to a breaking point to make ends meet to provide a good life for her toddler son, she shared,

> I talked to the father; he wanted me to have an abortion the whole time. It was ultimately my decision. If I had wanted to have the baby, I would have. My son at the time was just a year and a half old, I was working 12 ½ hr shifts and I just

bought a house and a car. I just didn't think it was the right time (27-year-old White, dating female).

Subtheme: Thoughts, Feelings, and Decisions. The decision to terminate was often discussed with varying degrees of difficulty surrounding abortion. The subtheme of "Thoughts, Feelings, and Decisions" reflected the process women went through before arriving at their choice to terminate their pregnancy, making meaning of their decision, and the actual event of termination. A young woman detailing her experience shared feeling distaste for others in the clinic; promising she would not be there again; she recalled,

> As I was sitting in the waiting room there, I was looking around and listening to these other girls talk. Some girls are there, and they are like five times, this and that. I thought, you know, I will never do this again. I said, this is my one time that—I'm not saying it was an out, but I am saying, I will never do it again. And, I just couldn't believe those girls that were in there like no big deal. They had absolutely no feeling about it whatsoever (33-year-old White, cohabitating female).

This distaste for multiple abortions experienced by other women was reflected in multiple narratives of those women experiencing their first and only abortion; one woman vented,

> I mean, when I was sitting in the clinic, there was a girl, she was 20 and having her 7th abortion. There was a group of cheerleaders, couldn't have been more than 17—they were talking about going shopping when they were done. And, I was just like, I could have walked out, but I knew I was making the right choice. And people are either just heartless about it or they make the choice they regret in the

> end. Or it's very, very few women who can make it and say I did the right thing because you are looked down upon if you ever share that with someone. I mean, very few people are like—I understand (early twenties, White cohabitating female).

This same woman shared feeling judged in broader social terms regarding her decision to terminate; she stated,

> You go to the clinic… there are stupid people out there, their like, it's your choice, dutta, dutta. Like no shit, it's my choice, it's not like we wake up and we want to do this, you know?

Beyond their own feelings about abortion and the concern regarding the judgment of others, several women also noted their religious beliefs causing hesitation or temporary wavering in their decision to terminate their unintended pregnancy. One woman described how her faith impacted her decision to terminate her first of two pregnancies during her marriage post-birth of her first child; she disclosed,

> Well, because of my faith it was not an easy decision, it was a very challenging decision, and I'd say it was a more difficult one because sometimes we know but we want to make some things seem more difficult than it is but I knew I couldn't go through. And so here it is I had already decided it was just to come to terms with the decision. You know and I knew that it was by my definition it was a sin, but I believe God is a forgiving God and so I made a decision and I live with it (47-year-old Black, married female).

Several women shared conflicting feelings up until the very last minutes before the procedure. One woman stated,

> We (husband and self) talked about it and it was a really hard decision. Right up until the minute I actually walked in there for the procedure, I stopped and thought about it. And I thought, oh no, maybe I shouldn't do this at the last minute. And then I thought, I am going to do this—this is the right thing to do. I did it and I really don't regret doing that (49-year-old White, married female).

This last minute apprehension was mirrored in a statement by another woman who disclosed, "Of course, once I got there, there was that last minute where I thought, I don't know. He was—let's leave right now, if you want, let's leave right now. I said no, I can't do this right now" (33-year-old White, cohabitating female). Beyond apprehension, some women shared feeling "sad" or a "sense of loss." Discussing the procedure itself, one woman shared, "I will tell you when I was on the table I had some tears. You just have this emotional sense of one minute you are pregnant and the next you're not" (47-year-old White, never-married female).

Subtheme: Aftermath. The theme of "Aftermath" comprises the stories of women's feelings and adjustment post-abortion. This includes how women internalized the experience and how they reflected back on it throughout time. One woman described how she felt after having the abortion; she proclaimed,

> It was a relief, I mean it was sad. I don't believe that abortion is a form of birth control at all. That was the choice at the time—it was the best choice that I had at the time. More relief, because I thought of the baby too, even though I did kill it, it wouldn't have been the best life if I had it (27-year-old White, dating female).

While many women shared feeling a "sense of relief" others had mixed feelings of relief and regret. One such woman shared feeling conflicted between emotions of relief and regret. She explained,

> I chose not to have the children, and it's a decision that, you know, I feel two-sided about. Like, one side, I feel like I made a good decision, and uh, the other side feels like it was a selfish decision, and sometimes I wish that I had made a different choice, and like, you know, it was a mistake (24-year-old Black, dating female).

While two women in the study shared feelings of regret and disclosed wishing a different decision had been made regarding whether to terminate or continue their unwanted pregnancy. Reflecting back on an abortion from three years ago a college student pressured by her controlling boyfriend to seek termination shared,

> Um, if I had gone back, I probably would have changed my decision, but, I had some pressure, and, um some situation and I was a lot younger then. I don't know. So, if I could probably go back and change it, I think I would. I would have kept it. And, uh, I would have been by myself, but I think I would have been able to handle it looking back (23-year-old White, dating female).

Similarities of Women who Terminated their Pregnancies. The women who opted for pregnancy termination felt unable to continue their pregnancy as they did not have what they considered an ideal life to bring their baby into and felt that they were lacking circumstances such as a completed education, an established career, a suitable home, financial stability, and/or a committed and healthy partner. Some women not only lacked what they considered an ideal situation for childbearing, but additionally had

strong barriers to prevent them from having a healthy or stable situation for which to bring up a child. Several women in this group disclosed having been raped and felt they could not, for their own health and well-being, continue their pregnancies. There were also women who noted being in a relationship with an abusive partner or an addict, which they explained made the environment unsuitable for childbearing. Further concerns were expressed in this group regarding the ability to provide for a child financially or care for a child's needs physically and/or emotionally as well. Some women in this group also noted feeling that they had made a decision in the best interest of the child as well as themselves by terminating a pregnancy that in their current context would have potentially caused hardship on the (terminated) child or on other children already present in the family. These women were also more likely to describe scenarios with less support, actual or perceived, than were women who opted to continue their unintended pregnancy.

Deciding to Continue the Pregnancy

The majority of women who decided to continue their unintended pregnancy disclosed having a strong maternal identity and an equally strong will to succeed in life despite an unexpected pregnancy. Around half of the women who experienced an unintended pregnancy who chose to continue with the pregnancy did so within the context of a contented relationship or marriage, which was in stark contrast to most women who opted for termination. However, much like the termination group, the majority of women who continued their pregnancies expressed wishing they had more ideal circumstances before bringing a child into the world, but that they set out to make their situation work to the best of their ability.

Core Theme: Overcoming Obstacles as a Mother. The majority of women who decided to continue their unintended pregnancy disclosed having a strong maternal identity and an equally strong will to succeed in life despite an unexpected pregnancy. The overarching theme of these narratives was that of "overcoming obstacles as a mother." One such woman described her feelings about an unintended pregnancy at age 19, she stated she felt, "scared and worried-but never once thought about an abortion. I just buckled down, got myself together to take care of it" (24-year-old Black, married female). When she described her ideal childbearing plan, she explained,

> I definitely wanted to be done with school and married. That was always the plan. I said after my daughter, I wasn't having no more until I was finished with school and married. Which didn't happen. So, those were definitely important, even though we ended up having our boys before we got married, we both continued with school and I have a semester left. Still very important.

A woman who described a strong maternal identity and self-proclaimed love for children, stated,

> I was 18 when I had my first one. Even though it was unplanned, I knew I had always wanted to be a mom. I just… my mom had babysat kids all my life and I babysat when I was a teenager and I just loved kids, so I knew I would be a mom, so I was happy. By the time I was 21, I had three kids under the age of three. I had a three year old, a one year old, and a newborn.

When asked about an ideal situation for how things could have played out for her childbearing, she shared,

> I probably would have gone to college first. I mean, here I am an older person going to college now and being single and trying to work and go to college, and you know I still want to spend time with my kids even though they're grown and I still want to have leisure time and all that. So, it's really challenging.

Another mother with a narrative reflecting a strong maternal identity shared, "I had my daughter unexpectedly. I got pregnant with her at 19, had her at 20. Definitely was a pleasant surprise. I believe every child is meant to be, so I didn't have any qualms about having her" (28-year-old White, never-married female). When asked about her current situation with her child she shared, "I am going to school full time and I don't work. She sees she goes to school and mommy goes to school. College is not something that was expected of us in our family—That's something I really, really think is important."

A mother with multiple unintended pregnancies described her children as "filling voids" and motherhood as a paramount experience in her life, she stated, "It's the only thing that has given my life purpose, um, and there are days that it is the only thing that gets me out of bed" (40-year-old White, divorced female).

For women in this group, although their pregnancies were unintended, they described them as favorable, yet mistimed. These women described narratives of overcoming obstacles as mothers and making the best of, often times, tough situations. The majority of the women within this theme reported a love for children, experience with children, and a strong maternal instinct and/or desire to mother.

Subtheme: Unintended within a Contented Relationship. Around half of women who continued an unintended pregnancy did so within the context of a contented relationship or marriage. One such woman shared, "My son is 6; he was not planned, but

we had been married for a year, so it was fine" (28-year-old white, married female). When asked about ideal circumstances, she shared, "I would have finished school first. I definitely say that. And, it is not that I would trade him for the world. But, if I could have everything I have now and just have done it differently, I would have. I would have waited until I was finished with school and we were married longer, cause it was really hard."

Within the narratives, getting pregnant was sometimes seen as a catalyst for entering into marriage if the partner relationship was favorable. One woman described getting pregnant as a senior in high school, with her then boyfriend of around 18 months, she shared, "we decided to get married. I finished high school; he quit and got his GED so he could start working. And my parents were supportive, his parents were not, so that was challenging start to a new marriage off with that, but after the baby was born, all was well" (45-year-old White, divorced female).

An unintended pregnancy leading to marriage was echoed throughout several narratives within this group of women. For this particular woman, her pregnancy was a result of a misunderstanding about the use of contraceptives, which then led to marriage, she explained,

> I was on the pill, but I was taking antibiotics and I found out later that they can decrease the effectiveness of the birth control pill. And so after talking it out, we decided we would go ahead and get married. There was no way I was even going to consider abortion or adoption or anything (40-year-old White, divorced female).

Within this group, women who were already married and/or had children also experienced unintended pregnancy, as was the case for a mother of a toddler who experienced a gap in contraception, she disclosed,

> No, this recent one is very unplanned. I was on birth control and ran out and I didn't have the money to buy more, and oops like, I'm pregnant. So we were going to wait about two to three years, so it was close, but we weren't ready for another one (27-year-old White, married female).

Subtheme: Adoption. Of the 20 women who experienced unintended pregnancies, three women opted to continue their pregnancy and subsequently give the baby up for adoption. These women had similar contextual factors as the women who opted to terminate their pregnancies and noted feeling that they were unable to care for a child at the time, but did not consider abortion. These women also described unfit partners and/or fear of being able to provide for the child. In contrast to the women who opted for pregnancy termination, women who selected adoption disclosed strong emotional connections with their baby and/or described strong maternal identities. Each one spoke of wanting to keep the baby, but that selecting adoption was in the child's best interest, despite the pain it caused them as mothers to give their child up.

One mother who describes an isolated living situation and lack of resources to care for a child stated she selected adoption,

> Because I worked full-time at a job that required weird hours and only paid $6.50 an hour when I started, and I could barely afford myself, much less afford to raise a child. And I was single, and the father didn't want anything to do with it, and he

left, and I didn't have any family close to help. It was in the best interest of the child to do that-put the baby up for adoption (35-year-old White, married female).

Another mother shared her reasoning for adoption, stating,

> You know, I lived at home, I had never… I had just started college, I had never lived on my own. There were so many things that I knew if I had a kid those things later in life that I thought I'd always accomplish, wouldn't get done. I knew I couldn't provide for the child. I thought, I don't want my mom raising my kid. So just, I guess, being completely focused on what was best for all the parties involved helped make that decision (33-year-old White, married female)

When asked about when they made the decision to give the baby up for adoption, answers differed between mothers. One mother stated she new from the "very beginning" that this baby was not hers to keep and she set her mind to that fact early on. She shared,

> When I was pregnant and dealing with all the stuff, you know, going to doctor's appointments and the baby moving, and the heartbeat, and stuff, I constantly had that mindset that this baby wasn't mine, this was their baby, and I'm carrying this baby for them, so I think mentally I really prepared myself to known that that's the best decision for both of us (33-year-old White, married female).

In contrast, the other two mothers shared not knowing until around half-way into the pregnancy that adoption was the best choice for them, and even then, they both mentioned having conflicting feelings and changing their minds back and forth. One mother when asked if she knew from the beginning that she was going to choose adoption stated, "No, I made the decision probably about halfway through. You know, you struggle within yourself as to what to do because there are many options out there,

but for me and my religion, that (adoption) was the best choice" (35-year-old White, married female).

A similar narrative was reflected in the story of another mother who when asked how she came to the decision to give her baby up for adoption, shared,

> "Probably four months into the pregnancy I decided I didn't have the support that I needed. My family lives ten hours away from where I live and so I just for her safety and everything didn't want the possibility of him taking her out of the country and me never seeing my child again and me, I'd rather my child be safe in a good environment with both parents in a good strong relationship than constantly worrying about her safety (24-year-old White, dating female).

When asked if she was always certain about the plan for adoption, she stated "I did flip flop a lot, but I knew that for her safety this was the most important think for her, for her safety and all this."

Women shared feeling a sense of loss and sadness regarding the adoption process. One woman when asked about her feelings right after the adoption disclosed immense sadness, stating she felt, "lots and lots of pain and sadness. You know in your heart it's the right decision, but it's still hard. Or I should say, your brain… your brain knows it's the right decision, but your heart is telling you totally different" (35-year-old White, married female)

Another mother shared equal feelings of sadness and felt she needed to put safeguards in place to stop herself from changing her mind, as she felt strongly she would if it were easy to do so. As such, she selected an out of state adoption to ensure a secure barrier to stop her from trying to get her daughter back. She confessed, "I wanted as far

as possible away from me ever changing my mind. Like for me, I'm the kind of person who did want a family and it would be too easy for me to change my mind if she was closer" (24-year-old White, dating female).

All three mothers in the adoption sub-group shared never considering abortion as an option for handling their unintended pregnancy. One mother, when asked if she ever considered having an abortion elaborated on why, she stated it was,

> Never a thought. I guess that it goes back to being adopted, that if my mom had made that decision to abort me, that I wouldn't be here, so I don't know… I believe that women should have the right to choose, but I also think that you need to consider all the facts and there are lots of families out there that can't have babies. That was the first thing, here I have something that somebody else wants and how could I be so selfish as to not help them with that. So, no, abortion was never a factor (33-year-old White, married female).

Similarities of Women who Continued Their Pregnancies. There were several similarities within personal narratives regarding self-disclosed personality characteristics and situational content within the group of women who opted to continue their unintended pregnancies. As a group, these women described strong maternal identities, a desire for children at some point in time, experience with and/or a value for children, the ability to overcome obstacles as a mother, and a strong will to succeed in life and meet goals despite an unexpected pregnancy. Around half of the women in this group continued their unintended pregnancy in the context of a contented relationship or marriage, which was in contrast to the majority of women who opted for termination of their unintended pregnancy. Women who continued their pregnancies shared ideal

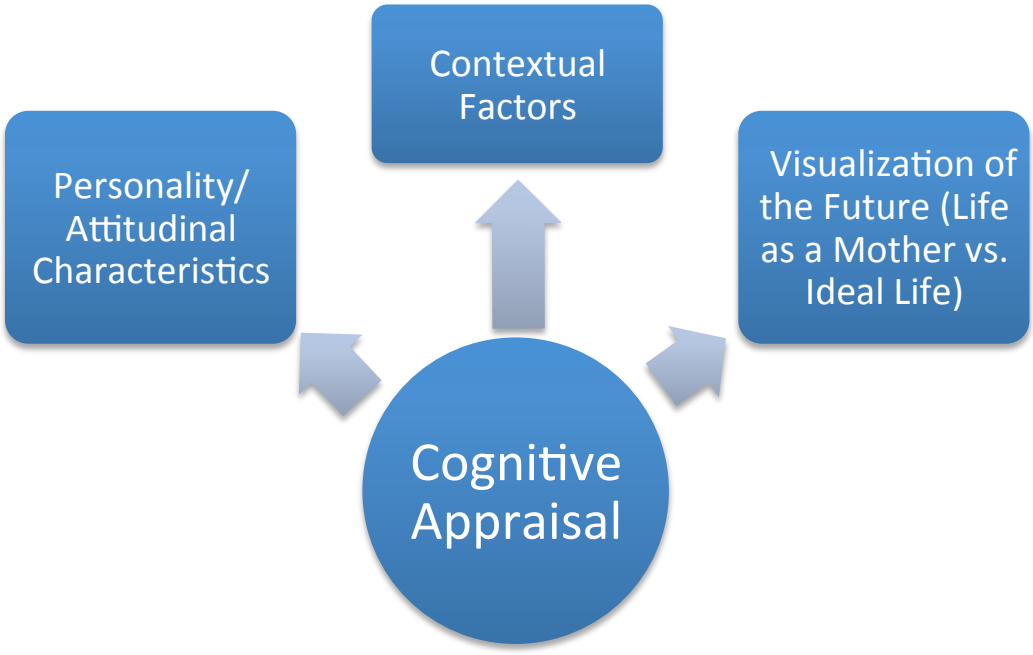
situations that would have been more suitable for becoming a mother, but described making their situation work to the best of their ability, despite being aware that something else may have worked better if the pregnancy had been planned at a later time. This was a similar desire of the women who ultimately opted for termination of their unintended pregnancies, however the difference appeared to be in the appraisal of how they would handle the situation and what support and resources would be available to them. Overall, the women who opted to continue their pregnancy expressed a desire for more ideal circumstances for bringing a child into the world, but they decided to make it work as a mother within the confines of their current situation or to give the baby up for adoption in hopes of a better life for the child than they could provide at the time. None of the mothers who continued their pregnancies expressed regret regarding their decision to continue their pregnancy, and each mother in this group noted favorable characteristics about motherhood.

Grounded Theory Generation

Theory of How Women Make Decisions in Regard to Whether to Terminate or Continue an Unintended Pregnancy. Upon exploring narratives for all emergent data to the point of saturation of possible categories within the data set in order to increase understanding about the phenomenon, the researcher sought to uncover a theory within the women's stories of unintended pregnancy and the decision making process between termination of a pregnancy and motherhood. The theory uncovered describes the path to women's decision making and is broad and generalizing so that it can be applied to multiple contexts and encompass all narratives. This inquiry found that when confronted with an unintended pregnancy women make decisions of how to proceed with

their life and whether to continue with an unintended pregnancy or seek pregnancy termination based on cognitive appraisal of one or more of the following: *situational context*; including access to resources, availability of support, financial situation, the partner they are pregnant by, housing, education, etc., *personality/attitudinal characteristics*; including tendency towards pessimism vs. optimism, life goals, values, beliefs, etc., as well as their *visualization of the future*; including ability to visualize a maternal identity and/or ability to navigate life with a child vs. one's imagined "ideal life." Please refer to Figure 4 for a Theoretical Model of How Women Make Decisions in Regard to Whether to Terminate or Continue an Unintended Pregnancy

Figure 4. Theoretical Model of How Women Make Decisions in Regard to Whether to Terminate or Continue an Unintended Pregnancy



Discussion

The aim of this inquiry was to explore the personal narratives of women with at least some college education, who had experienced at least one unintended pregnancy, and were faced with the tough decision of whether to continue or terminate an unintended pregnancy. Further investigation found that mothers who opted to continue their pregnancy were also faced with the decision of whether to keep or adopt out their child. Through use of personal narratives, women elaborated on situational dynamics and provided context as to why they chose as they did for themselves and their unborn child.

Although many women in the sample experienced an unintended pregnancy, the way they perceived and cognitively appraised the event differed based on contextual, situational, and personal characteristics. In this study, both groups of women reported wanting at some point to become mothers but noted their unintended pregnancies as "mistimed." This was the overarching theme of the paper and was reflected in every single narrative. Women who opted for pregnancy termination felt unable to continue their pregnancy without ideal circumstances to bring a child into such as a completed education, an established career, a suitable home, financial stability, and/or a committed and healthy partner. A subset of women noted additional barriers to bringing a child into the world that they felt would prevent them from having a stable or healthy situation in which to raise the child, including partners who were abusive, had substance abuse issues, engaged in criminal activity, or a pregnancy that had resulted from rape. Many of the women who opted for termination felt they made the decision in the best interest of the child, as well as themselves, by terminating a pregnancy that in their current context would have potentially caused hardship on the (terminated) child or on other child(ren)

already present within the family. Women in the termination group also described scenarios with less support and/or resources, both real and perceived, than women who opted to continue their unintended pregnancy.

Within the current study, some women who opted to terminate expressed feelings of guilt, trouble coping with the event, feelings of secrecy or of not being able to share about the experience, and then feeling either a sense of relief about the decision to terminate or wondering what life would be like if they had chosen differently. Similarly, in a narrative study by Gray (2015) women who opted for termination expressed feelings of guilt, mental side effects, feelings of secrecy, unsupportive friends/family, and feeling like a "bad person," and wondering what life would have been like if the pregnancy had not been terminated. Women in the Gray (2015) study reported they had trouble dealing with their decision, but did not report feelings of regret, only difficulty coping. This sentiment was found in two termination narratives in the present study and is an interesting aspect that is not always teased out in the literature, and may benefit future studies to examine these two differing constructs independently.

Throughout termination narratives, women often went to great lengths to describe their reasoning, which included personal and contextual factors, in an attempt to justify or take ownership of the decision process and resulting pregnancy termination, perhaps in order to feel some sense decisional autonomy, which is known to be associated with more favorable post-abortion outcomes for women (Kimport et al., 2011; Lie et al., 2008). Some reasoning included an absent or unfit father, financial concerns regarding the woman's ability to provide for a child, a troubled home life, needing to get through school, not consistent with career path, and a need to plan for a future/future children or

to focus on child(ren) already present, among other reasons. These findings were also consistent with previous narrative research regarding pregnancy termination in the college context (Gray, 2015). Therefore, it would appear to be a common belief for women who terminate their unintended pregnancy that becoming a mother and attaining desired education or career path are not complimentary goals that cannot be achieved together, or at least not without great difficulty.

The majority of women who opted to continue their unintended pregnancy described having a strong maternal identity, a desire for children at some point in time, the ability to overcome obstacles as a mother, and a strong will to succeed at goals in life despite an unintended pregnancy. In stark contrast to women in the termination group, around half of women who continued their pregnancy did so in the context of a contented relationship or marriage. Much like those in the termination group, these women shared wishing they had more ideal circumstances for childbearing, but described making the situation work to the best of their ability, while still acknowledging that a planned pregnancy at a later date would have been more ideal. While both groups acknowledged deficits in their situation when faced with an unintended pregnancy, though the difference appeared to be in the appraisal of how they would handle the situation and what support and resources would be available to them. Overwhelmingly, women who opted to continue their pregnancy more positively appraised their situation and felt they could obtain the resources and support necessary to make their situation work despite potential challenges and lack of ideal circumstances. Three mothers who continued their pregnancy felt their context was unsuitable for rearing a child and decided, in what they believed to

be the best interest on the child, to give him or her up for adoption, despite all three mothers expressing deep desires to keep their child.

While there was a mixture of feelings present within women who opted to terminate, all women who continued their pregnancy expressed no regret regarding their decision and noted favorable characteristics about motherhood. Women who continued their pregnancy described financial hardships and difficulty finishing school, yet also spoke of the joy their child brings to them. A similar sentiment was echoed in the narrative study by Gray (2015), in which women described comparable challenges, but expressed positive feelings about their child and the choice to continue an unintended pregnancy.

Unintended pregnancies are a common experience, with about half of all American women experiencing an unintended pregnancy before their childbearing years are over (Jones & Kavanaugh, 2011). Although unintended pregnancies and induced abortions are more common among women with lower educational attainment (Finer & Zolna, 2014), women with at least some college are a growing proportion of the population (NCES, 2015). The importance of finishing college, obtaining desired employment, residing in suitable housing, having financial stability, and having a suitable partner were highlighted as key contextual considerations, particularly among those who decided to terminate their pregnancies. Whereas, the cognitive appraisal of contextual factors, self-efficacy as a parent, and a high value of motherhood were key attitudinal considerations linked to women's decisions to continue a pregnancy. The findings from this study therefore suggest the importance of cognitive appraisal, ability to navigate resources, availability of support, individual values and beliefs, personality

characteristics, attitudinal characteristics, and situational context in women's decisions to terminate or continue with an unintended pregnancy.

Limitations

This study used a purposive sample of women recruited near a major university, so the findings while meaningful, cannot be extrapolated to the general population. Although the sample varied by racial/ethnic and socioeconomic status, it was not representative of the population. For example, there was a higher than expected number of women with some college education in the overall sample. In addition, the topic may have been of particular interest to women based on their reproductive experiences. Women may have self-selected themselves into a study examining fertility intentions if they had previously experienced an unintended pregnancy or had a strong reaction, positive or negative, to their experience. As for content of narratives, women were asked nearly the same set of questions from one of two interviewers and may have been prompted to think about certain events that otherwise may not have been discussed. Additionally, women were asked to reflect back on fertility decisions and may have differing perspectives based on how long ago they were going back or on where they are at in life right now (ex. prior abortion more distressing due to current infertility issues). This study is also limited in trustworthiness due to potential biases of the researcher and due to the lack of a secondary coder.

Implications for Research and Practice

Despite the limitations, the findings reveal important insights into women's decision-making processes and considerations following an unintended pregnancy. Through exploration of personal narratives of women who had encountered an

unintended pregnancy, we were able to garner insight into how the cognitive appraisal of contextual factors, personality/attitudinal considerations, and visions of the future may combine to impact decision making of whether to terminate or continue an unintended pregnancy, in addition to the decision of whether to keep or adopt out their child, for those who continued their pregnancy. Obtaining insight and perspective from this group of women, and other women like them who have made similar choices, is essential for understanding this phenomenon and for the development of appropriate and effective prevention and intervention efforts, as well as much needed supports for women facing motherhood without intention. This research is vital for positive outcomes for women and infants as unintended pregnancy has been associated with increased psychological stress, increased risk of substance abuse and/or tobacco exposure, increased levels of postpartum depression, lower educational attainment, financial hardship, future unintended pregnancies, and greater psychological distress in regard to tough decisions made regarding termination or adoption (Abbasi, Chuang, Dagher, Zhu, & Kjerulff, 2013; Cheng, Schwarz, Douglas, & Horon, 2009; Holub et al., 2007; Horon, 2009; Karacam, Onel, & Gereck, 2011; Shah et al. 2011).

The difficulties noted in the lived experiences of women's narratives within the current study should be explored more in future research and may be useful to address in counseling women about pregnancy options and follow-up health care after they have made a decision to continue or terminate a pregnancy. These narratives are not only useful in offering knowledge and insight into cognitive appraisal of contextual factors, personality/attitudinal characteristic, and visualization of an ideal future vs. life as a

mother, but they also highlight processes that may reduce stress and attain more positive mental health outcomes during the process and thereafter.

Within the current study and previous narrative research (e.g., Gray, 2015), women reported trouble dealing with their decision to terminate, but did not report feelings of regret, only difficulty coping. Future research may benefit from examination of these two differing constructs independently, and flushing out differences so that they can be addressed appropriately within counseling.

Results of the present study therefore also have implications for education, counseling, and advocacy. With high numbers of unintended pregnancies within the population (Finer & Zolna, 2016), pregnancy prevention education and outreach is imperative for young women so that unintended pregnancies do not occur and women can have control over their reproductive processes and have calculated childbearing planning. There is also a need for supportive decision-making counseling that works alongside women to explore contextual circumstances and life goals to examine ways to potentially continue a pregnancy and stay on track with one's future if this is a desired outcome. This is especially important as this study along with previous narrative research (Gray, 2015) uncovered a common belief for women who terminate their unintended pregnancy that motherhood (at least at that particular time in their lives) and obtaining educational and career goals cannot be complimentary goals.

In addition to supportive decision-making, non-judgmental counseling and supportive resources are also necessary at each step throughout the decision process, particularly after the decision has been made. In the current study, some women who opted to terminate expressed feelings of guilt, had difficulty coping, or felt unable to

share about the experience, or felt the need to keep their decision to terminate a secret; a finding also present in previous narrative research regarding pregnancy decisions (Gray, 2015). Prior research indicates the importance of decisional autonomy for positive psychosocial effects, whereby the best outcomes come about when women feel they have control over their decision and feel well informed and supported throughout the process (Kimport et al., 2011; Lie et al., 2008). Therefore, women may benefit from counselors who can assist with cognitive reappraisal of decision making to address feelings regarding the termination and create a sense of decisional control and autonomy. This research also makes a case for educating practitioners, counselors, community leaders, and other individuals who work directly with women or with policy that affects women experiencing unintended pregnancies, so that clinical efforts, counseling, and advocacy may demonstrate continuity of care and an atmosphere that promotes positive mental and physical health for women faced with unintended motherhood.

Conclusions

Regardless of women's decisions following unintended pregnancies, findings from this research highlight the paramount importance of cognitive appraisal of contextual factors, particularly perceived level of social support, personality/attitudinal characteristics, and visualization about the future (ideal life vs. life as a mother) when having to make decisions about whether to become a mother. When unintended pregnancy occurs, tough decisions may follow, the availability of support, whether from professionals, family, or friends that aids women in their decision making process and with the path forward once a decision to continue or terminate a pregnancy has been

made, appears to be an essential component for the health and well-being of unintended mothers, whether they opt to bring a child into the world or not.

CHAPTER IV

EXPLORING ASSOCIATIONS BETWEEN PREGNANCY INTENTIONS, PRENATAL ATTACHMENT, AND POSTNATAL MOTHER-INFANT BONDING

Introduction

With around half of all pregnancies in the United States reported as unintended (Finer & Henshaw, 2006; Finer & Zola, 2011) and linked to a plethora of known negative consequences including poorer child and maternal health, and social and economic difficulties (Abbasi, Chuang, Dagher, Zhu, & Kjerulff, 2013; Brown & Eisenberg, 1995; Cheng, Schwarz, Douglas, & Horon, 2009; Karacam, Onel, & Gereck, 2011; Shah et al. 2011), it is important to seek and explore related constructs that may help buffer negative effects of unintended motherhood. One such construct worthy of exploration is that of prenatal attachment. Prenatal attachment describes the affectionate relationship a mother develops with her unborn baby during the course of her pregnancy (Brandon, Pitts, Denton, Stringer, & Evans, 2009; Cranley, 1981; Müller & Mercer, 1993). This relationship may be disrupted or weakened in the case of unintended motherhood (Damato, 2004), particularly if negative feelings about the approaching birth and motherhood are present (Hart & McMahon, 2006; Rubertsson, Pallant, Sydsjö, Haines, & Hildingsson 2014).

This is worthy of further inquiry as research indicates that prenatal attachment influences the postnatal mother-child relationship and the quality of maternal care provided (Siddiqui & Hagglof, 2000). A strong maternal-fetal bond has been cited as a direct indicator for maternal sensitivity and postnatal mother-infant bonding (Maas, Vreeswijk, & van Bakel, 2013).

The current study examined the linkages between pregnancy intentions, prenatal attachment, and postnatal mother-infant bonding. Similar studies have been limited in their measurement of intentions, only assessing whether a pregnancy was planned or unplanned, which fails to incorporate the multidimensional nature of pregnancy intentions (Santelli et al., 2009). This study utilized a multidimensional three-question assessment to determine the wantedness, timing, and feelings regarding a current pregnancy. Additionally, few previous studies have included longitudinal data needed to determine causality. However, this study looks at the relationship between prenatal attachment and postnatal mother-infant bonding based on longitudinal data from maternal reports both pre and post-birth. The aim of this inquiry is to determine relationships between unintended motherhood, prenatal attachment, and postnatal mother-infant bonding in an effort to identify modifiable targets for prevention and intervention efforts that promote prenatal attachment, particularly in women for whom motherhood was unintended.

Literature Review

Prenatal Attachment

Deeply rooted in Bowlby's attachment theory (Bowlby, 1969, 1980, 1988), prenatal attachment describes the affectionate relationship a mother develops with her

unborn baby in utero (Brandon, Pitts, Denton, Stringer, & Evans, 2009; Cranley, 1981; Müller & Mercer, 1993). Bretherton (1995) noted that mother-fetal attachment is distinguished from mother-child attachment in that it is based on the mother's experience alone. Prenatal attachment includes a mother's perceptions, emotions, and behaviors relative to her fetus and the intimate relationship formed based on the internalized representation of the fetus that takes place during pregnancy (Brandon et al., 2009; Righetti, Dell'Avanzo, Grigio, & Nicolini, 2005). Rubin (1975) proposed the construct of prenatal attachment to include communication with the baby, fantasy about the baby, mental images of the baby, and planning for a future with the baby. Cranley (1981) defined this relationship as maternal-fetal bonding and described it as the extent to which behaviors elicited by a mother represent affiliation and interaction with the fetus as measured by the Maternal-Fetal Attachment Scale (MFAS). Cranley (1981) posited a mother begins this affectionate relationship with her baby through maternal awareness, including intellectual, physical, and kinaestatic knowledge of the developing fetus, which appears to be an essential component in the formation of prenatal attachment (Stainton, 1990; Siddigui, Hagglof, B., & Eisemann, 1999). Shieh, Kravitz, & Wang (2000) acknowledged three attributes of maternal-fetal bonding they felt to be critical, which include cognitive attachment or the desire to become familiar with the fetus, affective attachment or happiness derived from interactions with the fetus, and altruistic attachment or the desire to protect the fetus from harm.

Salisbury, Law, LaGasse, & Lester (2003) described prenatal attachment as including behavioral acts during pregnancy, which serve to demonstrate care and commitment to the fetus, including aspects of nurturance, comforting, and physical

preparation. These behavioral acts represent maternal-fetal interaction, which may also include communication with the fetus and familiarity and awareness of characteristics of the fetus (Reading, Cox, Sledmere, & Campbell, 1984; Stainton, 1990). This mother-fetal interaction has been cited as the earliest form of parenting (Habib & Lancaster, 2010). Lester (1977) noted that women begin an affectionate relationship with their baby during the first trimester of pregnancy, but that feelings are abstract and fantasy-like until the pregnancy progresses to a point where the fetus becomes more concrete through movement and maternally assigned personality characteristics. At this point, mothers are likely to actively engage with their fetuses through both verbal and tactile interaction, which would include talking to the fetus, calling the fetus by name, pushing the fetus to move, and watching the fetus move through belly movements.

During pregnancy, mothers may begin to ascribe personality characteristics to their babies based on particular fetal rhythms, including wake and sleep cycles, and responses to stimuli, which may in part be based on maternal fantasies about the baby (Raphel-Leff, 2001; Stainton, 1990). This antenatal conceptualization has been noted as a priming agent for parental orientation towards the baby (Raphel-Leff, 2001). This mental representation of the baby in-utero has been shown to strengthen the prenatal attachment relationship (Gloger-Tippelt, 2005).

In contrast, other researchers contend that prenatal attachment may begin before gestation, since the cognitive and emotional abilities to conceptualize a child are possible before women become pregnant (Doan & Zimerman, 2002). Miller and Rodgers (2001) posit that the maternal bonding process may begin as early as puberty with the development of the 'nurturant bonding system' that occurs simultaneously with sexual

development and continues on throughout adulthood. This nurturant bonding system, which serves to promote infant care behaviors, may help predict appropriate maternal caregiving behaviors and maternal motivation through experience in caregiving (Fleming, 2006). So whereas the maternal bond cannot technically begin before pregnancy, prior caregiving experience has been shown to play a role in its onset (Hrdy, 2006).

Prenatal attachment has been noted to positively influence a mother's prenatal health practices and neonatal outcomes when healthy maternal-fetal bonding is present (Alhusen et al., 2012). More specifically, during the 3rd trimester of pregnancy, women who report greater maternal-fetal attachment are more likely to demonstrate health practices that positively impact the woman's health, the health of the fetus, and the pregnancy outcome (Cannella, 2005; Lindgren, 2001). Prenatal attachment is linked to postpartum maternal sensitivity (Shin, Park, & Kim, 2006), postpartum maternal involvement (Siddiqui & Hagglof, 2000), and mother-infant attachment scores within the first postpartum year (Shin, Park, & Kim, 2006). Greater levels of prenatal attachment are also associated with secure mother-infant attachment styles and earlier achievement of developmental milestones for infants (Alhusen et al., 2012), with positive effects spanning into adulthood (Waters et al., 2003).

Prenatal attachment is also an important component of maternal identity creation and maternal role attainment, along with the creation of an identity for one's unborn child (Mercer, 1986; Pisoni et al., 2014; Soule, 1982). Research has shown that prenatal attachment results from dynamic physiological and psychological events, which commence as a woman assumes her maternal role and her identity as a mother (Cranley, 1993). The mother's and baby's identities begin simultaneously through bonding in utero

and envisioning and treating the baby as a person before the birth (Marshall, Godfrey, & Renfrew, 2007). Ultrasound and fetal movement provide a visual and sensory representation of a baby that is yet to be experienced in a true physical sense (Smith, 1991), and give evidence of a healthy developing pregnancy (Sandbrook & Adamson-Macedo, 2004; Yarcheski et al., 20090. Ultrasound images have been found to strengthen the affective bond a mother feels towards her developing fetus (Molander, Alehagen, & Bertero, 2010).

Consumption and nesting have also been linked to this identity formation during pregnancy, giving the mother her first maternal job of preparing a space for her child and a tangible representation of her baby and her impending role as a mother (Afflerback, Anthony, Carter, & Grauerholz, 2014). Transitions to the mother identity have been shown to begin as early as the first trimester through changes in perceived sense of control regarding evolving constructs such as health, self-image, and a need to protect the fetus against threats to well-being. This early change in identity, self-image, and a shift to prioritizing one's baby's needs over one's own demonstrates that pregnancy is a preparatory time, not only for the growth of a fetus in utero, but also for the formation of a mother identity for the woman and a constructed identity for the future child (Marshall, Godfrey, & Renfrew, 2007). Prenatal attachment is thought to increase as the pregnancy progresses, particularly around 20 weeks gestation when quickening occurs and baby's movements can be felt (Laxton-Kane & Slade, 2002; Vedova, Dabrassi, & Imbasciati, 2008).

Correlations between prenatal attachment and postnatal attachment (Dubber, Reck, Müller, & Gawlik, 2015; Figueiredo & Costa, 2009; Müller, 1996; van Bussel,

Spitz, Demyttenaere, 2010) indicate a predictive function between the strength of the mother-fetus relationship and later mother-infant bonding (Carneiro, Corboz-Warnery, & Fivaz-Depeursinge, 2006; Siddiqui & Hagglof, 2000). Müller (1996) found that 17% of postnatal bonding could be explained by prenatal bonding. Since the strength of the prenatal maternal-fetus relationship has been found to influence the postnatal mother-child relationship and the quality of maternal care provided (Siddiqui & Hagglof, 2000), it is important to note processes that may impair or disrupt prenatal attachment. Women at risk for suboptimal prenatal attachment include mothers with antenatal depression and/or anxiety (Alhusen, 2008; Alhusen, Gross, Hayat, Rose, & Sharps, 2012; Rubertsson et al., 2015), women reporting substance abuse during pregnancy (Alhusen, 2008), adolescent pregnant women (Rowe, Wynter, Steele, Fisher, & Quinlivan, 2013), women reporting a previous abortion (Rowe et al., 2013), those with perceived lack of support (Rubertsso et al., 2014), women experiencing pregnancy related fear (Dubber, Reck, Muller, Gawlik, 2015), those with negative feelings about the approaching birth and motherhood (Hart & McMahon, 2006; Rubertsson et al., 2015), women experiencing depression and/or anxiety (Alhusen, 2008; Alhusen, Gross, Hayat, Rose, & Sharps, 2012; Figueiredo & Costa, 2009; Rubertsson et al., 2015), women who are older (Muller, 1993; Siddiqui, Hagglof, & Eisemann, 1999), women with greater educational attainment (Dubber, Reck, Muller, Gawlik, 2015; Rubertsson et al., 2014), multiparous women (Cranley, 1981; Rubertsson et al., 2014; Siddiqui, Hagglof, & Eisemann, 1999), those who became pregnant via in-vitro fertilization, and those with a history of intrauterine pregnancy loss (Armstrong & Hulti 1998; McMahon, Ungerer, Beaurepaire, Tennant, & Sanders, 1997; Stanton & Golombok, 1993). Interestingly, the length of the partner

relationship has been shown to be negatively correlated with prenatal attachment, with women in longer partner relationships reporting lower prenatal attachment (Vedova, Dabrassi, & Imbasciati, 2008; Müller, 1993). However, this could also be related to older maternal age, infertility, or other factors that occur with advanced age which are not directly reflective of the partner relationship.

While risks to prenatal attachment are quite prevalent, there are processes that have been shown to be protective. Research has shown a planned pregnancy to be a protective factor for prenatal attachment (Damato, 2004). A positive attitude regarding the pregnancy is also protective for prenatal maternal-fetal attachment, particularly if both partners view the pregnancy favorably (Siddiqui, Hagglof, & Eisemann, 1999). Younger maternal age and being a first time mother are both independently correlated with increased prenatal attachment (Malm, Hildingsson, Rubertsson, Radestad, & Lindgren, 2016), as is increased gestational age of the fetus (Yarcheski et al., 2009). Prenatal attachment appears to be progressive in nature, whereby mothers become more attached to their unborn baby as the pregnancy progresses (Sandbrook & Adamson-Macedo, 2004). Some research has noted improvements in prenatal attachment in midwifery clinics where antenatal care interventions draw attention to the baby, with items such as abdominal palpitation and listening to the heartbeat (Nishikawa & Sakakibara, 2013; Rubertsson & Pallant, 2015). Ultrasound scans have also been linked to enhanced prenatal attachment, as they provide evidence of a healthy fetus and a visual image of a child that is yet unseen (Sandbrook & Adamson-Macedo, 2004; Yarcheski et al., 2009).

In an attempt to increase mindfetalness, the focus and awareness of the well-being of one's baby, women should be encouraged to focus on fetal movements and on baby's unique patterns and characteristics as these practices may increase prenatal maternal-fetal attachment (Radestad, 2012). The process of quickening has shown to increase prenatal attachment (Bloom, 1997), with women who sense movement earlier in the pregnancy having reported higher levels of attachment (Heidrich & Cranley, 1989). Caplan (1980) posited this was due to fetal movement allowing mothers to conceptualize the fetus as a separate being. Perception of fetal activity and/or counting fetal movements has also been repeatedly associated with increased levels of prenatal attachment (Bloom, 1997; Heidrich & Cranley, 1989; Malm et al., 2016; Mikhail et al, 1991). Counting fetal movements has often been utilized as a way to assess fetal well-being. This maternal awareness of the health of the fetus has been shown to positively influence prenatal attachment (Lindgren, 2001; Siddiqui & Hagglof, 2000). Research by Mikhail et al. (1991) found the practice of fetal movement counting hastened the process of developing an attachment with the fetus and increased overall levels of prenatal attachment. Similarly, Malm et al. (2016) found evidence of increased prenatal attachment in women who perceived frequent fetal movements on three or more occasions within a 24-hour period in comparison to women who perceived less fetal movement; with multiparas women and those over age 35 reporting the least amount of prenatal attachment as measured by the PAI-R.

Prior research has stressed the importance of including others in the emotional aspects of prenatal attachment, as well as sharing experiences and/or thoughts and feelings regarding the pregnancy and baby with others (Siddiqui et al., 1997); particularly

when questioned about lower levels of attachment by practitioners (Pallant et al., 2014). Support, both real and perceived has been noted as a protective factor for prenatal attachment (Condon & Corkindale, 1997; Yarcheski et al., 2009). Condon & Corkindale (1997) posited that the actual level of support received during pregnancy may increase or decrease, however, if a woman feels she needs more support due to her pregnancy, her perceived support level may decrease as her need for more support increases. Therefore perception of support is just as important as actual support in how a woman views her pregnancy, which may in-turn impact levels of prenatal attachment.

Postnatal Mother-Infant Bonding

The mother-infant relationship is dependent upon a complex interplay between maternal caregiving behaviors, maternal emotional regulation, and maternal cognitive appraisal in concert with signaling and care-eliciting behaviors on the part of the infant (Galbally, Lewis, van IJzendoorn, & Permezel, 2010). Klaus and Kennel (1976) first introduced the term 'maternal bonding' and defined the construct as an emotional investment in one's infant that is biologically based. Maternal bonding is directed towards a specific infant (Keverne, 2006), and encompasses a set of expected and appropriate maternal behaviors (Levine, Zagoory-Sharon, Feldman, & Weller, 2007).

Attachment has been posited as an innate biological function built into humans through the process of natural selection (Bowlby, 1982), therefore, biologically speaking, maternal bonding has the function of securing the nurturing and protection, and thus the survival of the child (Bowlby, 1982; Carter & Keverne, 2002). Levine (2007) and Leckman et al. (2004) propose this biologically based bond has a set of specific bonding behaviors, which are said to develop from neurobehavioral circuitry (Leckman et al.

2004; Swain, Loberbaum, Kose, & Strathearn, 2007), that intensify during a sensitive bonding period.

While maternal bonding and infant attachment are two separate and distinct constructs, they operate complementary to one another (Maestripieri, 2001), as the maternal bonding ensures closeness to the infant and thus the ability and willingness to meet an infant's security needs that help to form a secure relationship. Taking all of this into account, Jansen, de Weerth, and Riksen-Walraven (2008) proposed a combined definition that states the maternal bond to be "the tie from mother to infant that promotes maternal behaviors aimed at mother-infant proximity and caregiving (pp. 504).

The early mother-infant relationship is critical to a child's future (Ainsworth, 1979), as it has been shown to impact later social, cognitive, and behavioral development along with the physical health of the child (Mantymaa, 2006). Brockington (2004) asserts that the mother-infant relationship is the most essential and significant process in the postpartum period. Mother-infant attachment refers to the strong affectionate bonds between a mother and her child wherein an infant actively seeks his/her mother for feelings of safety and comfort in times of stress (Bowlby, 1982).

Mother-infant attachment can be divided into four types: secure, avoidant, resistant, and disorganized; with secure type being the healthiest form of attachment (Ainsworth, 1979). An infant's attachment behavioral system utilizes behaviors such as crying, smiling, vocalizing, approaching, and following to gain attention of the caregiver (usually the mother), increase proximity, and have their needs met (Bowlby 1982). Research has demonstrated that securely attached children have caregivers who respond to their attachment behaviors both consistently and sensitively (DeWolff & Van

IJzendoorn, 1997; Nievar & Becker, 2008), wherein the opposite is true of insecure attachment relationships, whereby infant may experience unresponsiveness, rejection, intrusiveness, or other disorganized behaviors that lead to distress (Weinfeld, Sroufe, Egeland, & Carlson, 1999). Securely attached infants use their primary caregiver as a secure base for which to explore the world and to gather near to and seek comfort in during times of distress (Ahnert, Gunnar, Lamb, & Barthel, 2004; Bowlby 1973).

A reciprocal affective interaction between mother and infant helps establish a foundation of appropriate social scripts and facilitates interest in future social interactions and attachments (Ainsworth, 1979; Bowlby, 1969). Attachment theory contends that sensitive interactions between a mother and her infant provide a basis for secure attachment and development of a positive internal working model (Bowlby, 1969; Bretherton, 1985). Bowlby (1982) proposed that this internal working model determines not only attachment relationships, but expectations of others as well as development of one's self-perception. Once formed, this model is thought to remain stable and persist throughout the lifespan (Bar-Haim, Sutton, Fox, & Marvin, 2000; Bowlby, 1982; Vaughn & Waters, 1990; Ding, Xu, Wang, Li, & Wang, 2014).

Maternal sensitivity, defined as the ability to correctly interpret infant's signals and communications and to respond appropriately, has been cited as an essential component of mother-infant bonding (Ainsworth, Bell, & Stayton, 1974) and has been shown to predict secure attachment within the first year of life (DeWolff & van IJzendoorn, 1997). Maternal sensitivity has also demonstrated long-term associations with infant and child attachment security, emotional regulation, and cognitive development (Belsky & Fearon, 2002; Fraley, Roisman, & Haltigan, 2013), with

sensitive maternal behaviors linked to more positive cognitive, behavioral, and psychological functioning along with better developmental outcomes (Bigelow et al., 2010; Thompson, 2008). Maternal sensitivity can be predicted by numerous factors. A woman who has received high levels of maternal sensitivity and emotional warmth from her own mother is more likely to respond in kind to her own child (Siddiqui, Eisemann, & Hagglof, 2000; Wakschlag & Hans, 2000), demonstrating a generational component. Mothers with higher educational attainment have been noted to display greater levels of maternal sensitivity (Maas, Vreeswijk, & van Bakel, 2013; Van Bakel & Riksen-Walraven, 2002), as have mothers who report lower levels of family stress (Belsky & Fearon, 2002; Mesman, van IJzendoorn, & Bakermans-Kranenburg, 2012). A strong maternal-fetal relationship has also been shown to positively predict maternal sensitivity; moreso even than the current mother-infant relationship (Maas, Vreeswijk, & van Bakel, 2013); further substantiating claims that maternal sensitivity originates during pregnancy (Ballou, 1978; Leifer, 1977). Leifer (1977) postulated women who expressed more affection towards their unborn baby showed more confidence in their maternal role in addition to better postpartum adjustment.

Another component of maternal sensitivity, beyond maternal responsiveness, is that of maternal stimulation, whereby a mother attenuates to and provides stimulation appropriate to her child's developmental capabilities in addition to providing responsive and sensitive care. Proximal contact has also been found to be an important component for attachment during the initial stages of attachment (Schaffer & Emerson, 1964) as it provides a sense of familiarity, affection, and increased interaction between mother and infant (Lowinger, Dimitrovsky, Strauss, & Mogilner, 1995). Research has demonstrated a

link between greater prenatal attachment and postnatal maternal proximal stimulation, citing increased maternal proximal stimulation in mothers who reported more interaction with and affection for their unborn babies (Siddiqui & Hagglof, 2000), whereas distal stimulation was noted in mothers who reported a differentiation of self from fetus during pregnancy.

While the majority of women adjust well after the birth of a child, around 8-15% of women struggle with mother-infant attachment and form only minimal bonds, if any, with their infant (Condon, 1993; Doan, 2003). Potential factors that may significantly impact mother-infant postnatal bonding include pregnancy intention, traumatic delivery, death of a twin, or prior stillbirth (Kumar, 1997). Contrary to studies regarding prenatal attachment (Siddiqui, Eisemann, & Hagglof, 1999), maternal age and parity did not predict maternal postnatal behavior (Siddiqui & Hagglof, 2000). Women with a history of childhood abuse and neglect (Colman & Widom, 2004; Rodgers et al., 2004) and those who experienced childhood sexual abuse are more likely to report attachment disturbances (Lyons-Ruth & Block, 1996; Muzik et al., 2013; Ruscio, 2001). Postnatal attachment has also been shown to be impacted by parent's socio-economic background, relationship as a couple, maternal psychological well-being, infant's temperament and health status, preterm birth (Huth-Bocks, Levendosky, Bogat, & von Eye, 2004; Slade et al., 1999), and maternal psychological well-being (Carter, Garrity-Rokous, Cahzan-Cohen, Little, & Briggs-Gowan, 2001; Stanley, Murray, & Stein, 2004).

Current Study. Lasting effects on the physical health of a child in addition to issues with social, cognitive, and behavioral development have been shown to manifest as a result of maternal deficits in postnatal mother-infant bonding (Condon, 1993; Doan,

2003; Mantymaa, 2006). As such, it is important to identify potential factors that may significantly increase mother-infant postnatal bonding or buffer effects of processes research has shown to cause weakened mother-infant bonding, such as unintended motherhood (Damato, 2004). Prenatal attachment has been shown to provide such buffering effects by increasing the quality of maternal care provided (Siddiqui & Hagglof, 2000), maternal sensitivity (Shin, Park, & Kim, 2006; Maas, Vreeswijk, & van Bakel, 2013), as well as the overall level of postnatal mother-infant bonding (Dubber, Reck, Müller, & Gawlik, 2015; Figueiredo & Costa, 2009; Müller, 1996; van Bussel, Spitz, Demyttenaere, 2010).

The goal of this study is to examine how varying dimensions of pregnancy intendedness are associated with prenatal attachment and how prenatal attachment is associated with postnatal mother-infant bonding. This research will go a step beyond prior research in the examination of multiple dimensions of pregnancy intentions to determine, what differences, if any exist for the correlational or predictive function of variables measuring wantedness, timing, and feelings regarding a current pregnancy

Hypothesis 1: Pregnancy intention variables are expected to be significantly associated with prenatal attachment. Higher levels of pregnancy wantedness are expected to be associated with higher levels of prenatal attachment. Higher levels of happiness about the pregnancy are expected to be associated with higher levels of prenatal attachment. Mistimed pregnancy is expected to be associated with lower levels of prenatal attachment.

Hypothesis 2: Prenatal attachment will be significantly associated with postnatal mother-infant bonding. Higher levels of prenatal attachment will be associated with higher levels of postnatal mother-infant bonding.

Data and Methods

Sample

The data set for the current study is comprised of 160 first time mothers ages 18-35 years old across Oklahoma. At the time of the first survey, women were in their third trimester of pregnancy and childless. Of the 160 women who participated in the 3rd trimester survey, 131 participated in a post-birth survey, which was taken 2-6 weeks after delivery. The sample for this chapter includes the 131 women who participated in both waves of the study.

Recruitment

Participants were recruited through flyers displayed or dispersed at various birthing classes, ultrasound centers, prenatal clinics, mom-to-mom sales, and via Facebook groups aimed at expectant mothers. Women who received a flyer either contacted the research assistant to take the survey over the phone or used the link provided on the recruitment/consent flyer. Women who were notified of the survey online contacted the research team for the informed consent information and web link for the online survey. Five women opted to take the survey over the phone instead of online. Before beginning the survey, participants had to read the informed consent information and click on a link denoting their agreement with study participation. Women who participated in the 3rd trimester survey were also invited to participate in a post-birth survey. For the post-birth survey, women who failed to supply an email address were

contacted after their due date by phone to obtain an email address to send the link to the survey. Women who supplied an email address were emailed a link to the post-birth survey. Women were contacted again by email three days after the link was emailed if the survey was yet to be completed. Women were contacted again at one week with another email and at two weeks with a follow-up phone call if they had yet to complete the survey; with a final attempted phone contact made at one month.

Measures

The 3rd trimester survey assessed factors that shaped women's childbearing experiences and attitudes before their transition to motherhood. The survey included various measures addressing women's fertility intentions, prenatal attachment, reproductive histories, and sociodemographic information, as well as various factors that could increase risk for adverse birth outcomes, such as prenatal care, adverse childhood experiences, partner relationship quality, stable employment, etc. The post-birth survey inquired about the labor and delivery, logistics of life since the birth, mother-infant attachment, future fertility intentions, home and work life, and about depressive symptoms during the postnatal period.

Pregnancy Intention. This study measured pregnancy intention with three questions regarding different aspects of intention; whether a baby was wanted at any point, whether the pregnancy was considered mistimed, and regarding happiness level about the pregnancy. To assess potential want of a child, women were asked, "Right before you became pregnant, did you want to have a baby at any time in the future?" This variable was coded as *wanting a baby* (=1) or *not wanting a baby/don't know* (=0). In order to assess whether a pregnancy was mistimed, women were asked, "would you say

that you became pregnant too soon, about the right time, later than you wanted to, didn't care about the timing, or don't know/not sure?" This variable was coded as *mistimed* (=1) and all other answers were coded as *not mistimed* (=0). In regard to happiness level about the pregnancy, women were asked to rate their feelings on a scale of 1 to 10 regarding their happiness level after finding out they were pregnant; with 1 denoting "very unhappy" and 10 denoting "very happy." This variable was coded at various levels of happiness ranging from one through ten.

Prenatal Attachment. The Prenatal Attachment Inventory (PAI) (Müller & Mercer, 1993; Siddiqui, Hagglof, & Eisemann, 1999) was utilized to measure maternal prenatal attachment levels. The PAI is based on principles of attachment theory and is a self-report scale consisting of 21 Likert-type items ranging from 1 (*almost never*) to 4 (*almost always*). The scale was designed to measure how often a mother has affectionate thoughts or behaviors directed toward her unborn child from the woman's perspective. . Total scores may range from 21 to 84, with higher scores representing higher levels of prenatal attachment. Individual item scores within the current sample yielded results from 1.86-4.0 with a range of 2.14 (M=3.27; SD=.471). This scale has demonstrated high construct validity and reliability, with a sum score Cronbach's Alpha reported at 0.87 (Gau & Lee, 2003; Lindgren, 2001). Reliability analysis within the current inquiry denoted a Cronbach's Alpha of .91.The construct validity of this measure has been assessed using confirmatory factor analysis, which indicated the PAI is a valid instrument to asses levels of maternal-fetal attachment in expectant mothers' (Gau & Lee, 2003).

Postnatal Mother-Infant Bonding. The Mother-to-Infant Bonding Scale (MIBS) (Bienfait et al., 2011: Taylor, Atkins, Kumar, Adams, & Glover, 2005) was utilized to

measure postnatal attachment levels and is the only variable in the current study drawn from wave two of the study. The MIBS is self-rated questionnaire consisting of 8 feeling descriptors (loving, resentful, neutral/felt nothing, joyful, dislike, protective, disappointed, and aggressive) assessed on a 4 point Likert scale ranging from *very much* (0) to *not at all* (3). When the feeling descriptor represents a negative emotional response, the scoring is reversed. Total possible scores on the MIBS range from 0-24, with high scores indicating a potential risk for disrupted mother-infant bonding (Bienfait, et al., 2011). The current study consisted of individual item scores from 3.25-4.0 with a range of .75 (M=3.90; SD=.175). With a known reliability analysis Cronbach's Apha of .71 (Taylor et al., 2005), the MIBS has been found to satisfactorily detect problematic mother-infant bonding (Bienfait at al., 2011; van Bussel, Spitz, & Demyttenaere, 2010; Wittkowski, Wieck, & Mann, 2007) and the potential rejection of the infant by the mother (van Bussel, Spitz, & Demyttenaere, 2010; Wittkowski, Wieck, & Mann, 2007). Reliability analysis within the present study indicated a Cronbach's Alpha of .56; which appears low but is consistent with other research that found internal consistency ratings of .55 and .49 (Wittowski, Wiek, & Mann, 2007).

Sociodemographic Control Variables. Several control variables were also examined in relation to pregnancy intentions variables, prenatal attachment, and postnatal mother-infant bonding that have known associations to the variables of interest. Race/ethnicity was assessed using the two standard Census questions (U.S. Census Bureau, 2011). Due to small cell counts in minority groups, dummy variables were constructed for *White* (=1) as compared to *all others* (=0). Economic hardship was measured based on a serious of seven questions regarding potential economic hardships

experienced within the last year. These questions included 1.) could not pay electricity, gas, or phone bill on time, 2.) could not pay the mortgage or rent on time, 3.) pawned or sold something, 4.) went without meals, 5.) was unable to heat home, 6.) Asked for financial help from friends or family, and 7.) asked for help from welfare/community organizations. Answers to these questions were coded as *yes* (=1) and *no* (=0). Those reporting higher scores had greater economic hardship. Education was measured by a question assessing highest high school grade completed or highest college level achieved. To provide a higher education cut-off, a dummy variable of *some college*, which included any college attendance through doctoral degree completion (=1) vs. *no college* (=0), was created. Married and cohabiting were both individually measured using dummy variables coded as *married* (=1) vs. *all others* (=0) and *cohabiting* (1) vs. *all others* (=0).

Data Analysis

Descriptive statistics were used within this study to summarize the data set and are broken down into measures of mean, standard deviation, range, and alpha level when appropriate. Correlations were used within this inquiry to identify significant associations with relevant constructs and demographic variables. These included pregnancy intention variables, prenatal attachment, and demographic variables including, race/ethnicity, economic hardship, education, and union status, including married vs. non-married and cohabiting vs. non-cohabiting.

Multivariate data analyses were utilized to determine relationships between study variables in two different sets of analysis. The first set of analyses, comprised of five models, examined the nature of the relationships between pregnancy intentions and prenatal attachment. In models one through three, pregnancy intention variables,

including (1) *wanting a baby* (2) *mistimed pregnancy*, and (3) *happiness level about expecting a baby* were examined individually to determine relationships with prenatal attachment. In model 4, all pregnancy intention variables were examined together to determine if one intentions variable matters more for prenatal attachment. Model 5 examines prenatal attachment based on all pregnancy intentions variables as well as all demographic control variables; including race/ethnicity, economic hardship, education, and union status.

The second set of analyses, consisting of two models, examined the relationship between prenatal attachment and postnatal mother-infant bonding. In model 1, postnatal mother-infant bonding was predicted based on prenatal attachment. Model 2 predicted postnatal mother-infant bonding based on prenatal attachment and all control variables, including race/ethnicity, economic hardship, education, and union status.

Results

Pregnancy Intention. Overall pregnancy intentions were assessed by the question, "Right before you became pregnant, did you want to have a baby at any time in the future." Results indicated that 90.1% of women responded "yes" to wanting to have a baby at some point in time in contrast with the 9.9% of women who responded "no" to wanting a baby at any time point. To assess whether pregnancies were timed as desired, women were asked, "would you say that you became pregnant too soon, about the right time, later than you wanted to, didn't care about the timing, or don't know/not sure?" Results indicated that 32.1% of women felt their pregnancy was mistimed and happened sooner than they would have liked. In regard to happiness level upon finding out they were expecting a baby, 81.5% of women expressed some level of happiness about their

pregnancy, of those women, 58% reported feeling "very happy." In contrast, 10% of women fell mid-range between happy and unhappy and 8.5% of women noted varying degrees of unhappiness, with 3.8% of those women reporting feeling "very unhappy" about their pregnancy. Refer to Table 4.1 for variable coding details as well as descriptive statistics of women's reports of prenatal attachment, postnatal mother-infant bonding, pregnancy intention, and demographic variables.

Table 4.1

Women's Reports of Prenatal Attachment, Postnatal Mother-Infant Bonding, Pregnancy Intentions, and Demographic Variables: Descriptive Statistics.

Variables	*N*	*M*	*SD*	Range	α
Prenatal attachment[a]	131	3.27	.47	1 – 4	.91
Postnatal MIB [b]	131	3.89	.175	1 – 4	.57
Want baby[c]	131	.90	.30	0 – 1	
Mistimed pregnancy[d]	131	.32	.47	0 – 1	
Happy about baby[e]	131	8.48	2.42	1 – 10	
White	131	.69	.47	0 – 1	
Economic hardship[g]	131	1.81	.23	1 – 2	.76
Some college[h]	129	.713	.454	0 – 1	
Married[i]	131	.61	.49	0 – 1	
Cohabiting[j]	131	.20	.40	0 – 1	

[a] Prenatal Attachment: 1 = *less attached*, 4 = *more attached*. [b] Postnatal (MIB) Mother-Infant Bonding: 1 = *less attached*, 4 = *more attached*. [c]Want baby: 0 = *no/don't know*, 1 = *yes*. [d]Mistimed pregnancy: 0 = *not mistimed*, 1 = *mistimed*. [e]Happy about baby: 1 = *very unhappy*, 10 = *very happy*. [f]White: 0 = non-white, 1 = white. [g]Economic hardship: 1 = *less poor*, 2 = *more poor*. [h]Some college: 1 = *some college+*, 2 = *no college*. [i]Married: 0 = *not married*, 1 = *married*. [j]Cohabiting: 0 =*not cohabiting*, 1 = *cohabiting*.

Pregnancy Intention Variables: Correlations. Wanting a baby at some point in time showed a positive significant correlation with marriage ($r = .311$; $p = .000$) as did happiness level regarding expecting a baby ($r = .394$, $p = .000$), whereas, mistimed pregnancy was found to be significantly negatively associated with marriage ($r = -.491$, $p = .000$) and positively associated with cohabiting ($r = .191$, $p = .029$). Therefore, correlational analysis from pregnancy intention variables indicate that being married is significantly associated with wanting a baby and higher happiness level about expecting a

baby, whereas, mistimed pregnancy is significantly associated with being unmarried, and/or cohabiting with a partner.

Prenatal Attachment and Postnatal Mother-Infant Bonding: Correlations. Prenatal attachment revealed significant positive Pearson correlations with level of happiness about expecting a baby ($r = .251$, $p = .004$) and wanting a baby ($r = .271$, $p = .002$), indicating a significant relationship between pregnancy intendedness and prenatal attachment; with wanting a baby and greater happiness about expecting a baby associated with higher levels of prenatal attachment. Whereas, a significant negative correlation was found between prenatal attachment and mistimed pregnancy ($r = -.173$, $p = .048$). A positive significant association was also noted between prenatal attachment and later postnatal mother-infant bonding ($r = .226$, $p = .009$); signifying higher levels of prenatal attachment are related to higher levels of postnatal mother-infant bonding and visa versa. Postnatal bonding yielded significant negative correlations with economic hardship ($r = -.175$ $p = .047$) and some college ($r = -.184$, $p = .037$); signifying that more economic hardship was associated with less postnatal mother-infant bonding, as was having at least some college education. Refer to Table 4.1 for variable coding details and to Table 4.2 for correlations and significance levels of women's reports of pregnancy intention, prenatal attachment, postnatal mother-infant bonding, and demographic variables.

Table 4.2

Women's Reports of Prenatal Attachment, Postnatal Mother-Infant Bonding, Pregnancy Intentions, and Demographic Variables: Correlations

Variables	1	2	3	4	5	6
1. Prenatal attachment	–	.226**	.271**	-.173*	.251**	-.122
2. Postnatal MIB	-.226**	–	.055	.006	.139	-.017
3. Want baby	.271**	.055	–	-.264**	.406**	.051
4. Mistimed pregnancy	-.173	.006	.264**	–	-.627**	-.171
5. Happy about baby	.251**	.139	.406**	-.627**	–	.114
6. White	-.122	-.017	.051	-.171	.114	–
7. Economic hardship	-.170	-.174*	.016	-.125	.158	.182*
8. Some college	-.145	-.184*	.092	-.205*	-.030	.131
9. Married	.058	-.148	.311**	-.491**	.394**	.170
10. Cohabiting	.020	.137	.037	.191*	-.020	.047

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

Table 4.2

Continued

Variables	7	8	9	10
1. Prenatal attachment	-.170	-.145	-.058	.020
2. Postnatal MIB	-.174*	-.184*	-.148	.137
3. Want baby	.016	.092	.311**	.037
4. Mistimed pregnancy	-.125	-.205*	-.491**	.191*
5. Happy about baby	.158	-.030	.394**	.020
6. White	.182*	.131	.170	.047
7. Economic Hardship	–	.233**	.201*	.024
8. Some college	.233**	–	.387**	-.194*
9. Married	.201*	.387**	–	-.623**
10. Cohabiting	.024	-.194*	-.623**	–

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

Pregnancy Intention and Prenatal Attachment. Multivariate analysis was conducted to examine the relationship between prenatal attachment and various potential predictors, including pregnancy intentions variables and demographic control variables in a series of five regression models. In models one through three, multiple linear regression was calculated with prenatal attachment as the criterion variable and *wanting a baby* (model 1), *mistimed pregnancy* (model 2), and *happiness level about expecting a baby*

(model three) as predictor variables. Wanting a baby (R^2 = .074, F(1, 129) = 10.241, p<.01) , mistimed pregnancy (R^2 = .030, F(1, 129) = 3.972, p<.05), and happiness about expecting a baby (R^2 = .063, F(1, 129) = 8.675, p<.01) were all significant regression models. Wanting a baby and happiness about expecting a baby both yielded positive significant beta weights, indicating higher wantedness and happiness were associated with higher levels of prenatal attachment. A negative beta weight was noted for mistimed pregnancy, signifying mistimed pregnancy is related to lower prenatal attachment. In model four, all three intentions variables were run together and a significant regression model was noted (R^2 = .098, F(3, 127) = 4.581, p<.01); with this three predictor model accounting for around 9.8% of the variance in prenatal attachment. Within this model, when all intentions variables were controlled for, only *wanting a baby* remained significant (B =.318, p = .03), with a positive beta weight indicating wanting a baby is associated with higher levels of prenatal attachment, even after the other two intention variables are controlled for. Model five examined the criterion variable of prenatal attachment and all intentions variables, as well as all demographic control variables; including race/ethnicity, economic hardship, education, and union status. A significant regression equation was found (R^2 = .147, F(8, 120) = 2.595, p<.05) for this eight predictor model that accounted for around 14.7% of the variance in prenatal attachment. No individual variables remained significant within this model. Refer to Table 2.3 for a summary of regression analysis of prenatal attachment, pregnancy intentions, and demographic control variables.

Table 4.3

Summary of Regression Analysis of Prenatal Attachment, Pregnancy Intentions, and Demographic Control Variables

	Model 1			Model 2			Model 3		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Want baby	.425**	.133	.271						
Mistimed pregnancy				-.174*	.087	-.173			
Happy about baby							.049**.	.017	.251
White									
Economic hardship									
Some college									
Married									
Cohabiting									
Intercept			2.885			3.324			2.853
R^2			.074			.030			.063
F for change in R^2			10.241**			3.972*			8.675**

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

Table 4.3

Continued

	Model 4			Model 5		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Want baby	.318*	.145	.202	.291	.154	.182
Mistimed Pregnancy	-.022	.109	-.022	-.099	.117	-.098
Happy about baby	.030	.022	.155	.027	.025	.131
White				-.111	.089	-.111
Economic hardship				-.325	.181	-.162
Some college				-.126	.100	-.122
Married				-.002	.142	-.002
Cohabiting				.015	.144	.013
Intercept			2.733			3.561
R^2			.098			.147
F for change in R^2			4.581**			2.595*

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

Prenatal Attachment and Postnatal Mother-Infant Bonding Multivariate analysis was conducted to examine the relationships between postnatal mother-infant bonding predictor variables including prenatal attachment and demographic control variable in a series of two regression models. In model one, prenatal attachment was regressed on postnatal mother-infant bonding with findings yielding a significant regression equation ($R^2 = .051$, $F(1, 129) = 6.959$, $p<.01$); indicating that prenatal attachment account for around 5.1% of the variance in postnatal mother-infant bonding. The positive beta weight indicated that higher levels of prenatal attachment were associated with higher levels of postnatal mother-infant bonding. In model two, prenatal attachment and demographic control variables were examined together and a significant regression equation was noted ($R^2 = .097$, $F(6, 122) = 2.197$, $p<.05$); indicating the model was able to account for around 9.7% of the variance in postnatal mother-infant bonding. Prenatal attachment ($B = .067$, $p = .047$) remained significant even after controlling for demographic variables known to impact postnatal mother-infant bonding. Refer to table 4.4 for a summary of regression analysis of postnatal mother-infant bonding, prenatal attachment, pregnancy intentions, and demographic control variables.

Table 4.4

Summary of Regression Analysis of Postnatal Mother-Infant Bonding, Prenatal Attachment, Pregnancy Intentions, and Demographic Control Variables

	Model 1			Model 2		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Prenatal attachment	.084**	.032	.226	.067	.033	.180*
White				.023	.034	.062
Economic hardship				-.091	.069	-.121
Education				-.037	.037	-.096
Married				-.027	.045	-.076
Cohabiting				.028	.051	.065
Intercept			3.620			3.862
R^2			.051			.097
F for change in R^2			6.959**			2.197*

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

Discussion

There were two primary goals of this chapter. First, varying dimensions of pregnancy intendedness were examined (e.g., wantedness of pregnancy, mistiming of pregnancy, and happiness about pregnancy) to determine their association with prenatal attachment. Second, prenatal attachment was examined alone and with control variables to determine association with postnatal mother-infant bonding. Overall, some support was found for both hypotheses.

In Hypothesis 1, pregnancy intention variables were expected to be significantly associated with prenatal attachment. Higher levels of pregnancy wantedness and higher levels of happiness about the pregnancy were both expected to be associated with higher levels of prenatal attachment. Conversely, mistimed pregnancy was expected to be associated with lower levels of prenatal attachment. Relationships were expected to remain significant after controlling for demographic variables. Findings revealed that all pregnancy intention variables showed significant correlations; positive associations with *wanting a baby* and *happiness level about expecting a baby*, and a negative association with *mistimed pregnancy*. Regression analysis indicated significant models for each individual intention variable, for the three-predictor model with all intentions variables, and for the model with prenatal attachment, all intentions variables, and demographic controls. However, only *wanting a baby* remained significant when all intentions were examined together. When demographic variables were controlled for, no intentions variables remained significant.

Hypothesis 2 posited that prenatal attachment would be significantly associated with postnatal mother-infant bonding; with higher levels of prenatal attachment

associated with higher levels of postnatal mother-infant bonding. Positive associations were expected to remain significant after controlling for demographic variables. Findings indicated significant positive correlations and beta weights for prenatal attachment and postnatal mother-infant bonding, signifying higher levels of prenatal attachment is related to higher reports of postnatal mother-infant bonding. Positive associations remained significant after controlling for demographic variables as was hypothesized.

Pregnancy intendedness was therefore found to be important in the development of prenatal attachment, whereby wanting a baby and higher happiness levels about expecting a baby were associated with higher levels of prenatal attachment. This finding is consistent with research by Damato (2004) who reported higher levels of prenatal attachment when motherhood was intended. Women within the current study who reported lower levels of happiness regarding the pregnancy also reported lower levels of prenatal attachment, a similar finding to that of Rubertsson et al. (2015) and Hart and McMahon (2006) who also observed that women with negative feelings about their pregnancy and/or becoming a mother were at risk for lower prenatal attachment. The current study also noted a significant relationship between prenatal attachment and later postnatal mother-infant bonding both through correlational and multivariate regression analysis; demonstrating continuity with prior research indicating significant correlations between prenatal attachment and postnatal mother-infant bonding (Dubber, Reck, Müller, & Gawlik, 2015; Figueiredo & Costa, 2009; Müller, 1996; van Bussel, Spitz, & Demyttenaere, 2010), which also have been found to serve a strong predictive function between the strength of the prenatal attachment relationship and later postnatal mother-

infant attachment (Carneiro, Corboz-Warnery, & Fivaz-Depeursinge, 2006; Müller, 1996; Siddiqui & Hagglof, 2000).

These findings are important as they confirm previous research while addressing some limitations present within other studies, including use of a single pregnancy intention variable, lack of pre and post-birth longitudinal data, and use of only correlational methods. Although significance was approached for mediation, prenatal attachment was not found to significantly mediate the relationship between pregnancy intentions and postpartum mother-infant bonding. However, following the same women from their third trimester into the postpartum period, we can deduce that pregnancy intentions impact prenatal attachment and prenatal attachment impacts postnatal mother-infant bonding; therefore inferring that pregnancy intentions impact postnatal mother-infant bonding through prenatal attachment. As pregnancy intention cannot be changed once a child is conceived, focusing instead on prenatal attachment as a dynamic characteristic capable of growth may help to ameliorate known risks of unintended motherhood on postnatal mother-infant bonding; thereby potentially increasing positive mother-infant outcomes through improvements in maternal-infant health behaviors (Alhusen et al., 2012; Cannella, 2005), postpartum maternal sensitivity (Shin, Park, & Kim, 2006) and maternal involvement postnatally (Siddiqui & Hagglof, 2000).

Limitations

There are several limitations to the current study findings that should be noted. Due to the use of a convenience sample, generalizability of results may be limited. In addition, self-reported pregnancy intentions during pregnancy may not be accurately reflective of pre-pregnancy intentions, as perceptions of intentions may change during or

after pregnancy (Santelli et al., 2004). As this study measured intentions based on women in their 3rd trimester reflecting back on their intentions, they may not be accurate as women are less likely to admit a pregnancy was unintended during pregnancy and particularly after the birth of the baby (David, 2006; Mercier, Garrett, Thorp, & Siega-Riz, 2013). Therefore, estimates of unintended mothers may be underscored, which could lead to conservative estimates. Furthermore, a self-assessment data gathering technique was employed for this study; therefore, recall and selective bias must be considered along with the impact of social desirability reflected in reported answers. Moreover, a small sample size (n = 131) may have prevented inclusion and/or analysis variables that prior research has indicated to be important for prenatal attachment and/or postnatal attachment. Sample size may also have impacted the failure to find mediation of prenatal attachment on pregnancy intentions and postnatal mother-infant bonding. Finally, the MIBS scale demonstrated low reliability within the current study with a Cronbach's Alpha of .56 and may have influenced results.

Implications for Research and Practice

Research on the effects of prenatal attachment on postnatal mother-infant bonding may benefit from larger sample sizes as well as a longitudinal design that follows women during each trimester of pregnancy and well into the postpartum period. Prenatal attachment is likely contextual (Zimmerman & Doan, 2003) and culturally relevant (Alhusen, 2008; Cannella, 2005) yet little research has been done to explore these aspects of prenatal attachment development, which may explain inconsistencies and gaps in the literature. As such, qualitative inquiry that examines narratives of women's pregnancies and the way they speak about their unborn babies may provide greater insight into how

prenatal attachment impacts postnatal mother-infant bonding and may also provide contextual aspects to examine that have yet to be linked to this construct. Identification of simplistic methods to diagnose prenatal attachment disturbances as well as maternal-fetal attachment promoting techniques would also be useful to study as it is important for clinicians to identify and treat mothers with low attachment scores as disrupted prenatal attachment may hamper adoption of the motherhood role (Pisoni et al., 2014). This may not be an easy undertaking as women may find it difficult to express negative feelings about pregnancy and/or motherhood and therefore nurturing and trusted relationships with medical professionals are necessary to normalize and offer judgment-free assistance. Expectant mothers may benefit from referrals to counseling or therapeutic services, as well as through direct promotion of methods known to promote maternal-fetal attachment during routine obstetric appointments; including ultrasound imagining, listening to fetal heart tones, drawing attention to baby through abdominal palpation maneuvers, and kick counting. Expectant mothers may also benefit from direct conversations regarding pregnancy and baby related topics to identify attachment issues and/or promote prenatal attachment (Pallant et al., 2015; Rubertsson et al., 2015), which may consequentially help improve perinatal and neonatal outcomes. Reliance on postnatal assessment and screening does a disservice to expectant mothers who could benefit from intervention prenatally that may potentially render treatment within the postnatal period unnecessary (Pisoni et al., 2014).

Conclusions

Pregnancy intentions were explored within this study as a multidimensional construct including wantedness of a baby, timing of a pregnancy, and happiness

regarding a current pregnancy. All dimensions of intentions were found to be important in the development of prenatal attachment, whereby wanting a baby and higher happiness levels about expecting a baby were associated with higher levels of prenatal attachment, and mistimed pregnancies were associated with lower levels of prenatal attachment. A significant relationship between prenatal attachment and later postnatal mother-infant attachment both through correlational and multivariate regression analysis was also noted. This inquiry discovered that pregnancy intentions are significantly associated with prenatal attachment, and prenatal attachment is then significantly associated with postnatal attachment; therefore, it can be inferred that pregnancy intentions impact postnatal mother-infant bonding through prenatal attachment. Since it is well established within the literature that unintended pregnancy can lead to deficiencies within the prenatal maternal-fetal bond and that prenatal attachment is linked to postnatal mother-infant bonding, increasing prenatal attachment may serve to buffer negative effects of unintended motherhood and potentially lead to better postnatal mother-infant bonding and therefore more favorable mother-infant outcomes.

CHAPTER V

DOES PRENATAL ATTACHMENT MEDIATE THE RELATIONSHIP BETWEEN PREGNANCY INTENTIONS AND POSTPARTUM DEPRESSIVE SYMPTOMATOLOGY?

Introduction

Postpartum depression impacts a woman's physical and mental health and may affect her ability to care for her infant and form affectionate bonds (Brockington et al., 2001; O'Hara & Swain, 1996; Kennedy, Beck, & Driscoll, 2002). Postpartum depression affects between 10 and 15 percent of mothers post-birth (Miller, 2002). Even more women (an additional 15-30 percent) report experiencing nonclinical levels of depressive symptoms post-birth (Goodman, 2004), which may still lead to adverse outcomes. Assessing and addressing maternal needs is imperative for positive mother-infant outcomes, as previous research demonstrates that postpartum depressive symptoms are associated with maternal maladjustment during the postpartum period, which has been shown to be linked to significant detrimental effects on the child and the family system (Cummings, Keller, & Davies, 2005). Therefore, it is important to identify potential protective processes inherent in pregnancy so as to design and implement effective prevention and intervention programs for women becoming first time mothers.

Unintended pregnancies have previously been found to increase women's risk for postpartum depression (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Leathers & Kelley, 2000; Mercier et al., 2013; Nakku, Nakasi, & Mirembe, 2006). Yet prior studies have been limited in one or more ways; most use postpartum recall of pregnancy intentions, which can alter accuracy of reports and may downplay the number of unintended pregnancies. Furthermore, the intentions measure is often limited, describing whether a pregnancy was planned vs. unplanned, which does not incorporate the multidimensional nature of pregnancy intentions (Santelli et al., 2009). Additionally, few studies included longitudinal data, which is needed to determine causality. Finally, some of the studies assessed depression at or above clinical cut-offs, thereby missing women who report subclinical or just increased levels of postpartum depressive symptoms (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Leathers & Kelley, 2000; Mercier et al., 2013; Nakku, Nakasi, & Mirembe, 2006).

Using multivariate regression analyses with a sample of 133 women surveyed before and after their first birth, this study seeks to overcome previous gaps in the literature by 1) focusing on varying dimensions of pregnancy intendedness to determine which factors place women most at risk for postpartum depressive symptoms, and 2) determining whether prenatal attachment mediates this relationship, indicating a potential protective process during the transition to motherhood.

Literature Review

Postpartum Depression

Postpartum depression (PPD) is a depressive disorder in women following childbirth, with differing levels of severity. Up to 75% of mother's report some level of depressive symptoms, known as "baby blues" or "blue days," which are known to occur within 1-2 days post-delivery and usually resolved by the 10th postpartum day (O'Hara, 1997; Sit, 2009). Common symptoms include depressive mood, episodes of crying, anxiety, irritability, and changes in eating and sleeping patterns. Symptoms of postpartum blues are usually attributed to rapid decline in pregnancy-related hormones and sleep deprivation common during the postpartum period (Martini, Winkel, Knappe, & Hoyer, 2010) and should not be confused with postpartum depression.

Conversely, postpartum depression, which afflicts around 10-15% of women in the first postpartum year according to the Centers for Disease Control and Prevention (2008), is a sustained, severe, depressive mood with onset of symptoms within 4 weeks post delivery (4th ed., text rev.; *DSM–IV–TR*; American Psychiatric Association, 2000; O'Hara, 2009). Symptoms include sad mood, psychomotor disturbances, reduced drive, lowered self-esteem, lack of interest, fear of failure, difficulty with daily tasks, suicidal thoughts (Cox & Holden, 1994; O'Hara & Swain, 1996), and somatic complaints such as fatigue, headache, decreased appetite, insomnia, and lack of energy (Nonacs & Cohen, 1998). Women may also experience intense feelings of anger, irritability, extreme guilt, and may feel unable to care for their baby (Kennedy, Beck, & Driscoll, 2002).

Risk factors for PPD include low social support, strains within the partner relationship, difficult child temperament, low SES, low education level, minority status,

poor mother-child attachment (Beck, 2001; Bifulco et al., 2004; McMahon, Barnett, Kowalenko, & Tennant, 2005; McMahon et al., 2006; O'Hara & Swain, 1996) as well as stressful life events, anxiety during pregnancy (Bonari, Ahn, Einarson, Steiner, & Koren, 2004; Reulbach et al., 2009; Robertson et al., 2004), or an unplanned pregnancy (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Leathers & Kelley, 2000; Mercier et al., 2013; Nakku, Nakasi, & Mirembe, 2006). A history of depression is also a known risk factor for postpartum depression (Beck, 1996; Beck, 2001; Robertson, Grace, Wallington, & Stewart, 2004), as is prenatal depression; both which put an individual at increased risk for developing depressive symptoms post-birth (Hayes & Müller, 2004; Robertson et al., 2006). Prior miscarriages, complications with delivery, c-section, and infant health issues, including low birth weight or malformations are also associated with PPD (Bergant, Nguyen, Moser, & Ulmer, 1998).

Postpartum depression stifles a woman's ability to function in the maternal role, lessens responsive caregiving, disrupts breastfeeding, and makes mothers less likely to comply with recommended child safety practices and utilization of preventative healthcare and vaccinations (Field, 2010). Infants of depressed mothers are at risk for impairments with emotional regulation and social engagement and may demonstrate greater negative emotionality along with high cortisol reactivity (Feldman et al., 2009). Maternal depression is also associated with lower infant cognitive scores at 18 months of age (Righetti-Veletma, Bousquet, & Manazo, 2003).

Maternal depression has been shown to negatively impact mother-infant interactions (Reck et al., 2004), which may then lead to bonding impairments due to lack

of maternal sensitivity (Feldman et al., 1997). Brockington et al. (2001) found that 29% of mothers diagnosed with postpartum depression also reported bonding impairment. In a study by Muzik et al. (2013) women who reported postpartum psychopathology demonstrated greater bonding impairments at all measured time points within the first 6 months postpartum. Bonding increased for all women, regardless of risk status during the 6-month period, however, those reporting postpartum depression increased the least amount during that time. At final assessment at 6 months, bonding impairment in the mothers exhibiting postpartum psychopathology was significantly associated with observed negative parenting behaviors.

Infant abuse and rejection are frequently associated with impairments in mother-infant bonding which is more common in depressed mothers (Brockington, Aucamp, & Fraser, 2006). Even subclinical maternal depressive symptoms have been found to lower the quality of maternal bonding (edhborg et al., 2011; Moehler et al., 2006; Reck et al., 2006). Infants of depressed mothers are also more likely to be at risk for emotional and behavioral difficulties in addition to long-term cognitive impairments (Beck, 1995, Beck, 1998; Grace, Evindar, & Stewart, 2003). Depressed mothers are more likely than their non-depressed counterparts to express more negative feeling about their child (Reck et al., 2004) and to be described as unresponsive, passive, or withdrawn (Field, 1998; Field, 2010).

Unintended Motherhood and Postpartum Depression

Approximately half of all pregnancies in the U.S. are unintended, which includes both unwanted or mistimed intentions (Finer & Zolna, 2014; 2016). Approximately 58 percent of unintended pregnancies result in live births (Finer & Zolna, 2011), which are

often linked to a number of serious consequences (Cheng et al., 2009; Han, Nava-Ocampo, & Koren, 2005; Institute of Medicine, 1995; Korenman, Kaestner, & Joyce, 2002; Shah et al. 2011). One such consequence is a significantly greater likelihood of postpartum depressive symptoms when compared with women who had intended to become pregnant (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Mercier, Garrett, & Thorp, 2013; Nakku, Nakasi, & Mirembe, 2006). Unintended motherhood may therefore be viewed as an increased risk process for depression symptoms during the postpartum period, putting new mothers and their infants in jeopardy of maladaptive outcomes (Finer & Zolna, 2011; Miller, 2002).

Within the literature, there are numerous linkages between unintended pregnancy and postpartum depression (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Leathers & Kelley, 2000; Mercier et al., 2013; Nakku, Nakasi, & Mirembe, 2006); however, it is important to note that this experience may vary based on contextual factors. Women experiencing an unwanted pregnancy, instead of just a mistimed pregnancy, have been shown to be at the greatest risk for psychological distress (Brown & Eisenberg, 1995; Orr & Miller, 1997) and were four times more likely to experience depression post-birth, whereas risk for depression with mistimed pregnancies increased two-fold (Orr & Miller, 1997). Leathers and Kelley (2000) found that unintended pregnancy was most strongly associated with postpartum depression when the child's father reported the pregnancy as unintended and the mother did not, which may simultaneously speak to a potential lack of partner support.

Mercier et al. (2013) found the greatest discrepancy between postpartum depression within intended vs. unintended pregnancies was at the 12-month mark, during

which time women with a mistimed pregnancy had a three-fold increase risk of depression and those with an unwanted pregnancy were five times as likely to be depressed. While the overall level of depression in the sample was highest at 3 months postpartum, the intended pregnancy group showed a decline in depression from 3 to 12 months, where the unintended pregnancy group showed an increase. This finding demonstrates a potential long-term risk of depression for unintended mothers, a risk that was not present within the group of mothers who had intended to become pregnant (Mercier et al., 2013). Additionally, for unintended mothers, studies have found racial differences for postpartum depression symptoms, with African American women (Darcey at al., 2011) as well as Hispanic and Asian women (Abbasi et al., 2013) reporting higher rates of postpartum depression when compared with white women. Based on literature in the area, we can ascertain that unintended motherhood represents a risk for maladaptive mother-infant outcomes (Finer & Zolna, 2011), particularly that of maternal postpartum depressive symptomatology (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Leathers & Kelley, 2000; Mercier et al., 2013; Nakku, Nakasi, & Mirembe, 2006). Therefore, uncovering protective processes that prevent the development of postpartum depression or limit its effects are important for mothers and their infants. One such possible protective process is that of prenatal attachment, which is known to be associated with postpartum infant bonding (Maas, Vreeswijk, & van Bakel, 2013; Siddiqui & Hagglof, 2000), and may also serve as a protective process against postpartum depressive symptoms.

Prenatal Attachment

Prenatal attachment is defined as the warm and intimate relationship a mother develops with her unborn baby during pregnancy (Brandon, Pitts, Denton, Stringer, & Evans, 2009; Cranley, 1981; Müller & Mercer, 1993). The concept of prenatal attachment stems from work on mother-infant attachment done by John Bowlby (Bowlby, 1969, 1980, 1988) and finds its roots in attachment theory. Prenatal attachment unlike mother-infant attachment is based solely on the mother's experience of her pregnancy, (Bretherton, 1995) including maternal perceptions, emotions, and behaviors relative to the internal representation of the developing fetus that occurs during pregnancy (Brandon et al., 2009; Righetti, Dell'Avanzo, Grigio, & Nicolini, 2005). This maternal awareness, including intellectual, physical, and kinaestatic knowledge of the developing fetus is an essential component in the formation of prenatal attachment (Cranley, 1981; Stainton, 1990; Siddigui, Hagglof, B., & Eisemann, 1999) and may include fantasy about the baby, visualization of the baby, communication with the baby, and planning for the baby (Rubin, 1975). Maternal prenatal attachment is a central component of maternal identity creation and maternal role attainment, which includes creating an identity for one's unborn child and a new maternal identity for the expectant mother (Mercer, 1986; Pisoni et al., 2014; Soule, 1982), which occurs through both physiological and psychological events during pregnancy (Cranley, 1993).

Healthy maternal-fetal bonding has been shown to positively impact a woman's prenatal health practices which then positively impact the woman's health, the health of the fetus, and the pregnancy outcome (Alhusen et al., 2012; Cannella, 2005; Lindgren, 2001). Prenatal attachment has shown links to maternal sensitivity in the postpartum

(Shin, Park, & Kim, 2006), postpartum maternal involvement (Siddiqui & Hagglof, 2000), and mother-infant attachment scores within the first postpartum year (Shin, Park, & Kim, 2006). Greater levels of prenatal attachment are also associated with secure mother-infant attachment styles and earlier achievement of developmental milestones for infants (Alhusen et al., 2012), with positive effects than reach well into adulthood (Waters et al., 2003).

Prenatal Attachment and Postpartum Depression

Current literature regarding the potential protective quality of prenatal attachment on postpartum depressive symptomatology indicates that poor quality prenatal attachment is associated with a host of negative outcomes (Maas, Vreeswijk, & van Bakel, 2013; Siddiqui & Hagglof, 2000), including disrupted mother-infant bond, poor maternal sensitivity, and increased postpartum depressive symptomatology (Maas, Vreeswijk, & van Bakel, 2013; Siddiqui & Hagglof, 2000; Rubertsson et al., 2015), as such, it could be expected that good quality maternal-fetal attachment would be associated with or protect against some of these outcomes, particularly postpartum depressive symptoms. Goecke et al. (2012) found that prenatal attachment demonstrated a negative association with depressive symptomatology both during pregnancy and into the postpartum period, measured at 3 weeks and 6 months postpartum; suggesting that prenatal attachment may serve as a protective process for antenatal and postpartum depression symptoms. Prenatal attachment has also been found to be indirectly related to lower rates of postpartum depressive symptomatology through the promotion of healthy maternal behaviors (Alhusen et al., 2012; Condon, 1989; Lindgren, 2001), maternal role attainment (Cranley, 1993; Fowles, 1996; Mercer, 1986; Pisoni et al., 2014; Soule, 1982), increased mother-

infant attachment scores within the first postpartum year (Shin, Park, & Kim, 2006), and through the moderating influence of lowered levels of expectant mother's self-criticism (Priel & Besser, 1999). Furthermore, prenatal attachment may also serve as a protective process for buffering against PPD through helping to lower rates of antenatal depression, as low quality maternal-fetal bonding is linked to antenatal depression (Flykt et al., 2010; Rubertsson et al., 2015) and antenatal depression has shown to be predictive of PPD, therefore increasing prenatal bonding may have a moderating effect between antenatal depression and PPD (Flykt et al., 2010; Rubertsson et al., 2015).

Hypotheses

Unintended motherhood has been shown to disrupt or weaken prenatal attachment (Damato, 2004), which has important implications as prenatal attachment impacts the mother-infant postpartum relationship and quality of maternal care provided (Siddiqui & Hagglof, 2000). With literature demonstrating links between unintended pregnancy and depression (Abbasi et al., 2013; Mercier et al., 2013), unintended pregnancy and prenatal attachment (Damato, 2004),, prenatal attachment and postpartum depression (Maas, Vreeswijk, & van Bakel, 2013), it is important to explore prenatal attachment as a potential mediator between unintended pregnancy and postpartum depressive symptoms. Once an unintended pregnancy occurs, interventions cannot change the intentionality of the pregnancy, but they can alter the consequences if intervening mechanisms are identified. If prenatal attachment mediates the relationship between pregnancy intentions and postpartum depressive symptoms and is a modifiable characteristic, it provides a target for the design and implementation of effective prevention and intervention programs for women becoming first time mothers, particularly for those whom

motherhood was unintended. Based on prior research, this chapter has three primary hypotheses:

Hypothesis 1: Unintended and mistimed pregnancies will be associated with greater self-reported postpartum depressive symptoms.

Hypothesis 2: Prenatal attachment will have a negative association with postpartum depression; with increased prenatal attachment associated with less maternal postpartum depressive symptoms.

Hypothesis 3: Prenatal attachment will mediate the association between pregnancy intentions and postpartum depressive symptoms.

Data and Methods

Sample

The sample for the present study consists of 133 first time mothers varying from 18-35 years of age living in rural and urban counties in Oklahoma. Women were surveyed online during and after their first births. Women were in their third trimester of pregnancy at the time of the first survey. Of the 160 women participated in the 3rd trimester survey, 133 women participated in the post-birth assessment, which took place 2-6 weeks post-delivery.

Women's attitudes, beliefs, and life experiences were assessed in regard to fertility intentions, prenatal attachment, reproductive histories, and sociodemographic information. Women were also questioned as to potential factors that could increase risk for adverse birth outcomes, including prenatal care, adverse childhood experiences, partner relationship quality, stable employment, depression, etc. The post-birth survey asked about the birthing process, mother-infant attachment, breastfeeding, logistics of

everyday life since the birth, future fertility intentions, birth control, home and work life, potential depressive symptoms during the postpartum period, and other similar topics.

Recruitment was conducted through flyers dispersed at ultrasound centers, birthing classes, prenatal clinics, mom-to-mom sales, and through Facebook groups targeting expectant mothers. Participants contacted the research assistant for a phone survey or utilized the online link provided on the recruitment flyer. Participants from Facebook groups contacted a member of the research team by phone or Facebook messenger for the web link to the online survey or to set up an appointment to take the survey over the phone. Before beginning the survey, informed consent information was displayed and participants clicked on a link to signify agreement with study participation. Women who participated in the 3rd trimester assessment were also asked to complete the post-birth survey around two to six weeks after giving birth. Women were contacted for the post-birth survey after their due date either by phone or by email address, depending on the information they supplied on the 3rd trimester survey. Women were then given a link to the post-birth survey via phone, text, or email contact, depending on their desired form of contact. Women were contacted three days after the link was sent if the survey was yet to be completed. Contact was made again via email one week later with a follow-up phone call two weeks later if the survey had failed to be completed. Final contact was made by email and/or phone one month after sending the post-birth survey link as a last effort to garner participation in the post-birth assessment.

Measures

Pregnancy Intentions. Pregnancy intentions were assessed for this study with three questions regarding different aspects of intentions; whether a baby was *wanted* at

any point, whether the pregnancy was *mistimed*, and in reference to *happiness* about the pregnancy. Regarding potential want of a child, women were asked, "Right before you became pregnant, did you want to have a baby at any time in the future?" This variable was coded as wanting a baby (=1) or not wanting a baby/don't know (=0). In regard to timing, women were asked, "Would you say that you became pregnant too soon, about the right time, later than you wanted to, didn't care about the timing, or don't know/not sure?" This variable was coded as *mistimed* (=1) and all other answers were coded as *not mistimed* (=0). In regard to happiness, women were asked to rate their feelings on a one to ten scale regarding their happiness level upon finding out they were pregnant; with 1 being "very unhappy" and 10 being "very happy." This variable was coded at various levels of happiness ranging from one through ten.

Prenatal Attachment. The Prenatal Attachment Inventory (PAI) (Müller & Mercer, 1993; Siddiqui, Hagglof, & Eisemann, 1999) was used to measure maternal-fetal *prenatal attachment* levels. The PAI is a self-report scale based on principles of attachment theory and consists of 21 Likert-type items ranging from 1 (almost never) to 4 (almost always). The scale is designed so as to measure, from the expectant woman's perspective, the frequency of affectionate thoughts or behaviors directed from a mother to her unborn child. Scores may range from 21 to 84, with higher scores representative of higher levels of prenatal attachment. Scores within the current sample yielded results from 1.86-4.0 with a range of 2.14 (M=3.27, SD=.471). This scale has consistently demonstrated high construct validity and reliability, with a sum score Cronbach's alpha reported at 0.87 for previous studies (Gau & Lee, 2003; Lindgren, 2001). Reliability analysis conducted with this sample indicated a Cronbach's Alpha of .91. The construct

validity of this measure has been assessed using confirmatory factor analysis and has been found to be a valid instrument to measure levels of maternal-fetal attachment in pregnant women (Gau & Lee, 2003).

Depressive Symptoms. The Center for Epidemiologic Studies Depression Scale (CES-D Scale) was used to measure *postpartum depression*. The CES-D is a self-report measure to screen for depression as per the Diagnostic and Statistical Manual of Mental Disorder, 4th Edition (DSM-IV) criteria. The CES-D contains 20 items on a 4 point Likert-scale assessing frequency of occurrence within the last week ranging from "Rarely or none of the time" to "most or all of the time." Total scores range from 0-60; with higher scores indicating greater depression and scores 16 or above indicative of clinical depression (Boyd, Weissman, Thompson, & Meyers, 1982). The current study yielded results from 1.0-3.35, with a range of 2.35 (M=1.72, SD=.479). The CES-D has been used repeatedly to measure depression in expectant and postpartum women (Beeghly et al., 2002; Walker, Timmerman, Kim, & Sterling, 2002). Prior results indicate that the CES-D exhibits good internal consistency and reliability and demonstrates good short-term test-retest reliability (Aneshensel, Clark, & Frerichs, 1983; Fava, 1983; Radloff, 1977; Orme, Reis & Herz, 1986; Roberts, 1980; Ross & Mirowsky, 1984). Within the present study, reliability analysis indicated a Cronbach's Alpha of .90 for postpartum depression.

Sociodemographic Control Variables. Several control variables were also examined in relation to pregnancy intentions variables, prenatal attachment, and postnatal mother-infant bonding that have known associations to the variables of interest. Race/ethnicity was assessed using the two standard Census questions (U.S. Census

Bureau, 2011). Due to small cell counts in minority groups, dummy variables were constructed for *White* (=1) as compared to *all others* (=0). Economic hardship was measured based on a serious of seven questions regarding potential economic hardships experienced within the last year. These questions included 1.) could not pay electricity, gas, or phone bill on time, 2.) could not pay the mortgage or rent on time, 3.) pawned or sold something, 4.) went without meals, 5.) was unable to heat home, 6.) Asked for financial help from friends or family, and 7.) asked for help from welfare/community organizations. Answers to these questions were coded as yes (=1) and no (=0). Those reporting higher scores had greater economic hardship. Education was measured by a question assessing highest high school grade completed or highest college level achieved. To provide a higher education cut-off, a dummy variable of *some college*, which included any college attendance through doctoral degree completion (=1) vs. *no college* (=0), was created. Married and cohabiting were both individually measured using dummy variables coded as *married* (=1) vs. *all others* (=0) and *cohabiting* (1) vs. *all others* (=0).

Data Analysis

Descriptive statistics were used within this study to summarize the data set and are included as measures of central tendency, measures of variability, and range. Correlations were used within this study to identify significant bivariate associations between study variables. These included pregnancy intention variables, prenatal attachment, postpartum depressive symptoms, and demographic variables including economic hardships, education, union status, and race/ethnicity.

OLS regression analyses were utilized to examine the relationship between pregnancy intentions and postpartum depression in a series of ten models. Models one

through three examined the individual effects of each dimension of pregnancy intention, including *wanting a baby*, *happiness level about expecting a baby*, and *mistimed pregnancy*. Model four included all pregnancy intention variables together to determine predictive value on postpartum depressive symptoms. Model five examined the predictive value of prenatal attachment on postpartum depressive symptoms. Models six through eight examined each individual intention variable with prenatal attachment to determine whether prenatal attachment mediated effects of individual intentions in regard to postpartum depressive symptoms. Model nine included all pregnancy intention variables, as well as prenatal attachment to determine if prenatal attachment mediated the effects of all pregnancy intentions on postpartum depression. Finally, model 10 included all pregnancy intention variables, prenatal attachment, and all demographic control variables, including, race/ethnicity, economic hardship, education, and union status.

Results

Descriptive Findings. Because pregnancy intentions are a multidimensional construct (Santelli et al., 2009), three aspects of pregnancy intentionality were included that have been identified in the literature: wantedness, timing, and happiness. To assess pregnancy wantedness, women within the sample were asked, "Right before you became pregnant, did you want to have a baby at any time in the future?" To this question, 90.2% of women responded "yes" to wanting to have a baby at some time point compared with 9.8% who responded "no" to wanting a baby at any point in time. When asked about the timing of their pregnancy, 31.6% of women felt their pregnancy was mistimed and happened sooner than they would have liked. Overall, happiness about the current pregnancy was fairly high; on a scale from 1-10, the average happiness level for women

in the sample was 8.49. In regard to feelings about their current pregnancy at the time of finding out, 82 percent of women expressed some level of happiness regarding the news of becoming a mother, with 57.9 percent who reported feeling "very happy." Whereas around 9.8 percent of women fell mid-range between happy and unhappy and 8.4 percent reported varying degrees of unhappiness, with 3.8 percent who reported feeling "very unhappy" about the news of becoming pregnant. Please refer to Table 5.1 for descriptive statistics regarding women's reports of prenatal attachment, postpartum and prenatal depression, pregnancy intention, and demographic variables. For correlational values and significance levels, please refer to Table 5.2.

Table 5.1

Women's Reports of Prenatal Attachment, Postpartum Depressive Symptoms, Pregnancy Intentions, and Demographic Variables: Descriptive Statistics.

Variables	*N*	*M*	*SD*	Range	α
Want baby[a]	133	.90	.30	0 – 1	
Mistimed pregnancy[b]	133	.32	.47	0 – 1	
Happy about baby[c]	133	8.49	2.40	1 – 10	
Postpartum depression[d]	133	1.72	.48	1 – 4	.90
Prenatal attachment[e]	133	3.28	.48	1 – 4	.91
White[f]	133	.69	.46	0 – 1	
Economic hardship[g]	133	1.82	.23	1 – 2	.76
Some college[h]	133	.72	.45	0 – 1	
Married[i]	133	.62	.49	0 – 1	
Cohabiting[j]	133	.20	.40	0 – 1	

[a]Want baby: 0 = *no/don't know*, 1 = *yes*. [b]Mistimed pregnancy: 0 = *not mistimed*, 1 = *mistimed*. [c]Happy about baby: 1 = *very unhappy*, 10 = *very happy*. [d]Postpartum Depression: 1 = *less depressed*, 4 = *more depressed*. [e] Prenatal Attachment: 1 = *less attached*, 4 = *more attached*. [f]White: 0 = non-white, 1 = white. [g]Economic hardship: 1 = *less poor*, 2 = *more poor*. [h]Some college: 1 = *some college+*, 2 = *no college*. [i]Married: 0 = *not married*, 1 = *married*. [j]Cohabiting: 0 =*not cohabiting*, 1 = *cohabiting.*

Table 5.2

Women's Reports of Prenatal Attachment, Postpartum Depressive Symptoms, Pregnancy Intentions, and Demographic Variables: Correlations

Variables	1	2	3	4	5
1. Want baby	–	-.267**	.406**	-.176*	.274**
2. Mistimed pregnancy	-.267**	–	-.626**	.216*	-.185*
3. Happy about baby	.406**	-.626**	–	-.275**	.251**
4. Postpartum depression	-.176*	.216*	-.275**	–	-.208*
5. Prenatal attachment	.274**	-.185*	.251**	-.208*	–
6. White	.054	-.177*	.116	-.037	-.104
7. Economic hardship	.019	-.133	.160	-.224**	-.147
8. Some college	.095	-.210*	-.028	-.130	-.210*
9. Married	.313*	-.496**	.394**	-.221*	.075
10. Cohabiting	.035	.195*	.018	.150	.008

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

Table 5.2

Continued

Variables	7	8	9	10	11
1. Want baby	.054	.019	.095	.313**	.035
2. Mistimed pregnancy	-.177*	-.133	-.210*	-.496**	.195*
3. Happy about baby	.116	.160	-.028	.394**	.018
4. Postpartum depression	-.037	-.224**	-.130	-.221*	.150
5. Prenatal attachment	-.104	-.147	-.127	.075	.008
6. White	–	.189*	.136	.177*	.042
7. Economic hardship	.189*	–	.239**	.209*	.018
8. Some college	.136	.239**	–	.391**	-.198*
9. Married	.177*	.209*	.391**	–	-.625**
10. Cohabiting	.042	.018	-.198	-.625**	–

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

Pregnancy Intentions. Correlational findings indicate that wanting a baby is significantly associated with happiness level about expecting a baby (r=.406, p=.000), and marriage (r=.313, p=.000); signifying that wanting a baby and higher happiness levels about expecting a baby are more likely in the context of marriage. A significant negative association was noted between wanting a baby and a mistimed pregnancy (r=-

.267, p=.002). Mistimed pregnancy was positively associated with cohabiting (r=.195, p=.024). Negative correlations were found between mistimed pregnancy and (white) race/ethnicity (r=-.177, p=.042) as well as happiness level about expecting a baby (r=-.626, p=.000). Happiness level about expecting a baby was significantly associated with marriage (r=.394, p=.000) indicating higher happiness levels about expecting a baby were linked to the context of marriage.

Prenatal Attachment. Findings reveal significant Pearson correlations with level of happiness about the pregnancy (r=0.251, p=.004) and wanting a baby (r=0.274, p=.001); demonstrating significant associations between pregnancy intendedness, level of happiness about expecting a baby and prenatal attachment. Significant negative associations were also found with between prenatal attachment and mistimed pregnancy (r=-.185, p=.033), and postpartum depression (r=-0.208, p=.016).

Postpartum Depression. A positive Pearson correlation was noted between postpartum depression and mistimed pregnancy (r=.0.216, p=.013). Postpartum depression was also significantly correlated with wanting a baby (r=-0.176, p=.043) and level of happiness about expecting a baby (r=-0.275, p=.001); suggesting higher levels of happiness and wanting a baby were associated with lower postpartum depressive symptoms. Negative correlations were found between marriage (r=-0.221, p=.011) and economic hardship (r=-0.224, p=.10).

Table 5.3

Summary of Regression Analysis for Variables Predicting Postpartum Depressive Symptoms

	Model 1			Model 2			Model 3		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Want baby	-.282*	.138	-.176						
Mistimed pregnancy				.222*	.088	.216			
Happy about baby							-.055**	.017	-.275
Prenatal attachment									
White									
Economic hardship									
Some college									
Married									
Cohabiting									
Intercept			1.977			1.652			2.188
R^2			.031			.047			.076
F for change in R^2			4.179*			6.413*			10.754**

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

Table 5.3

Continued

	Model 4			Model 5		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Want baby	-.121	.148	-.076			
Mistimed pregnancy	.072	.111	.070			
Happy about baby	-.040	.023	-.201			
Prenatal attachment				-.210*	.086	-.208
White						
Economic hardships						
Some college						
Married						
Cohabiting						
Intercept			2.149			2.410
R^2			.084			.043
F for change in R^2			3.932**			5.944*

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

Table 5.3

Continued

Variable	Model 6			Model 7			Model 8		
	B	*SE B*	*β*	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Want baby	-.206	.142	-.128						
Mistimed pregnancy				.189*.	.088	.184			
Happy about baby							-.047**	.017	-.238
Prenatal attachment	-.174*	.089	-.173	-.175*	.086	-.174	-.149	.087	-.149
White									
Economic hardship									
Some college									
Married									
Cohabiting									
Intercept			2.480			2.238			2.615
R^2			.059			.076			.083
F for change in R^2			4.050*			5.348**			6.945**

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

Table 5.3

Continued

	Model 9			Model 10		
Variable	*B*	*SE B*	*β*	*B*	*SE B*	*β*
Want baby	-.076	.150	-.047	-.070	.158	-.042
Mistimed pregnancy	.066	.110	.065	-.027	.118	-.026
Happy about baby	-.036	.023	-.181	-054*	.025	-.252
Prenatal attachment	-.139*	.089	-.138	-.188*	.090	-.185
White				-.016	.090	-.016
Economic Hardships				-.447*	.184	-.216
Some college				-.115	.102	-.108
Married				.105	.143	.107
Cohabiting				.251	.145	.210
Intercept			2.532			3.665
R^2			.101			.181
F for change in R^2			3.592**			2.976**

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

Multivariate Analyses. Table 5.3 presents the multivariate regression findings. In models one through three, multiple linear regression was used to predict postpartum depressive symptomatology based on pregnancy intention variables, including *wanting a*

baby, *mistimed pregnancy*, and *happiness level about expecting a baby*. Each of the pregnancy intentions variables were found to individually predict postpartum depression. Model one, *wanting a baby* was able to account for around 3.1 percent of variance in depressive symptoms, (R^2 = .031, F(1, 131)=4.179 p<.05). Whereas, model two, *mistimed pregnancy* was able to account for around 4.7 percent of the variance in depressive symptoms, (R^2 =.047, F(1, 131)=6.413 p<.05). While, model three *happiness level about expecting a baby* was able to account for around 7.6 percent of the variance in depressive symptoms, (R^2= .076, F(1, 131)=10.754 p<.01, R^2= .076). Wanting a baby and happiness level about expecting a baby yielded negative beta weights, indicating that higher wantedness and higher happiness levels were associated with lower levels of postpartum depressive symptoms. Mistimed pregnancy produced a positive beta weight, indicating pregnancy mistiming was associated with higher levels of postpartum depressive symptoms. In model four, all three pregnancy intention variables were run together and a significant regression equation was found for this three-predictor model which was able to account for around 8.4% of variance, (R^2=.084, F(3, 129)=3.932 p<.01); however, no pregnancy intentions variables were shown to be significant, which may have been due the intentions variables being correlated and no one variable being a stronger predictor of depressive symptoms than the other intentions variables. In model five, multiple linear regression was calculated to predict depressive symptoms based on prenatal attachment. A significant regression equation was found that was able to account for around 4.3 percent of the variance in the DV (R^2=.043, F(1, 131)=5.944 p<.05); with a negative beta weight signifying higher prenatal attachment associated with lower levels of postpartum depressive symptoms. Models six through eight examined each individual

intention variable with prenatal attachment to determine whether prenatal attachment mediated effects of individual intentions in regard to postpartum depressive symptoms. In model six, *wanting a baby* and prenatal attachment were regressed on postpartum depressive symptoms and yielded a significant regression equation, with the model accounting for around 5.9 percent of the variance in postpartum depressive symptoms (R^2 =.059, F(2, 130)=4.050, p<.05). Within the model, prenatal attachment was shown to mediate the effects of pregnancy wantedness on postnatal depressive symptoms (B=-.206, p=.05); with a negative beta weight indicating higher levels of prenatal attachment were associated with lower levels of postpartum depressive symptoms. Model seven regressed *mistimed pregnancy* and prenatal attachment on postpartum depressive symptoms and found a significant regression equation able to account for 7.6 percent of variance in postpartum depressive symptoms (R^2 =.076, F(2, 130)=5.348, p<.01). Within this model, *mistimed pregnancy* (B=.189, p=.03) and prenatal attachment (B=-.175, p=.04) both remained significant and therefore no mediation effect was noted. In model eight, *happiness about expecting a baby* and prenatal attachment were regressed on postpartum depressive symptoms and a significant regression equation was noted that was able to account for around 9.7 percent of the variance in postpartum depressive symptoms (R^2=.097, F(2, 130)=6.945, p=.001). Within this model, *happiness about expecting a baby* remained significant (B=-.047, p<.01), whereas prenatal attachment was no longer found to be significant; therefore no mediation was present. Model nine was calculated to predict postpartum depressive symptoms based on all three pregnancy intentions variables, as well as prenatal attachment. A significant regression equation was found that was able to predict around 10.1 percent of the variance in depressive symptoms (R^2 =

.101, F(4, 128) = 3.592 p<.01); however, no individual variables were significant within this model, which again may be due to correlations of intentions variables and no intentions variable being particularly stronger than the others. Model ten was calculated to predict postpartum depressive symptoms based on all pregnancy intention variables, prenatal attachment, and all control variables, including race/ethnicity, economic hardships, education, and union status. A significant regression equation was found that was able to account for around 18.1 percent of variance in depressive symptoms in this nine-predictor model (R^2 = .181, F(9, 121) = 2.976 p<.01). Prenatal attachment (p = .038), happiness level about expecting a baby (p = .035), and economic hardships (p = .017) were found to be significant predictors of postpartum depressive symptoms. Therefore, when controlling for demographic variables, prenatal attachment was found to mediate effects of both pregnancy *wantedness* and pregnancy *mistiming* on postpartum depressive symptomatology.

Findings suggest that each pregnancy intention variable independently predicts postpartum depression symptoms, as does prenatal attachment. When all intentions variables are individually included with prenatal attachment, prenatal attachment appears to mediate the effects of pregnancy wantedness on postpartum depression. However, when controlling for demographic variables, prenatal attachment was found to mediate effects of pregnancy wantedness and mistiming on postpartum depressive symptoms, however, the pregnancy intention variable of *happiness about expecting a baby* remained significant, signifying that prenatal attachment does not mediate the impact of level of happiness regarding pregnancy on postpartum depressive symptoms.

Discussion

Pregnancy intention was significantly associated with postpartum depression; indicating that not wanting a baby (unwanted pregnancy), having a mistimed pregnancy, and reporting lower levels of happiness about expecting a baby were associated with greater levels of postpartum depressive symptoms. Additionally, unmarried women and those with economic hardships on average reported more postpartum depressive symptoms. Prenatal attachment showed a significant negative correlation with postpartum depression, similar to research by Goecke et al. (2012) and Rubertsson et al. (2015) who documented lower prenatal attachment in mothers with more depressive symptomatology.

As for hypothesized relationships, support was found for Hypothesis 1, which posited that unintended and mistimed pregnancies would be associated with greater self-reported postpartum depressive symptoms. Herein, multivariate regression analysis demonstrated the predictive value of all pregnancy intention variables independently on postpartum depressive symptoms; with higher levels of happiness about expecting a baby and wanting a baby being predictive of lower levels of postpartum depressive symptoms and mistimed pregnancy being predictive of higher levels of postpartum depressive symptoms. Support was also found for Hypothesis 2, which posited that prenatal attachment would have a negative association with postpartum depression, with increased prenatal attachment associated with less maternal postpartum depressive symptoms. Findings indeed indicated a negative association; with higher levels of prenatal attachment predicting lower levels of depressive symptomatology. Hypothesis 3, which posited that prenatal attachment would mediate the association between pregnancy

intentions and postpartum depressive symptoms, was only partially supported as prenatal attachment was found to mediate the effects of pregnancy *wantedness* (with and without control variables), as well as *mistimed pregnancy* when demographic variables were controlled for. However, *happiness level about expecting a baby* remained significant even after controlling for pregnancy intentions, prenatal attachment, and demographic variables.

These findings are valuable, as unintended motherhood has been found to be a risk to healthy prenatal attachment; which is in-turn important for maternal identity formation (Mercer, 1986; Pisoni et al., 2014) as well as positive mother-infant health outcomes (Alhusen et al., 2012). Maternal psychological well-being knowingly affects early mother-infant bonding (Carter, Garrity-Rokous, Cahzan-Cohen, Little, & Briggs-Gowan, 2001; Stanley, Murray, & Stein, 2004), as such, it is essential to identify women with lower levels of prenatal attachment during pregnancy, so as to buffer the effects of postpartum depression and potential postpartum bonding disruptions. Intentionality and timing of a pregnancy cannot be changed once conception has occurs, yet with a modifiable characteristic such as prenatal attachment which has been shown to mediate the relationship between pregnancy intentions and postpartum depressive symptoms, prevention and intervention programs can be designed to assist unintended mothers and potentially improve mother-infant outcomes.

Medical professionals should assess maternal-fetal attachment, utilize procedures known to develop prenatal attachment between a mother and her developing fetus, and direct women struggling with the maternal-fetal attachment relationship to counseling, support groups, or other appropriate services. Since the attachment between mother and

child has been shown to begin during pregnancy (Brandon et al., 2009; Gloger-Tippelt, 2005; Righetti, Dell'Avanzo, Grigio, & Nicolini, 2005) the point of observation and intervention must be moved from postpartum interventions to prenatal interventions, a suggestion also noted by Pisoni et al. (2014).

Promoting prenatal attachment can be accomplished through a variety of methods. Prior research has noted improvements in prenatal attachment with utilization of antenatal care interventions that draw attention to the baby, with items such as abdominal palpitation in the form of Leopold's manoeuvre, listening to the heartbeat (Nishikawa & Sakakibara, 2013; Rubertsson & Pallant, 2015), and ultrasound scans, which have been linked to enhanced maternal-fetal attachment, as they provide evidence of a healthy fetus and a visual image of a child that is yet unseen (Sandbrook & Adamson-Macedo, 2004; Yarcheski et al., 2009). The process of quickening has show to increase prenatal attachment (Bloom, 1997), as such, attenuating to fetal activity during the process of "kick counting" has been repeatedly associated with increased levels of maternal-fetal attachment (Bloom, 1997; Heidrich & Cranley, 1989; Lindgren, 2001; Malm et al., 2016; Mikhail et al, 1991; Siddiqui & Hagglof, 2000). These processes are important to note, as promotion of prenatal attachment may provide a crucial link to improving maternal and fetal outcomes, particularly postpartum depression, especially in the case of unintended motherhood.

Limitations

Several limitations to the current study's findings should be considered. A convenience sample was utilized and may not be representative of the population, which limits the generalizability of the found associations. Additionally, pregnancy intention

may not accurately reflect how women felt prior to becoming pregnant, as research shows the best time to assess fertility intentions is prior to conception as perceptions of intention may change throughout pregnancy (Santelli et al., 2004). This study asked women in their 3rd trimester to retrospectively think about intention prior to becoming pregnant, as such we would assume some level of maternal-fetal bonding would have occurred and feelings regarding pregnancy intention may not be reflective of feelings held before conception. Prior research has found that women are more likely to deny a pregnancy as unintended during pregnancy or after delivery (David, 2006; Mercier, Garrett, Thorp, & Siega-Riz, 2013). As such, estimates may understate the number of unintended pregnancies within the sample. However, it is important to note that if anything, this should lead to a conservative estimate. Furthermore, this study employed a self-assessment data gathering technique, therefore selective bias, recall bias, and social desirability must be taken into account. In addition, maternal depressive symptoms were measured using a maternal self-report depression screening scale with no additional diagnosis of maternal depression conducted according to DSM-V criteria, as such, we cannot speak to clinical diagnosis of depression, only self-reported depressive symptoms. However, it is not uncommon for screening tools to be used as a proxy for diagnosis, nor is it uncommon for clinicians to treat depression on the basis of screening alone. This study also lacks data regarding participants' prior depression history either before pregnancy or during pregnancy and can only speak to depressive symptoms experienced throughout the postpartum period. Finally, it is important to note that correlational data within the current study design does not allow for directional or causal conclusions to be drawn, but offers found associations and relationships which are important on their own,

but would also be beneficial for future study with more advanced statistical methods as well as qualitative inquiry.

Implications for Research and Practice

The findings of this study are expected to be useful in the prevention of postpartum depressive symptoms and potential consequential maternal bonding impairments and adverse infant outcomes (Grace, Evindar, & Stewart, 2003), particularly for unintended mothers. Prevention and intervention programs that address promoting prenatal attachment could decrease postpartum depressive symptoms and specifically help to buffer the effects of unintended motherhood on postpartum depression. In addition, little is known about cultural differences in prenatal attachment, as such, there could be great benefit from exploration of the effects of prenatal attachment on differing cultural and risk-sensitive groups to determine how prenatal attachment impacts postpartum depressive symptoms and outcomes within varying contexts. Further research is needed to elucidate the mechanisms that foster feelings of attachment and interventions designed to enhance or speed the development of prenatal attachment. Potential targets include procedures such as Leopold's maneuver, ultrasound, visualization, kick counting, or other therapeutic interventions. Additionally, clinical research could investigate the effect of health care professionals screening for and addressing lower levels of prenatal maternal-fetal attachment through facilitation of effective programming that increases fetal interactions and visualization about the baby since this may aid with the postpartum mother-infant bond (Alhusen et al., 2013) as well as reduce postpartum depressive symptomatology. Finally, this area of inquiry would be well-suited for qualitative analysis in order to gain further insight into women's narratives regarding the

development of prenatal attachment, particularly among mothers who did not intend their pregnancies.

Conclusions

This study suggests a significant association and predictive quality between unintended motherhood, prenatal attachment, and postpartum depressive symptoms, with prenatal attachment mediating pregnancy wantedness, as well as pregnancy mistiming when demographic variables are controlled for. As such, prenatal attachment represents a potential protective process for unintended motherhood, which places women at an increased risk for developing postpartum depressive symptomatology. Therefore, unintended mothers should represent a population with whom prenatal attachment should be specifically and strongly promoted in an attempt to buffer effects of postpartum depressive symptoms. Clinicians should inquire as to pregnancy intentions at early antenatal appointments to provide targeted prenatal attachment and depression screening and additional care to help promote prenatal attachment with unintended mothers who may be at greater risk for poor prenatal attachment and greater postpartum depressive symptoms. Women with suboptimal prenatal attachment should be identified as "at risk" and followed throughout their pregnancy and into the postpartum period, with additional support or appropriate referrals provided when necessary.

CHAPTER VI

CONCLUSION

In the United States, unintended pregnancies are a common experience, with about half of all women experiencing at least one before the end of their childbearing years (Jones & Kavanaugh, 2011). Women who are faced with motherhood without intention are often confronted with the tough decision of whether to continue or terminate an unintended pregnancy. Women who opt to continue their pregnancy may be have the additional decision of whether to keep their child or give him/her up for adoption. The qualitative portion of this dissertation sought to explore this decisional process, wherein, situational dynamics, contextual factors, personal characteristics, and perceptions were found to impact decisions and provide context as to why women made the decisions they did. Women who ultimately opted to terminate their pregnancy felt unable to be have a baby without ideal life circumstances such as a completed education, an established career, a suitable home, financial stability, and/or a committed and healthy partner. Women who terminated their pregnancy also reported less access to resources and support, whether real or perceived, than woman who continued their unintended pregnancy. Whereas women who opted to continue their pregnancy described a strong maternal identity, a desire for children at some point in time, the ability to overcome

obstacles as a mother, and a strong will to succeed at goals in life despite the challenges of an unintended pregnancy. These women were more likely to describe healthy partnerships, as well as more support and resources available to them, and to positively appraise their situation despite wishing for more ideal circumstances.

Findings from this dissertation highlight the importance of cognitive appraisal, the ability to navigate resources, personal characteristics and values, and contextual factors, as well as the availability of social support in the decisions women make regarding their pregnancies. When unintended pregnancy occurs, the availability of support is shown to assist women with the tough decisions that follow. Even after the decision to continue or terminate a pregnancy has been made, support appears to be an essential component for the health and well-being of unintended mothers, whether they opt to birth a child or not.

Yet, challenges do not end for a woman after the decision to continue or terminate a pregnancy has been made. Once a woman decides to continue with a pregnancy, she is at risk for a host of negative outcomes associated with unintended motherhood, including increased stress and anxiety, risk of substance abuse or tobacco exposure, financial hardships, lower educational attainment, future unintended pregnancies, in addition to other aspects explored within this dissertation, including lower levels of prenatal and postnatal attachment and greater levels of postpartum depressive symptomatology (Abbasi, Chuang, Dagher, Zhu, & Kjerulff, 2013; Cheng, Schwarz, Douglas, & Horon, 2009; Holub et al., 2007; Horon, 2009; Karacam, Onel, & Gereck, 2011; Shah et al. 2011).

As pregnancy intention cannot be changed once a child is conceived, focusing instead on a malleable and dynamic known protective construct such as prenatal

attachment provides a target characteristic capable of growth that may help to buffer known risks of unintended motherhood on postnatal mother-infant bonding and postpartum depressive symptomatology. Quantitative portions of this dissertation sought to focus on the relationship between pregnancy intentions, prenatal attachment, postnatal mother-infant bonding, and postpartum depressive symptomatology.

Pregnancy intentions were explored within this dissertation as a multidimensional construct including wantedness of a baby, timing of a pregnancy, and happiness regarding a current pregnancy. In the development of prenatal attachment, all dimensions of intentions were found to be important. Higher levels of prenatal attachment were associated with wanting a baby at some point in the future and higher happiness levels regarding a current pregnancy, whereas lower levels of prenatal attachment were associated with mistimed pregnancies. Higher levels of prenatal attachment were also associated with and predictive of higher levels of postnatal mother-infant bonding through both correlational and multivariate regression analysis. Findings indicate that pregnancy intentions are significantly associated with prenatal attachment, which is significantly associated with postnatal mother-infant bonding, as such we can infer that pregnancy intentions impact postnatal mother-infant bonding through prenatal attachment. As such, targeted prevention and intervention efforts that focus on promoting prenatal attachment may be particularly beneficial to unintended mothers since previous research has established known risks to the prenatal maternal-fetal bond for this population (Damato, 2004), with a potential for consequential postnatal mother-infant bonding disturbances (Dubber, Reck, Müller, & Gawlik, 2015; Figueiredo & Costa, 2009; Müller, 1996; van Bussel, Spitz, Demyttenaere, 2010). Therefore, increasing

prenatal attachment may serve to buffer negative effects of unintended motherhood and possible negative mother-infant outcomes.

One such potential negative outcome for unintended mothers is that of increased postpartum depressive symptomatology, (Abbasi et al., 2013; Barber, Axinn, & Thorton, 1999; Cheng et al., 2009; Karacam, Onel, & Gereck, 2011; Mercier et al., 2013; Nakku, Nakasi, & Mirembe, 2006; Rubertsson et al., 2015), which impacts a woman's health and may affect her ability to form affectionate bonds and care for her infant (Brockington et al., 2001; O'Hara & Swain, 1996; Kennedy, Beck, & Driscoll, 2002), thereby leading to detrimental effects on the child and the family system (Cummings, Keller, & Davies, 2005). As such, this dissertation examined prenatal attachment as a potential protective process to ameliorate the increased risk of depressive symptomatology in the postpartum period for unintended mothers. Findings of correlational analysis indicated significant associations between greater levels of postpartum depressive symptoms and not wanting a baby (unwanted pregnancy), lower levels of happiness about expecting a baby, and having a mistimed pregnancy. However, higher levels of prenatal attachment were associated with lower levels of postpartum depressive symptoms. Multivariate regression analysis found that all pregnancy intention variables independently predicted postpartum depressive symptoms; with wanting a baby and higher levels of happiness about expecting a baby being predictive of lower levels of postpartum depressive symptoms and higher levels of depressive symptoms predicted by a mistimed pregnancy. Higher levels of prenatal attachment were also predictive of lesser postpartum depressive symptomatology. Additionally, prenatal attachment was found to mediate the effects of pregnancy wantedness as well as mistiming when demographic variables were controlled

for. However, happiness level about expecting a baby remained significant even after controlling for pregnancy intentions, prenatal attachment, and demographic variables.

With unintended mothers placed at additional risk for developing postpartum depressive symptoms (Abbasi et al., 2013), they represent a special population with whom prenatal attachment should be specifically promoted. With mediation effects noted, prenatal attachment may therefore provide some level of protection against postpartum depressive symptoms, particularly for women experiencing an unwanted or mistimed pregnancy. With findings from this dissertation linking higher levels of prenatal attachment to higher levels of postnatal mother-infant bonding and lesser postpartum depressive symptoms, it is essential to identify expectant mothers with lower levels of prenatal attachment in an effort to buffer the effects of postpartum depression and potential postpartum bonding disruptions. Special attention should be paid to unintended mothers who may be at increased risk for suboptimal prenatal attachment (Pisoni et al., 2014) so they can be followed throughout their pregnancy and into the postpartum period, with additional support or appropriate referrals provided when necessary.

Expectant mothers, particularly those experiencing unwanted or mistimed pregnancies, should be assessed for maternal-fetal attachment; procedures known to develop prenatal attachment can then be utilized when bonding disturbances are noted. Prenatal attachment can be promoted through a variety of methods, including drawing attention to baby during routine obstetric appointments through abdominal palpitation or baby-centered conversations, listening to fetal heart tones, increased ultrasound scans (Nishikawa & Sakakibara, 2013; Rubertsson & Pallant, 2015; Sandbrook & Adamson-Macedo, 2004; Yarcheski et al., 2009), as well as attenuation to fetal movement through

kick counting (Lindgren, 2001; Malm et al., 2016; Mikhail et al, 1991). Promoting processes that are known to strengthen prenatal attachment are crucial for expectant mothers and their unborn babies, as increasing levels of prenatal maternal-fetal attachment may provide a critical link to improving mother-infant outcomes, through increased postnatal mother-infant bonding and reduced postpartum depressive symptomatology, particularly in the case of unintended motherhood.

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APPENDICES

APPENDIX A:

PREBIRTH ASSESSMENT

Pre-Birth Assessment

Researchers at Oklahoma State University are conducting a study to learn more about new mothers and their infants in Oklahoma, especially their health, communities, and family relationships. We are looking for women who are: 18-35 years old · Expecting your first biological child · Be in your 3rd trimester (at least 28 weeks pregnant) · Able to read and write in English. Participation is confidential and completely voluntary. There are several parts to this study. If you choose to participate, you will first complete this online survey that includes questions about health and well-being, pregnancy and birth experience, your own experiences as a child, and your baby's health and development. There are no right or wrong answers to questions; we just want your honest responses. This survey will take around 30 minutes. Every month after you participate in the first survey, we will contact you again by phone to find out if anything in your life has changed, such as your job, childcare, or if you have given birth. Those surveys will be brief, lasting only around 5 minutes; less if there are no changes to report. The month that you let us know that you had the baby, we will do another survey, either on the phone or online if you would prefer that. That survey will take 15 minutes or less to complete. You will be paid up to $70, which includes $40 for the 3rd trimester survey and $30 for the survey after you give birth. You will be paid three times, after you finish each part of the study. If you decide to stop participating before the study is complete, we will send your payment if we don't hear from you for two months. Your payment will be by check to an address that you provide. You will be able to withdraw from the study at any time. All information about you and your child will remain confidential. If you have any questions about the study, feel free to contact the Principal Investigator, Karina Shreffler, Ph.D., at karina.shreffler@okstate.edu. After reading the consent information above, please indicate whether or not you agree to participate in the study.

❍ I agree to participate in the study. (1)

❍ I do not agree to participate in the study. (2)

P1Q0 Have you ever given birth before?

- ❍ Yes (1)
- ❍ No (2)

Q1 Are you in your 3rd trimester (at least 28 weeks pregnant)?

- ❍ Yes (1)
- ❍ No (2)

Q2 Are you 18 to 35?

- ❍ Yes (1)
- ❍ No (2)

Q3 Please provide us with your contact information so that we can call you for monthly updates. If you don't have a cell phone, please enter a phone number where we can reach you.

Your main cell phone number (1)

A second number where we could reach you (2)

A third number where we could reach you (3)

QP2 First, we would like to know some background information about you and your baby.

P2Q1 1. How old you will be when your baby is born?

- ❍ 18 (1)
- ❍ 19 (2)
- ❍ 20 (3)
- ❍ 21 (4)
- ❍ 22 (5)
- ❍ 23 (6)

- ❍ 24 (7)
- ❍ 25 (8)
- ❍ 26 (9)
- ❍ 27 (10)
- ❍ 28 (11)
- ❍ 29 (12)
- ❍ 30 (13)
- ❍ 31 (14)
- ❍ 32 (15)
- ❍ 33 (16)
- ❍ 34 (17)
- ❍ 35 (18)
- ❍ 36 (19)
- ❍ 37 (20)
- ❍ 38 (21)
- ❍ 39 (22)
- ❍ 40 (23)

P2Q2 2. What is your due date?

Month (1)

Day (2)

Year (3)

P2Q3 3. What is your address? -------

Address (1)

City (2)

Zipcode (3)

P2Q4 4. Please choose one or more of the following categories to describe your race or ethnicity:

- ❑ White (1)
- ❑ Black (2)
- ❑ Asian/Pacific Islander (3)
- ❑ Hispanic (4)
- ❑ Unknown (5)
- ❑ Native American (6)
- ❑ Other (please list) (7) _____

P2Q5 5. Please choose one or more of the following categories to describe your baby's race or ethnicity:

- ❑ White (1)
- ❑ Black (2)
- ❑ Asian/Pacific Islander (3)
- ❑ Hispanic (4)
- ❑ Unknown (5)
- ❑ Native American (6)
- ❑ Other (please list) (7) _____

P2Q6 6. Relationship Status:

- ❍ Single (1)
- ❍ Married (2)
- ❍ Remarried (3)
- ❍ Divorced (4)
- ❍ Cohabiting/living with a romantic partner (5)

- ❍ Separated (6)
- ❍ Widower (7)
- ❍ In a romantic relationship, but not living with the partner (8)

P2Q6a 6a. Is the person you are currently in a romantic relationship with the father of your baby?

- ❍ Yes (1)
- ❍ No (2)

P2Q7 7. How many times have you been married (including current marriage if married):

- ❍ 0 (1)
- ❍ 1 (2)
- ❍ 2 (3)
- ❍ 3 (4)
- ❍ 4 (5)
- ❍ 5 or more (6)

P2Q8 8. How many times have you have ever lived with someone else in a romantic relationship (including marriages and cohabitations):

- ❍ 0 (1)
- ❍ 1 (2)
- ❍ 2 (3)
- ❍ 3 (4)
- ❍ 4 (5)
- ❍ 5 or more (6)

P2Q9 9. What is the highest grade you completed in school:

- ❍ Grade School (1)

- 7th Grade (2)
- 8th Grade (3)
- 9th Grade (4)
- 10th Grade (5)
- 11th Grade (6)
- High School diploma/GED (7)
- Some College (8)
- Associate's or technical degree (9)
- Bachelor's Degree (10)
- Master's Degree (11)
- Doctoral or Professional Degree (12)

P2Q10 10. What is your total household income (before taxes) per year (excluding public assistance)?

- Under $10,000 (1)
- $11,000-$19,999 (2)
- $20,000-$29,999 (3)
- $30,000-$39,999 (4)
- $40,000-$49,999 (5)
- $50,000-$59,999 (6)
- $60,000-$69,999 (7)
- $70,000-$79,999 (8)
- $80,000-$89,999 (9)
- $90,000-$99,999 (10)
- $100,000 and over (11)

P2Q11 11. In the past year, did you receive any public assistance (e.g., TANF, Medicaid)?

- ❍ Yes (1)
- ❍ No (2)

P2Q12 12. What best describes your religious preference?

- ❍ Protestant (1)
- ❍ Catholic (2)
- ❍ Muslim (3)
- ❍ Jewish (4)
- ❍ No religion (5)
- ❍ Other (6) _____

P2Q13 13. Who currently lives in the same household with you? Please provide how each person living with you is related to you (for example: mother, sister, boyfriend, etc.) and his/her age. You can fill this out for up to 8 people. If you have fewer than 8 other people in your household, please leave extra boxes blank.

	How is this person related to you? (1)	How old is this person? (2)
Person 1 (1)		
Person 2 (2)		
Person 3 (3)		
Person 4 (4)		
Person 5 (5)		
Person 6 (6)		
Person 7 (7)		
Person 8 (8)		

P2Q14 14. What language is spoken most often at home?

- ❍ English (1)
- ❍ Spanish (2)
- ❍ Other (3) _____

P3 Now we have some questions about your pregnancy and your plans for future children.

P3Q1 1. Is this your first pregnancy, or have you been pregnant before?

- ❍ First pregnancy (1)
- ❍ Have been pregnant before (2)

P3Q1a How many times have you been pregnant, and what were the outcomes of those pregnancies?

How many times have you been pregnant altogether? (1)	❍ 2 (1)	❍ 3 (2)	❍ 4 (3)	❍ 5 or more (4)
How many miscarriages have you had? (2)	❍ 0 (1)	❍ 1 (2)	❍ 2 (3)	❍ 3 or more (4)
How many stillbirths have you had? (3)	❍ 0 (1)	❍ 1 (2)	❍ 2 (3)	❍ 3 or more (4)
How many times have you given birth before? (4)	❍ 0 (1)	❍ 1 (2)	❍ 2 (3)	❍ 3 or more (4)

P3Q2 2. Before you became pregnant, had you stopped using all methods of birth control?

- ❍ Yes (1)
- ❍ No (2)
- ❍ I don't know (3)

P3Q2a 2. Before you became pregnant this time, had you stopped using all methods of birth control?

- ❍ Yes (1)
- ❍ No (2)
- ❍ I don't know (3)

P3Q3 3. Had you stopped using all birth control for at least 12 months before becoming pregnant?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Maybe (3)
- ❍ Not sure/don't know (4)

P3Q4 4. How many weeks pregnant were you when you found out? If you aren't exactly sure, please select your best guess.

- ❍ 4 weeks (1)
- ❍ 5 weeks (2)
- ❍ 6 weeks (3)
- ❍ 7 weeks (4)
- ❍ 8 weeks (5)
- ❍ 9 weeks (6)
- ❍ 10 weeks (7)
- ❍ 11 weeks (8)
- ❍ 12 weeks (9)

- ❍ 13 weeks (10)
- ❍ 14 weeks (11)
- ❍ 15 weeks (12)
- ❍ 16 weeks (13)
- ❍ 17 weeks (14)
- ❍ 18 weeks (15)
- ❍ 19 weeks (16)
- ❍ 20 weeks or more (17)

P3Q5 5. How far along in your pregnancy were you when you had your first prenatal appointment with a medical provider?

- ❍ Less than 6 weeks (1)
- ❍ 6-8 weeks (2)
- ❍ 9-11 weeks (3)
- ❍ 12-14 weeks (4)
- ❍ 15-17 weeks (5)
- ❍ 18 weeks or more (6)

I haven't seen a medical provider yet. (7)

P3Q6 6. Right before you became pregnant, did you want to have a baby at any time in the future?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Don't know/not sure (3)

P3Q7 7. Would you say that you became pregnant too soon, at about the right time, or later than you wanted?

- ❍ Sooner than I wanted to (1)

- ❍ About the right time (2)
- ❍ Later than I wanted to (3)
- ❍ Didn't care about the timing (4)
- ❍ Don't know/not sure (5)

P3Q8 8. Right before this pregnancy, did you want to have a baby with that partner (the baby's father)?

- ❍ Definitely not (2)
- ❍ Probably not (3)
- ❍ Not sure (4)
- ❍ Probably yes (5)
- ❍ Definitely yes (6)

P3Q9 9. On a scale from 1 to 10, where one means that you were very unhappy to be pregnant and 10 means you were very happy to be pregnant, which number best describes how you felt when you found out you were pregnant?

	Very unhappy=1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	8 (8)	9 (9)	Very happy=10 (10)
Happiness when finding out about pregnancy (1)	❍	❍	❍	❍	❍	❍	❍	❍	❍	❍

P3Q10 10. Right before you became pregnant, did the father of your baby want you to become pregnant?

- ❍ Yes (1)

- ❍ No (2)
- ❍ Don't know/not sure (3)

P3Q10a 10a. Which of the following statements applies to you right before you became pregnant:

- ❍ Your birth control method failed (1)
- ❍ You did not use birth control properly (2)
- ❍ Other reason: (3) _____

P3Q10b 10b. Why didn't you use birth control?

- ❍ I did not expect to have sex (1)
- ❍ I did not think I could become pregnant (2)
- ❍ I was trying to get pregnant (3)
- ❍ I was okay either way about getting pregnant (4)
- ❍ I was worried about the side effects of birth control (5)
- ❍ My male partner didn't want me to use a birth control method (6)
- ❍ My male partner did not want to use a birth control method himself (7)
- ❍ I just wasn't taking, or using, my birth control method consistently (8)
- ❍ Other reason: (9) _____

P3Q11 11. Were you either married to or living with the father of your baby at the beginning of the pregnancy? By living together, we mean having a sexual relationship while sharing the same address.

- ❍ Married (1)
- ❍ Living together (2)
- ❍ Neither married nor living together (3)

P3Q12 12. Would you say that you were trying to get pregnant, trying NOT to get pregnant, or ok either way?

- ❍ Trying to get pregnant (1)
- ❍ Trying NOT to get pregnant (2)
- ❍ Okay either way (3)

P3Q13 13. Do you intend to have any more children after this one?

- ❍ No (1)
- ❍ Not sure (2)
- ❍ Yes (3)

P3Q13a 13a. How soon would you like to have your next baby?

- ❍ Less than 1 year after this one (1)
- ❍ Between 1 and 2 years after having this one (2)
- ❍ Between 2 and 3 years after having this one (3)
- ❍ Between 3 and 4 years after having this one (4)
- ❍ 4 or more years after having this one (5)

P3Q14 14. How sure are you that you will have more children?

- ❍ Very sure (1)
- ❍ Moderately sure (2)
- ❍ Not very sure (3)

P3Q14a 14. How sure are you that you will not have any more children after this one?

- ❍ Very sure (1)
- ❍ Moderately sure (2)
- ❍ Not very sure (3)

P3Q15 15. People often do not have exactly the same number of children they want to have. If you could have exactly the number of children you want, how many children would you want to have?

- ❍ 0 (1)
- ❍ 1 (2)
- ❍ 2 (3)
- ❍ 3 (4)
- ❍ 4 (5)
- ❍ 5 (6)
- ❍ 6 (7)
- ❍ 7 (8)
- ❍ 8 (9)
- ❍ 9 (10)
- ❍ 10 or more (11)

P3Q16 16. Where do you get most of your information about pregnancy and childbirth?

- ❍ Childbirth education classes (1)
- ❍ From medical provider (2)
- ❍ From books, magazines, or the internet (3)
- ❍ From friends or family members (4)
- ❍ No one (5)
- ❍ Other (6) _____

P3Q17 17. Who will you ask when you have questions about infants and their care?

- ❍ Medical provider (1)
- ❍ Read books, magazines, or the internet (2)
- ❍ From parenting classes (3)

- ❍ From friends or family members (4)
- ❍ No one (5)
- ❍ Other (6) _____

P3Q18 18. How often do you make it to your prenatal appointments?

- ❍ I haven't seen a medical provider yet (1)
- ❍ I have been a few times since I've been pregnant (2)
- ❍ I have been to most of the scheduled appointments (3)
- ❍ I have not missed any prenatal appointments since finding out I was pregnant (4)

P3Q19 19. How often do you take prenatal vitamins?

- ❍ Every day (1)
- ❍ Most days (5-6 days/week) (2)
- ❍ A few days per week (3)
- ❍ About once a week (4)
- ❍ Less than once a week (5)
- ❍ Never/don't take them (6)

P3Q19a 19a. When did you start taking your prenatal vitamins?

- ❍ At least three months before getting pregnant (1)
- ❍ Less than 3 months before getting pregnant (2)
- ❍ When I found out I was pregnant (3)
- ❍ Other (4) _____

P3Q20 20. What type of medical provider are you seeing for your prenatal care?

- ❍ OBGYN (1)

- ❍ Family Physician (2)
- ❍ Nurse Practitioner (3)
- ❍ Physician's Assistant (7)
- ❍ Midwife (4)
- ❍ None (5)
- ❍ Don't know (6)

P3Q20a 20a. What is the name of your physician or health care provider (for example, Dr. Jane Brown)?

P3Q20b 20b. Would you say your physician or health care provider is the same race/ethnicity as you, or a different race/ethnicity?

- ❍ Same as me (1)
- ❍ Different from me (2)
- ❍ Not sure/don't know (3)

Q158 20c. Is your physician or health care provider the same sex as you?

- ❍ Yes (1)
- ❍ No (2)

Q159 20d. Which of the following statements do you agree with?

	1 (1)	2 (2)	3 (3)
I am not at all comfortable talking to my physician/health care provider.:I am very comfortable talking to my health care provider. (1)	❍	❍	❍

I am not at all confident in my physician/health care provider's abilities.:I am very confident in my physician/health care provider's abilities. (2)	❍	❍	❍

P3Q21 21. Where do you receive prenatal medical care?

- ❍ Private Clinic (1)
- ❍ Health Department (2)
- ❍ Tribal Health Clinic (3)
- ❍ Other (4) _____

P3Q21a 21a. What is the name of the clinic or center where you receive prenatal medical care?

P3Q22 22. Thinking about your transportation time, how long does it take you to get from where you live to your prenatal medical care provider?

- ❍ Less than 5 minutes (1)
- ❍ 5-10 minutes (2)
- ❍ 11-15 minutes (3)
- ❍ 16-20 minutes (4)
- ❍ 21-25 minutes (5)
- ❍ 26-30 minutes (6)
- ❍ 31-35 minutes (7)
- ❍ 36-40 minutes (8)
- ❍ 41-44 minutes (9)

- ❍ 46-50 minutes (10)
- ❍ 51-55 minutes (11)
- ❍ 56-60 minutes (12)
- ❍ More than 1 hour (13)

P3Q23 23. Thinking about your transportation time, how long does it take you to get from where you live to where you plan to give birth?

- ❍ Less than 5 minutes (1)
- ❍ 5-10 minutes (2)
- ❍ 11-15 minutes (3)
- ❍ 16-20 minutes (4)
- ❍ 21-25 minutes (5)
- ❍ 26-30 minutes (6)
- ❍ 31-35 minutes (7)
- ❍ 36-40 minutes (8)
- ❍ 41-45 minutes (9)
- ❍ 46-50 minutes (10)
- ❍ 51-55 minutes (11)
- ❍ 56-60 minutes (12)
- ❍ More than 1 hour (13)

P3Q24 24. How are your prenatal care, birth, and hospital stay going to be paid for?

- ❍ Private Insurance (1)
- ❍ SoonerCare or Medicaid insurance program (2)
- ❍ Out-of-pocket (no insurance) (3)

Q28 25. How confident do you feel about becoming a parent?

- ❍ Not at all confident (1)
- ❍ A little confident (2)
- ❍ Somewhat confident (3)
- ❍ Pretty confident (4)
- ❍ Very confident (5)

P4Q26 26. For the next 21 items, please describe how often you feel this way about your baby (almost never, sometimes, often, or almost always)

	Almost never (1)	Sometimes (2)	Often (3)	Almost always (4)
1. I wonder what the baby looks like now. (1)	❍	❍	❍	❍
2. I imagine calling the baby by name. (2)	❍	❍	❍	❍
3. I enjoy feeling the baby move. (3)	❍	❍	❍	❍
4. I think my baby already has a personality. (4)	❍	❍	❍	❍
5. I let other people put their hands on my tummy to feel the baby move. (5)	❍	❍	❍	❍
6. I know things I do make a difference to the baby. (6)	❍	❍	❍	❍

7. I plan the things I will do with my baby. (7)	❍	❍	❍	❍
8. I tell others what the baby is doing inside me. (8)	❍	❍	❍	❍
9. I imagine what part of the baby I'm touching. (9)	❍	❍	❍	❍
10. I can tell when the baby is asleep. (10)	❍	❍	❍	❍
11. I can make my baby move. (11)	❍	❍	❍	❍
12. I buy/make things for the baby. (12)	❍	❍	❍	❍
13. I feel love for the baby. (13)	❍	❍	❍	❍
14. I try to imagine what the baby is doing in there. (14)	❍	❍	❍	❍
15. I like to sit with my arms around my tummy. (15)	❍	❍	❍	❍
16. I dream about the baby. (16)	❍	❍	❍	❍
17. I know why the baby is	❍	❍	❍	❍

moving. (17)				
18. I stroke the baby through my abdomen. (18)	❍	❍	❍	❍
19. I share secrets with the baby. (19)	❍	❍	❍	❍
20. I know the baby hears me. (20)	❍	❍	❍	❍
21. I get very excited when I think about the baby. (21)	❍	❍	❍	❍

P4Q27 27. Do you plan to breastfeed?

❍ Yes (1)

❍ Not sure (2)

❍ No (3)

P4Q28c Q28. Please explain why you are not sure about breastfeeding.

P5Q29 29. Are you currently employed?

❍ Yes (1)

❍ No (2)

P5Q29a 29a. Do you plan to return to work following the child's birth or your maternity leave?

❍ Yes (1)

- ❍ No (2)

P5Q29b Q29b. How soon after you give birth do you plan to go back to work?

- ❍ Less than 2 weeks (1)
- ❍ 2-4 weeks (2)
- ❍ 5-6 weeks (3)
- ❍ 7-9 weeks (4)
- ❍ 10-12 weeks (5)
- ❍ 3-6 months (6)
- ❍ 7-12 months (7)
- ❍ More than 1 year after giving birth (8)

P5Q30 30. How many hours a week do you work in an average week? (If you work at more than 1 job, please check the circle for the total number of hours you work at all jobs each week.)

- ❍ 1-14 hours (1)
- ❍ 15-29 hours (2)
- ❍ 30-39 hours (3)
- ❍ 40-45 hours (4)
- ❍ 46-50 hours (5)
- ❍ 51-59 hours (6)
- ❍ 60 or more hours/week (7)

P5Q31 31. What is your occupation/job title (for example: second-grade teacher)?

P5Q32 32. How much does your job interfere with your family life?

- ❍ Never (1)
- ❍ Seldom (2)

- ❍ Pretty often (3)
- ❍ Very Often (4)

P5Q33 33. How often do the demands of your family--for example, taking care of family members, sickness, and household emergencies--interfere with your job?

- ❍ Never (1)
- ❍ Seldom (2)
- ❍ Pretty often (3)
- ❍ Very often (4)

P5Q35 34. Who will take care of your baby while you are at work?

- ❍ The baby's father (1)
- ❍ A family member (not the father) (2)
- ❍ Babysitter or nanny (3)
- ❍ Daycare in someone's house (4)
- ❍ Daycare at a center (5)
- ❍ Don't know yet (6)

P6Q35 35. The next questions are about the baby's father. Since you became pregnant, how often would you say the baby's father… (never to always)

	Never (1)	Occasionally (2)	Very Often (3)	Always (4)
Has provided money? (1)	❍	❍	❍	❍
Helped with errands? (2)	❍	❍	❍	❍
Listened to worries and concerns? (3)	❍	❍	❍	❍
Helped solve problems? (4)	❍	❍	❍	❍
Disappointed you? (5)	❍	❍	❍	❍
Was critical or short-tempered? (6)	❍	❍	❍	❍

P6Q36 36. How satisfied, overall, are you with the support the baby's father has given you since you found out you were pregnant?

- ❍ Very Dissatisfied (1)
- ❍ Dissatisfied (2)
- ❍ Neutral (3)
- ❍ Satisfied (4)
- ❍ Very Satisfied (5)

P6Q37 37. Does the baby's father have any children already?

- ❍ Yes (1)

- ❍ No (2)
- ❍ Not sure/don't know (3)

P6Q37a 37a. How many children does he have?

- ❍ 1 (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 or more (5)

P6Q38 38. What expectations do you have for the upcoming labor, delivery, and the birth of your baby?

P6Q39 39. What thoughts, feelings, and experiences regarding your pregnancy so far stick out in your mind?

P6Q40 40. What are you looking forward to most when you become a parent?

P6Q41 41. How do you think becoming a mother will change your life?

P6Q42 42. The following are statements are about parenting and raising children. How much do you agree or disagree with each statement?

	Strongly Agree (1)	Agree (2)	Neutral (3)	Disagree (4)	Strongly Disagree (5)
Time-out is an effective way to discipline children. (1)	❍	❍	❍	❍	❍
Children can learn good discipline without being spanked. (2)	❍	❍	❍	❍	❍
In father's absence, the son needs to become the man of the house. (3)	❍	❍	❍	❍	❍
A certain amount of fear is necessary for children to respect their parents. (4)	❍	❍	❍	❍	❍
It's OK to spank as a last resort. (5)	❍	❍	❍	❍	❍
Children should know what their parents need without being told. (6)	❍	❍	❍	❍	❍
Children should keep	❍	❍	❍	❍	❍

their feelings to themselves. (7)					
Children have a responsibility to please their parents. (8)	❍	❍	❍	❍	❍
A good child sleeps through the night. (9)	❍	❍	❍	❍	❍
There is nothing worse than a strong willed two-year old. (10)	❍	❍	❍	❍	❍
The sooner children learn to feed and dress themselves and use the toilet, the better off they will be as adults. (11)	❍	❍	❍	❍	❍
Letting a child sleep in the parents' bed every now and then is a bad idea. (12)	❍	❍	❍	❍	❍
Babies need to learn how to be considerate of the needs of their mother.	❍	❍	❍	❍	❍

(13) "Because I said so!" is the only reason parents need to give. (14)	❍	❍	❍	❍	❍

P6Q43 43. How much do you agree with the following statements:

	Strongly Agree (1)	Agree (2)	Neither Agree nor Disagree (3)	Disagree (4)	Strongly Disagree (5)
Babies can get depressed. (1)	❍	❍	❍	❍	❍
Things that happen before the age of 3 have no impact later in life. (2)	❍	❍	❍	❍	❍
Predictable routines are not important for helping babies develop well. (3)	❍	❍	❍	❍	❍
Babies need help from caregivers to calm down. (4)	❍	❍	❍	❍	❍
Exploring the environment is necessary for healthy development in babies. (5)	❍	❍	❍	❍	❍

To have a positive impact on a child's later development, the caregiver should respect the baby. (6)	❍	❍	❍	❍	❍
Babies have other ways of communicating besides crying. (7)	❍	❍	❍	❍	❍

P7 The next questions are about your life and health.

P7Q1 1. Thinking about before you got pregnant, would you say that your health was excellent, very good, good, fair, or poor?

- ❍ Excellent (1)
- ❍ Very Good (2)
- ❍ Good (3)
- ❍ Fair (4)
- ❍ Poor (5)

P7Q2 2. Would you say your health has stayed the same during pregnancy, gotten worse, or improved?

- ❍ Stayed the same (1)
- ❍ Gotten worse (2)
- ❍ Improved (3)

P7Q3 3. Do you have any health conditions?

❍ Yes--> If yes, what are they? (1) _____

❍ No (2)

P7Q4 4. Before your pregnancy, how often were you…

	Never (1)	Less than monthly (2)	About once a month (3)	Several times a month (4)	About once a week (5)	Several times a week (6)	Daily (7)
Participating in moderate or intensive physical activity for at least 30 minutes? (1)	❍	❍	❍	❍	❍	❍	❍
Drinking alcohol? (2)	❍	❍	❍	❍	❍	❍	❍
Smoking cigarettes or other tobacco products? (3)	❍	❍	❍	❍	❍	❍	❍

P7Q5 5. Since getting pregnant/finding out you were pregnant, how often do you currently...

	Never (1)	Less than monthly (2)	About once a month (3)	Several times a month (4)	About once a week (5)	Several times a week (6)	Daily (7)
Participate in	❍	❍	❍	❍	❍	❍	❍

moderate or intensive physical activity for at least 30 minutes? (1)							
Smoke cigarettes or other tobacco products? (2)	❍	❍	❍	❍	❍	❍	❍
Drink alcohol? (3)	❍	❍	❍	❍	❍	❍	❍

P7Q6 6. Reflecting on the past year, to what extent were the following statements true about you:

	Not True (1)	Somewhat True (2)	Very True (3)
When I'm feeling mad, I control my temper. (1)	❍	❍	❍
I stay calm and keep my cool when I'm feeling mad. (2)	❍	❍	❍
I do things like slam doors when I'm mad. (3)	❍	❍	❍
I attack whatever it is that makes me mad.	❍	❍	❍

(4) I can stop myself from losing my temper. (5)	❍	❍	❍
I say mean things to others when I'm mad. (6)	❍	❍	❍
I try to calmly deal with what is making me feel mad. (7)	❍	❍	❍

P7Q7 7. During the past month, how often has each of the following behaviors been a problem?

	Never (1)	Sometimes (2)	Often (3)
I am disorganized. (1)	❍	❍	❍
I need to be reminded to begin a task even when I am willing. (2)	❍	❍	❍
I overreact emotionally. (3)	❍	❍	❍
I talk at the wrong time. (4)	❍	❍	❍
I misjudge how difficult or easy tasks will be. (5)	❍	❍	❍
I don't notice when I cause others to feel bad or get mad until it is too late. (6)	❍	❍	❍
I have trouble prioritizing things. (7)	❍	❍	❍
I forget what I am	❍	❍	❍

doing in the middle of things. (8)			
When people seem upset with me, I don't understand why. (9)	❍	❍	❍
I get emotionally upset easily. (10)	❍	❍	❍
I have good ideas but cannot get them on paper. (11)	❍	❍	❍
My anger is intense but ends quickly. (12)	❍	❍	❍
I start things at the last minute (such as assignments, chores, tasks). (13)	❍	❍	❍
I have difficulty finishing a task on my own. (14)	❍	❍	❍
People say that I am easily distracted. (15)	❍	❍	❍
I rush through things. (16)	❍	❍	❍
I leave my room or home a mess. (17)	❍	❍	❍
I get disturbed by unexpected changes in my daily routine. (18)	❍	❍	❍
I don't plan ahead for tasks. (19)	❍	❍	❍
People say that I don't think before acting.	❍	❍	❍

(20) I have trouble finding things in my room, closet, or desk. (21)	❍	❍	❍
I have trouble doing more than one thing at a time. (22)	❍	❍	❍
My mood changes frequently. (23)	❍	❍	❍
I don't think about consequences before doing something. (24)	❍	❍	❍

P7Q8 8. Now we have some questions about how you're feeling about life these days. I am going to list some of the ways you may have felt or behaved in the last 7 days. Please indicate whether you feel this way rarely or never, some of the time, a lot of the time, or all the time.

	Never or Rarely (1)	Some of the time (2)	A lot of the time (3)	All of the time (4)
I was bothered by things that usually don't bother me. (1)	❍	❍	❍	❍
I did not feel like eating; my appetite was poor. (2)	❍	❍	❍	❍
I felt that I could not shake off the blues even with help from my family or friends. (3)	❍	❍	❍	❍
I felt that I was	❍	❍	❍	❍

just as good as other people. (4)				
I had trouble keeping my mind on what I was doing. (5)	❍	❍	❍	❍
I felt depressed. (6)	❍	❍	❍	❍
I felt that everything I did was an effort. (7)	❍	❍	❍	❍
I felt hopeful about the future. (8)	❍	❍	❍	❍
I thought my life had been a failure. (9)	❍	❍	❍	❍
I felt fearful. (10)	❍	❍	❍	❍
My sleep was restless. (11)	❍	❍	❍	❍
I was happy. (12)	❍	❍	❍	❍
I talked less than usual. (13)	❍	❍	❍	❍
I felt lonely. (14)	❍	❍	❍	❍
People were unfriendly. (15)	❍	❍	❍	❍
I enjoyed life. (16)	❍	❍	❍	❍
I had crying spells. (17)	❍	❍	❍	❍

I felt sad. (18)	❍	❍	❍	❍
I felt that people dislike me. (19)	❍	❍	❍	❍
I could not get "going." (20)	❍	❍	❍	❍

P7Q9 9. Have you ever had mental health problems or a psychological illness?

- ❍ No (1)
- ❍ Yes (2)
- ❍ Maybe/Not sure (3)

P7Q10 9a. Have you ever been treated for mental health problems or psychological problems?

- ❍ No (1)
- ❍ Yes--> If yes, what problem were you treated for? (2) _____

P7Q10 10. Taking all things together, how would you say you are these days?

- ❍ Very happy (1)
- ❍ Pretty happy (2)
- ❍ Not too happy (3)

P7Q11 11. In general, how often do you feel stress during your pregnancy?

- ❍ Never (1)
- ❍ Sometimes (2)
- ❍ Often (3)
- ❍ Always (4)

P7Q12 12. How much do you agree with the following statements?

	Strongly disagree (1)	Disagree (2)	Neither Agree nor Disagree (3)	Agree (4)	Strongly Agree (8)
I am worried about eating healthy foods and a balanced diet for the baby. (1)	❍	❍	❍	❍	❍
Physical symptoms of pregnancy such as nausea, vomiting, swollen feet, or backache irritate me. (2)	❍	❍	❍	❍	❍
I am anxious about labor and delivery. (3)	❍	❍	❍	❍	❍
I worry about having an unhealthy baby. (4)	❍	❍	❍	❍	❍
I worry about having an unhealthy baby. (5)	❍	❍	❍	❍	❍
Emotional ups and downs during pregnancy annoy me. (6)	❍	❍	❍	❍	❍

I find weight gain during pregnancy troubling. (7)	❍	❍	❍	❍	❍
Overall, the changes in my body shape and size during pregnancy bother me. (8)	❍	❍	❍	❍	❍
I am worried about handling the baby when I first come home from the hospital. (9)	❍	❍	❍	❍	❍
I am troubled that my relationships with other people are important to me are changing due to my pregnancy. (10)	❍	❍	❍	❍	❍
I am worried that I might not become emotionally attached to the baby. (11)	❍	❍	❍	❍	❍
I am concerned that having a new baby will alter my	❍	❍	❍	❍	❍

relationship with the baby's father. (12)					

P7Q13 13. What proportion of the housework would you say you do?

- ❍ I do much more than half (1)
- ❍ I do a bit more than half (2)
- ❍ I do about half of the housework (3)
- ❍ I do a bit less than half (4)
- ❍ I do much less than half (5)

P7Q14 14. How would you best describe your spouse's/partner's employment status:

- ❍ Employed full-time (1)
- ❍ Employed part-time (2)
- ❍ Unemployed (Not disabled) (3)
- ❍ Unemployed (Due to disability) (4)
- ❍ Retired (5)
- ❍ Student (6)
- ❍ Full-time homemaker (7)

P7Q15 15. Please select the number that best describes how much you agree with the following statements about your current relationship. Very strongly disagree (1) -- Very strongly agree (7)

_____ We have a good marriage/relationship (1)

_____ My relationship with my partner is very stable (2)

_____ Our marriage/relationship is strong (3)

_____ My relationship with my partner makes me happy (4)

_____ I really feel like "part of the team" with my partner (5)

P7Q16 16. On a 10-point scale where 1=very unhappy and 10=perfectly happy, which point best describes the degree of happiness, everything considered, in your marriage or relationship.

- 1=Very Unhappy (1)
- 2 (2)
- 3 (3)
- 4 (4)
- 5 (5)
- 6 (6)
- 7 (7)
- 8 (8)
- 9 (9)
- 10=Perfectly happy (10)

P7Q17 17. In general, how satisfied are you with your relationship?

- Very Dissatisfied (1)
- Dissatisfied (2)
- Neutral (3)
- Satisfied (4)
- Very Satisfied (5)

P7Q18 18. How satisfied are you with your sexual relationship?

- Very Dissatisfied (1)
- Dissatisfied (2)
- Neutral (3)
- Satisfied (4)
- Very Satisfied (5)

P7Q19 19. In the past year, did any of the following happen to you because of a shortage of money?

	Yes (1)	No (2)
Could not pay electricity, gas or telephone bills on time (1)	❍	❍
Could not pay the mortgage or rent on time (2)	❍	❍
Pawned or sold something (3)	❍	❍
Went without meals (4)	❍	❍
Was unable to heat home (5)	❍	❍
Asked for financial help from friends or family (6)	❍	❍
Asked for help from welfare/community organizations (7)	❍	❍

P7Q20 20. How many hours of actual sleep do you normally get in a night right now?

- ❍ 4 or less (1)
- ❍ 5 (2)
- ❍ 6 (3)
- ❍ 7 (4)
- ❍ 8 (5)
- ❍ 9 (6)
- ❍ 10 (7)
- ❍ 11 (8)

- ❍ 12 or more (9)

P7Q21 21. Is that more, less or the same amount of sleep that you got before you were pregnant?

- ❍ I got more sleep before I was pregnant. (1)
- ❍ I got less sleep before I was pregnant. (2)
- ❍ I got about the same amount of sleep before I was pregnant. (3)

P7Q22 22. How satisfied are you with the amount of sleep you get?

- ❍ Very dissatisfied (1)
- ❍ Fairly satisfied (2)
- ❍ Fairly dissatisfied (3)
- ❍ Very satisfied (4)

P7Q23 23. During the past month, how would you rate your sleep quality overall?

- ❍ Very good (1)
- ❍ Fairly good (2)
- ❍ Fairly bad (3)
- ❍ Very bad (4)

P8 The next set of questions is about your attitudes and values.

P8Q1 1. In general, would you say your religious beliefs influence your daily life very much, quite a bit, some, a little, or not at all?

- ❍ Very much (1)
- ❍ Quite a bit (2)
- ❍ Some (3)
- ❍ A little (4)
- ❍ Not at all (5)

P8Q2 2. Following are a number of statements about families and children. Please tell me whether you strongly agree, agree, disagree, or strongly disagree with each one.

	Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
Having children is important to my feeling complete as a woman. (1)	❍	❍	❍	❍	❍
I always thought I'd be a parent. (2)	❍	❍	❍	❍	❍
I think my life will be or is more fulfilling with children. (3)	❍	❍	❍	❍	❍
It is important for me to have children. (4)	❍	❍	❍	❍	❍

P8Q3 3. Would you say that planning for pregnancy is important to you?

- ❍ Yes (1)
- ❍ Somewhat (2)
- ❍ No (3)

P8Q4 4. How important is each of the following to you in your life?

	Not at all Important (1)	A little important (2)	Important (3)	Very Important (4)

Raising children (1)	❍	❍	❍	❍
Being successful in my line of work (2)	❍	❍	❍	❍
Having leisure time to enjoy my own interests (3)	❍	❍	❍	❍

P8Q5 5. Which of these statements do you agree more with?

	1 (1)	2 (2)	3 (3)
I never really seem to get what I want out of life:I usually get what I want out of life (1)	❍	❍	❍
I usually have a free choice and control over my life:Whatever I do has no real effect on what happens to me (2)	❍	❍	❍
Usually I can run my life more or less as I want to:I usually find life's problems just too much for me (3)	❍	❍	❍

P9 The last questions have to do with experiences you may have had as a child under 18.

P9Q1 1. When you were growing up, before your 18th birthday:

	Yes (1)	No (2)
Did a parent or other adult in the household often or very often: Swear at you, insult you, put you down, or humiliate you OR act in a way that made you afraid that you might be physically hurt? (1)	❍	❍
Did a parent or other adult in the household often or very often: Push, grab, slap, or throw something at you OR hit you so hard that you had marks or were injured? (2)	❍	❍
Did an adult or person at least 5 years older than you ever: Touch or fondle you or have you touch their body in a sexual way OR attempt or actually have oral, anal, or vaginal intercourse with you? (3)	❍	❍
Did you often or very often feel that: No one in your family loved you or thought you were important or special OR your family didn't look out for each other, feel close to each other, or support each other? (4)	❍	❍
Did you often or very often feel that: You didn't have enough to eat, had to wear dirty clothes, and had no one to	❍	❍

protect you OR your parents were too drunk or high to take care of you or take you to the doctor if you needed it?1 (5)		
Was your mother or stepmother or father or stepfather: Often or very often pushed, grabbed, slapped, or had something thrown at her/him OR sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard OR ever repeatedly hit for at least a few minutes or threatened with a gun or knife? (6)	❍	❍
Did you live with anyone who was a problem drinker or alcoholic or who used street drugs or prescription drugs as not prescribed? (7)	❍	❍
Was a household member depressed or mentally ill, or did a household member attempt suicide? (8)	❍	❍
Did a household member go to prison? (9)	❍	❍
Were your parents ever separated or divorced? (10)	❍	❍

P9Q2 2. While you were growing up, before your 18th birthday:

	Yes (1)	No (2)
Did you have someone who loved you unconditionally (you did not doubt that they cared about you)? (1)	❍	❍
Did you have at least one best friend (someone you could trust, had fun with)? (2)	❍	❍
Did you do anything regularly to help others (e.g., volunteer at a hospital, nursing home, church) or do special projects in the community to help others (food drives, Habitat for Humanity? (3)	❍	❍
Were you regularly involved in organized sports groups (e.g., soccer, basketball, track) or other physical activity (e.g., competitive cheer, gymnastics, dance, marching band)? (4)	❍	❍
Were you an active member of at least one civic group or a non-sport social group such as scouts, church, or youth group? (5)	❍	❍
Did you have an engaging hobby -- an artistic or intellectual pastime either alone or in a group (e.g., chess club, debate team, musical instrument or vocal group, theater, spelling bee, or did you read a lot)? (6)	❍	❍

Was there an adult (not your parent) you trusted and could count on when you needed help or advice (e.g., coach, teacher, minister, neighbor, relative)? (7)	❍	❍
Was your home typically clean AND safe with enough food to eat? (8)	❍	❍
Overall, did your schools provide the resources and academic experiences you needed to learn? (9)	❍	❍
In your home, were there rules that were clear and fairly administered? (10)	❍	❍

P10Q3 Thank you for your participation in this study! We will contact you each month to find out how things are going. In the meantime, we would like to send you $40 to thank you for participating in this part of the study. Please provide a mailing address where we can mail the check. (This information is for payment purposes only and will not be linked to your survey responses.)

Name (1)

Address (2)

Address 2 (3)

City (4)

State (5)

Postal Code (6)

Email (7)

APPENDIX B:

POST-BIRTH SURVEY

Post-Birth Assessment

Q1 Post-Birth Assessment: We would like to ask you some follow-up questions about your pregnancy, childbirth experience, and how things are going now that you have given birth to your baby. First, we would like to start with some questions about your pregnancy.

Q2 Major life events scale 1. During your most recent pregnancy, did any of the following events occur to you? Check any items on the list that happened during your pregnancy.

	Yes (1)	No (2)
a. Moved to another residence (1)	❍	❍
b. Living conditions changed a lot (2)	❍	❍
c. Addition of person(s) to household (3)	❍	❍
d. Was homeless (4)	❍	❍
e. Marriage (5)	❍	❍
f. Divorce (6)	❍	❍
g. Major change in number of arguments with husband/partner (7)	❍	❍
h. Separation from husband/partner (8)	❍	❍
i. Got back together with husband/partner (9)	❍	❍
j. Problem with parents of in-laws (10)	❍	❍
k. Sexual problems (11)	❍	❍
l. Laid off or fired from job (12)	❍	❍

m. Changed to a new job (13)	❍	❍
n. Change in responsibilities at work (14)	❍	❍
o. Trouble with your boss (15)	❍	❍
p. Husband/partner laid off or fired (16)	❍	❍
q. Husband/partner changed job (17)	❍	❍
r. Was a victim of a crime (18)	❍	❍
s. Was arrested (19)	❍	❍
t. Husband/partner was arrested (20)	❍	❍
u. Was involved in a physical fight (21)	❍	❍
v. Major personal injury/accident, or illness (excluding pregnancy complications) (22)	❍	❍
w. Major change in health or behavior of a family member (23)	❍	❍
x. Death of husband/partner (24)	❍	❍
y. Death of a close family member (25)	❍	❍
z. Death of a close friend (26)	❍	❍
aa. Got into debt over your head (27)	❍	❍
bb. Took out a mortgage or loan (28)	❍	❍
cc. Loss of or major damage to personal property (car, home,	❍	❍

other) (29)

dd. Unable to get services you and family needed (AFDC, food stamps, WIC, Medicaid) (30)	❍	❍

Q3 2. Reflecting back on your pregnancy, what thoughts, feelings, and experiences stick out in your mind?

Q4 3. Next, we have some questions about your baby's birth and health.

Q5 a. Was the baby born prematurely, that is, more than 3 weeks before his/her due date?

❍ Yes--If yes, how early was (baby) born before the due date? (1) _____

❍ No (2)

Q6 b. What was the baby's birth weight?

Q7 c. Did you have a boy or girl?

❍ Boy (1)

❍ Girl (2)

Q8 d. What was the baby's APGAR score (at 5 minutes)?

❍ 1 (1)

❍ 2 (2)

❍ 3 (3)

❍ 4 (4)

❍ 5 (5)

- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ 10 (10)
- ❍ Not sure (11)

Q9 e. Was the birth vaginal delivery, planned cesarean section, or emergency cesarean section?

- ❍ vaginal delivery (1)
- ❍ planned cesarean section (2)
- ❍ emergency cesarean section (3)

Q10 f. How long did your labor last?

Q11 g. Were there any complications during childbirth?

- ❍ Yes--If yes, what were they? (1) _____
- ❍ No (2)

Q12 h. Did your baby have any health problems when he/she was born?

- ❍ Yes--If yes, what were they? (1) _____
- ❍ No (2)

Q13 i. Who was in the delivery room with you when the baby was born?

Q14 j. Did your baby spend any time in a neonatal unit?

- ❍ Yes--If yes, how much time? What was the main reason? (1) _____

- ❍ No (2)

Q15 k. On a scale from 1 to 7 where 1=very negative and 7=very positive, how would you rate the overall birth experience?

- ❍ 1=Very negative (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7=Very positive (7)

Q16 l. Through the process of labor and delivery, babies enter the world giving each mother and infant their own unique story. What is your baby's birth story?

Q17 4. The next questions ask about how you and your baby are doing now.

Q18 a. In general, how would you describe (baby's) health? Would you say his/her health is excellent, very good, good, fair, or poor?

- ❍ Excellent (1)
- ❍ Very Good (2)
- ❍ Good (3)
- ❍ Fair (4)
- ❍ Poor (5)

Q19 b. Do you have any concerns about (baby's) learning, development or behavior? If so, what are they?

Q20 c. Would you say your baby cries more than, less than, or about the same as the average baby?

- ❍ More (1)
- ❍ Less than (2)
- ❍ About the same (3)

Q21 d. Would you say that your baby has colic? (e.g., cries more than 3 hours/day for more than 3 days/week for 3 weeks)

- ❍ Yes (1)
- ❍ Maybe (2)
- ❍ No (3)

Q22 e. Was your baby ever breastfed or fed breast milk?

- ❍ Yes (1)
- ❍ No (2)

Q23 f. How old was the baby when he/she completely stopped breastfeeding or being fed breast milk?

- ❍ The baby is still breastfeeding (1)
- ❍ less than 1 weeks old (2)
- ❍ 1-2 weeks old (3)
- ❍ 3-4 weeks old (4)
- ❍ One month old (5)
- ❍ Two months old (6)

Q49 g. If you are able to breastfeed as long as you want to, how old will the baby be when you finish?

- ❍ < 2 months old (1)
- ❍ 2-3 months old (2)
- ❍ 4-5 months old (3)

- ❍ 6 months old (4)
- ❍ 7-9 months old (5)
- ❍ 10-11 months old (6)
- ❍ 12 months old/1 year old (7)
- ❍ Between 1 and 2 years old (8)
- ❍ 2 years old or older (9)

Q24 5. Now we have some questions about how you're feeling about life these days. I am going to list some of the ways you may have felt or behaved in the last 7 days. Please indicate whether you feel this way rarely or never, some of the time, a lot of the time, or all the time. During the past week...

	Rarely or never (1)	Some of the time (2)	A lot of the time (3)	All the time (4)
a. I was bothered by things that don't usually bother me (1)	❍	❍	❍	❍
b. I did not feel like eating; my appetite was poor. (2)	❍	❍	❍	❍
c. I felt that I could not shake off the blues even with help from my family or friends. (3)	❍	❍	❍	❍
d. I felt that I was just as good as other people. (4)	❍	❍	❍	❍
e. I had trouble keeping my mind on what I was doing. (5)	❍	❍	❍	❍

f. I felt depressed. (6)	❍	❍	❍	❍
g. I felt that everything I did was an effort. (7)	❍	❍	❍	❍
h. I felt hopeful about the future. (8)	❍	❍	❍	❍
i. I thought my life had been a failure. (9)	❍	❍	❍	❍
j. I felt fearful. (10)	❍	❍	❍	❍
k. My sleep was restless. (11)	❍	❍	❍	❍
l. I was happy. (12)	❍	❍	❍	❍
m. I talked less than usual. (13)	❍	❍	❍	❍
n. I felt lonely. (14)	❍	❍	❍	❍
o. People were unfriendly. (15)	❍	❍	❍	❍
p. I enjoyed life. (16)	❍	❍	❍	❍
q. I had crying spells. (17)	❍	❍	❍	❍
r. I felt sad. (18)	❍	❍	❍	❍
s. I felt that people dislike me. (19)	❍	❍	❍	❍
t. I could not get "going." (20)	❍	❍	❍	❍

Q25 Next, I have some questions about your relationship.

Q26 6. Are you currently in a romantic relationship?

- ❍ Yes (1)
- ❍ "It's complicated"--Explain relationship status (2) _____
- ❍ No (3)

Q27 7. Is your current relationship with your child's biological father?

- ❍ Yes (1)
- ❍ No (2)

Q28 8. Please select the number that best describes how much you agree with the following statements about your current relationship. “Very strong disagreement” (1) to “very strong agreement” (7)

	1-Very strong disagreement (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7-Very strong agreement (7)
a. We have a very good marriage/relationship. (1)	❍	❍	❍	❍	❍	❍	❍
b. My relationship with my partner is very stable. (2)	❍	❍	❍	❍	❍	❍	❍
c. Our marriage/relationship is strong. (3)	❍	❍	❍	❍	❍	❍	❍
d. My relationship with my partner makes me happy (4)	❍	❍	❍	❍	❍	❍	❍

e. I really feel like "part of the team" with my partner. (5)	❍	❍	❍	❍	❍	❍	❍

Q29 9. On a 10-point scale where 1=very unhappy and 10 is perfectly happy, which point best describes the degree of happiness, everything considered, in your marriage or relationship.

- ❍ 1=very unhappy (1)
- ❍ 2 (2)
- ❍ 3 (3)
- ❍ 4 (4)
- ❍ 5 (5)
- ❍ 6 (6)
- ❍ 7 (7)
- ❍ 8 (8)
- ❍ 9 (9)
- ❍ 10-=Perfectly happy (10)

Q30 10. Think about the help you get from the baby's father or from other people, in taking care of the baby. How satisfied are you with:

	Very Satisfied (1)	Satisfied (2)	Somewhat Satisfied (3)	Neutral (4)	Somewhat Dissatisfied (5)	Dissatisfied (6)	Very Dissatisfied (7)
a. The amount of time you get with parenting. (1)	❍	❍	❍	❍	❍	❍	❍
b. The quality of the help	❍	❍	❍	❍	❍	❍	❍

you get with parenting. (2)							
c. The amount of positive feedback you get about your parenting. (3)	❍	❍	❍	❍	❍	❍	❍

Q31 11. How much do you agree with the following statements about the involvement of the baby's father in parenting?

	Strongly Agree (1)	Agree (2)	Neither Agree nor Disagree (3)	Disagree (4)	Strongly Disagree (5)
a. I am satisfied with my baby's father's childbearing skills. (1)	❍	❍	❍	❍	❍
b. My baby's father has sufficient knowledge about child development that seems to make him feel comfortable as a parent. (2)	❍	❍	❍	❍	❍

Q32 12. How often does the baby's father spend time with the baby?

- ❍ Never (1)
- ❍ Once a Year or Less (2)
- ❍ Several Times a Year (3)
- ❍ Once a Month (4)
- ❍ 2-3 Times a Month (5)
- ❍ Once a Week (6)
- ❍ 2-3 Times a Week (7)
- ❍ 4-6 Times a Week (8)
- ❍ Daily (9)

Q33 13. How involved would you like your baby's father to be?

- ❍ Not at all involved (1)
- ❍ Somewhat involved (2)
- ❍ Involved (3)
- ❍ Very Involved (4)

Q34 14. How has your life changed since becoming a mother?

Q35 15. How would you describe yourself as a mother?

Q36 16. This questionnaire is about your feelings for your child. The adjectives below describe some of the feelings mothers have for their babies in the first weeks after birth. For each word in the left column, please make a tick in the box that best describes how often you have those feelings about your baby.

	Never (1)	Somewhat (2)	Often (3)	All the time (4)
a. Loving (1)	❍	❍	❍	❍

b. Resentful (2)	❍	❍	❍	❍
c. Neutral or felt nothing (3)	❍	❍	❍	❍
d. Joyful (4)	❍	❍	❍	❍
e. Dislike (5)	❍	❍	❍	❍
f. Protective (6)	❍	❍	❍	❍
g. Disappointed (7)	❍	❍	❍	❍
h. Aggressive (8)	❍	❍	❍	❍

Q37 17. The following statements are about raising children. Thinking about your baby, please indicate how strongly you agree or disagree with each.

	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
1. Being a parent is harder than I thought. (1)	❍	❍	❍	❍	❍
2. I often feel tired, worn out, or exhausted from meeting the needs of my child. (2)	❍	❍	❍	❍	❍
3. I feel trapped by my responsibilities as a parent. (3)	❍	❍	❍	❍	❍
4. I find taking care of my child is much more work than pleasure. (4)	❍	❍	❍	❍	❍

Q38 18. Are you currently employed?

- Yes (1)
- No (2)

Q39 18a. Did you return to the same job following the child's birth or your maternity leave?

- Yes (1)
- No (2)

Q40 18b. How soon after giving birth did you return to work?

Q41 18c. How many hours a week do you work in the average week?

Q42 19. How much does your job interfere with your family life?

- Never (1)
- Seldom (2)
- Pretty Often (3)
- Very Often (4)

Q43 20. Do the demands of your family--for example, doctor appointments, sickness, and household emergencies--interfere with your job?

- Never (1)
- Seldom (2)
- Pretty Often (3)
- Very Often (4)

Q44 21. Thinking about the future, do you intend to have another baby?

- ❍ Yes (1)
- ❍ No (2)
- ❍ Not sure (3)

Q45 21a. How sure are you that you will have another baby?

- ❍ Very sure (1)
- ❍ Somewhat sure (2)
- ❍ Not sure at all (3)

Q50 21b. How sure are you that you will NOT have another baby?

- ❍ Very sure (1)
- ❍ Somewhat sure (2)
- ❍ Not sure at all (3)

Q46 21c. How long between the births of your children do you think would be the ideal spacing?

- ❍ less than 1 year apart (1)
- ❍ 1 year (2)
- ❍ 2 years (3)
- ❍ 3 years (4)
- ❍ 4 years (5)
- ❍ 5 years (6)
- ❍ 6 or more years apart (7)

Q47 22. Are you currently taking birth control or using any method of contraceptives to prevent or delay another birth for the time being?

- ❍ Yes--What type of birth control? (1) _____
- ❍ No (2)

Q48 How often do you use birth control? All the time, sometimes, or rarely?

- ❍ All the time (1)
- ❍ sometimes (2)
- ❍ rarely (3)

Q54 How do you think you would feel if you found out you would have another baby within a year of your first baby?

Q53 What was the date of your baby's birth?

Q52 Thank you for your time and participation, and congratulations on your birth! Please provide your name and mailing address so that we can send you a check for $30 to compensate you for your time.

APPENDIX C:

RECRUITMENT FLYER

OSU Study of Pregnant Women:
Participants Needed!

Researchers in the Department of Human Development and Family Science at Oklahoma State University would like to invite pregnant women to participate in a study about pregnancy and birth experiences, life circumstances, and the transition to motherhood. If you are a woman aged **18-35** and are pregnant with your first child and might be interested in participating, please read the information below before contacting us.

Investigator: Dr. Karina M. Shreffler, a faculty member in Human Development and Family Science at OSU, is the researcher overseeing this research study.

Purpose: The purpose of this study is to increase our understanding of the health and well-being of new mothers and their infants, as well as factors that influence women's decisions to have a second child.

What to Expect: Participation in this research study will involve monthly surveys, beginning in your 3rd trimester. The first one will take the longest (about 30 minutes), and you can take it online or by a phone call. There will be a second online or phone survey the month you give birth, and it will take about 10-15 minutes. In addition, you will be contacted every month by phone between the first and second surveys to find out if you have given birth. **Your answers will be confidential.** You will be asked to provide some basic background information, and answer questions about your pregnancy and birth experiences, early adverse life experiences, early positive life experiences, and your health and relationship.

Risks of Participation: There are no risks associated with this project which are expected to be greater than those you might face in everyday life. If you do experience some distress (such as anxiety or worry) because of your participation, you can read a list of counseling resources at the end of the survey.

Benefits: The benefits to your participation are: 1) Findings will help us create programs that have the potential to help new mothers and their infants in Oklahoma and 2) Findings will help us in our request for money from the federal and state government to pay for new projects and programs.

Participant Rights: Your participation in this study is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this study at any time.

Confidentiality: The records of this study will be kept private. All information about you and your child will remain confidential and will not be released. Information collected will be recorded with an identification number, and the file that contains your name and identification number will be kept separate from the regular data. Only researchers and individuals responsible for research oversight will have access to these records. This information will be saved as long as it is scientifically useful; typically such information is kept for five years after publication of results. Results from this study may be presented at professional conferences, in book chapters, or in academic journals, but any written results will discuss group findings, not information identifying individual families. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and well-being of people who participate in research. Confidentiality will be maintained except under specified conditions required by law. For example, current Oklahoma law requires that any ongoing child abuse (including sexual abuse, physical abuse, or neglect) of a minor must be reported to state officials. In addition, if an individual reports that he/she intends to harm him/herself or others, legal and professional standards require that the individual must be kept from harm, even if confidentiality must be broken. Confidentiality also could be broken if materials from this study were subpoenaed by a court of law.

Compensation: You will be paid for completing the following parts of the study: 3rd trimester survey (**$40**) and survey after birth (**$30**), for a total of **$70** for completing both parts. A check will be mailed to you after each part of the study.

Contacts: You may contact Dr. Shreffler at the following phone number or email address, should you want to find out more about the study or to discuss your rights as a participant: Call 918-594-8389 or email karina.shreffler@okstate.edu. If you have questions about your rights as a research volunteer, you may contact **Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-1676 or** irb@okstate.edu.

If you choose to participate: You can go directly to our website to log on and begin the first survey: **http://goo.gl/QYTYKY**, or you can call 918-399-6427 or email (OSUpregnancystudy@okstate.edu) if you are interested in participating in the study.

APPENDIX D:

IRB ACCEPTANCE

Oklahoma State University Institutional Review Board

Date: Thursday, October 02,

2014 IRB Application No HE1434

Proposal Title: Adverse Maternal/Child Health in Rural Oklahoma

Reviewed and Processed as: Expedite

Status Recommended by Reviewer(s): Approved Protocol Expires: 10/1/2015

Principal Investigator(s):

Karina M. Shreffler
111 Main Hall
Tulsa, OK 74106

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

[i] The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1.Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2.Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3.Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4.Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Hugh Crethar, Chair
Institutional Review Board

Script for phone recruitment and consent

Hello,Ms. [potential participant]. My name is with Oklahoma State University. First of all, thank you for your interest in our study. I want to start by telling you about the study. In our study, we are interested in learning more about new mothers and their infants in Oklahoma, especially their health, communities, and family relationships. We are recruiting women who are pregnant with their first baby, and the first survey will occur when you are in your 3rd trimester. What is your baby's due date? *For non-native English speakers:* Parents and children must be able to speak, read, and write English because the entire session will be in English. Are you comfortable with that? We also require that the mother be at least 18 years old. What is your age?

[If the women meet the criteria, continue with the script. Otherwise, thank them for their interest and end the call.]

There are several parts to this study. If you choose to participate, you will first participate in a survey that we can do now by phone, or that you can do online that includes questions about health and well-being, pregnancy and birth experience, your own experiences as a child, and your baby's health and development. There are no right or wrong answers to questions; we just want your honest responses. That survey will take around 25 minutes. Every month for 12 months after you participate in the first survey, we will contact you again to find out if anything in your life has changed, such as your job, child care, or pregnancy status. Those surveys will be brief, lasting only around 5 minutes; less ifthere are no changes to report. The month that you let us know that you had the baby, we will do another survey, either on the phone or online if you would prefer that. That survey will take 15 minutes or less to complete.

You will be paid up to $120, which includes $40 for the 3rp trimester survey, $30 for the survey after you give birth, and up to $50 for the monthly updates. As soon as you complete each part of the study, you will be paid for that part of your participation. You can choose to receive checks or Walmart gift cards for your participation. You will be able to withdraw from the study at any time. All information about you and your child will remain confidential.

Do you have any questions? *Answer questions.*

Now that you know more about the study, are you still interested in participating? *If yes, either go into the survey at this time, or give theparticipant the web address or schedule the participant for a callback.*

OSU Study of Pregnant Women:
Participants Needed!

Researchers in the Department of Human Development and Family Science at Oklahoma State University would like to invite new mothers to participate in a study about childbearing decisions, pregnancy experiences, and the transition to motherhood. If you are a woman aged 18-29 and are pregnant with your first child and might be interested in participating, please read the information below before contacting us.

Investigator(s): Dr. Karina M. Shreffler, a faculty member in Human Development and Family Science at OSU, is the researchers overseeing this research study.

Purpose: The purpose of this study is to increase our understanding of the health and well-being of new mothers and their infants, as well as factors that influence women's decisions to have a second child.

What to Expect: Participation in this research study will involve monthly surveys, beginning in your yct trimester. The first one will take the longest (about 25 minutes), and you can take it online or by a phone call. There will be a second online or phone survey the month you give birth, and it will take about 10-15 minutes. In addition, you will be contacted every month by phone for the next year to find out if anything has changed in your life (such as your job, a new pregnancy, a move, etc.). The monthly calls will take less than 5 minutes each. Your answers will be confidential. You will be asked to provide some basic demographic information, and answer questions about your pregnancy and birth experiences, early adverse life experiences, early positive life experiences, and your health and relationship.

Risks of Participation: There are no risks associated with this project which are expected to be greater than those you might face in everyday life. If you do experience some distress (such as anxiety or worry) because of your participation, we will send you a list of counseling resources.

Benefits: The benefits to your participation are: 1) Findings will help us create programs that have the potential to help new mothers and their infants in Oklahoma and 2) Findings will help us in our request for money from the federal and state government to pay for new projects and programs.

Participant Rights: Your participation in this study is voluntary. There is no penalty for refusal to participate, and you are free to withdraw your consent and participation in this study at any time.

Confidentiality: The records of this study will be kept private. All information about you and your child will remain confidential and will not be released. Information collected will be recorded with an identification number, and the file that contains your name and identification number will be kept separate from the regular data. Only researchers and individuals responsible for research oversight will have access to these records. This information will be saved as long as it is scientifically useful; typically such information is kept for five years after publication of results. Results from this study may be presented at professional conferences, in book chapters, or in academic journals, but any written results will discuss group findings, not information identifying individual families. It is possible that the consent process and data collection will be observed by research oversight staff responsible for safeguarding the rights and well-being of people who participate in research. Confidentiality will be maintained except under specified conditions required by law. For example, current Oklahoma law requires that any ongoing child abuse (including sexual abuse, physical abuse, or neglect) of a minor must be reported to state officials. In addition, if an individual reports that he/she intends to harm him/herself or others, legal and professional standards require that the individual must be kept from harm, even if confidentiality must be broken. Confidentiality also could be broken if materials from this study were subpoenaed by a court of law.

Compensation: You will be paid for completing the following parts of the study: 3rct trimester survey ($40), survey after birth ($30), and monthly calls for one year (up to $50), for a total of $120 for completing all parts. Money will be deducted from the total for missed monthly calls: $15 for 3-5 calls missed, $25 for 6-7 calls missed, and $35 for 8-10 calls .missed. You can choose to be paid by check or to receive the money on a Walmart gift card.

Contacts: You may contact Dr. Shreffler at the following phone number or email address, should you want to find out more about the study or to discuss your rights as a participant: Call 918-594-8389 or email karina.shreffler@okstate.edu. If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74078, 405-744-1676 or irb@okstate.edu.

If you choose to participate: Contact XXX-XXX-XXXX or email (osu email address for study) if you are intete isJo filate Um. participating in the study.

!RB

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Script for online study introduction and consent

Researchers at Oklahoma State University are conducting a study to learn more about new mothers and their infants in Oklahoma, especially their health, communities, and family relationships.

We are looking for women who are:

- 18-29 years old
- Expecting your first biological child
- Be in your 3rd trimester (at least 28 weeks pregnant)
- Able to read and write in English

Participation is confidential and completely voluntary. There are several parts to this study. If you choose to participate, you will first complete this online survey that includes questions about health and well-being, pregnancy and birth experience, your own experiences as a child, and your baby's health and development. There are no right or wrong answers to questions; we just want your honest responses. This survey will take around 25 minutes.

Every month for 12 months after you participate in the first survey, we will contact you again by phone to find out if anything in your life has changed, such as your job, child care, or pregnancy status. Those surveys will be brief, lasting only around 5 minutes; less ifthere are no changes to report. The month that you let us know that you had the baby, we will do another survey, either on the phone or online if you would prefer that. That survey will take 15 minutes or less to complete.

You will be paid up to $120, which includes $40 for the yd trimester survey, $30 for the survey after you give birth, and up to $50 for the monthly updates. You will be paid after you complete each portion of the study. Ifyou decide to stop participating before the study is complete, we will send your payment when we don't hear from you for two months. You can choose to receive checks or Walmart gift cards for your participation. You will be able to withdraw from the study at any time. All information about you and your child will remain confidential.

Ifyou are interested in participating in the study, please answer the following questions:

Are you 18 to 29? [yes/no]

Are you in your 3rd trimester (at least 27 weeks pregnant)? [yes/no]

Ifyou agree to participate in the study, please enter your initials here: [__]

Ifyou have any questions about the study, feel free to contact the Principal Investigator, Karina Shreffler, Ph.D., at karina.shreffler@okstate.edu.

APPENDIX E:

IRB CONTINUATION APPROVAL

Oklahoma State University Institutional Review Board

Date	Thursday, September 22, 2016	Protocol Expires:	9/21/2017
IRB Application No:	HE1434		
Proposal Title:	Adverse Maternal/Child Health in Rural Oklahoma		
Reviewed and Processed as:	Expedited **Continuation**		
Status Recommended by Reviewer(s)	**Approved**		

Principal Investigator(s)

Karina M. Shreffler
111 Main Hall
Tulsa, OK 74106

Tiffany Spierling
233 Human Sciences
Stillwater, OK 74078

Approvals are valid until the expiration date, after which time a request for continuation must be submitted. Any modifications to the research project approved by the IRB must be submitted for approval with the advisor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:

Subject involvement completed approval for analysis of identifiable data only. No new changes. No change in risk/benefit. No reportable events, withdrawals, complaints, or new/additional funding

Signature :

Hugh Crethar, Chair, Institutional Review Board

Thursday, September 22, 2016
Date

VITA

Tiffany Nicole Spierling

Candidate for the Degree of

Doctor of Philosophy

Thesis: FINDING MEANING IN UNINTENDED MOTHERHOOD: MAKING DECISIONS, FORMING ATTACHMENTS, AND COPING WITH CHALLENGES

Major Field: Human Development and Family Science

Education: Doctor of Philosophy in Human Development and Family Science at Oklahoma State University, Stillwater, Oklahoma in May, 2017.

Master of Science in Human Development and Family Studies at Central Michigan University, Mt. Pleasant, Michigan in December, 2010.

Bachelor of Arts in Psychology at Michigan State University, in East Lansing, Michigan in December, 2006.

Publications and Presentations:

*Shreffler, K.M., **Spierling, T.,** Greil, A.L., McQuillan, J., & Tiemeyer, S. (2016). Infertility and fertility intentions, desires, and outcomes among U.S. women. Demographic Research, 35(39), 1149-1168. doi: 10.4054/DemRes.2016.35.39*

***Spierling, T. N.,** Ciciolla, L., Tiemeyer, S., & Shreffler, K.M. (Forthcoming). Laying the groundwork for social and emotional development: Prenatal attachment, childbirth experiences, and neonatal attachment. In A. Morris, & A. Williamson (Eds.), Building early social and emotional relationships in infants and toddlers: Integrating research and practice. Springer Publishing.*

*Sarigiani, P. A., & **Spierling, T.** (2011). Sleeper effect of divorce. In S. Goldstein & J. Naglieri (Eds.), Encyclopedia of Child Behavior and Development. pp. 1378-1385. New York: Springer.*

Spierling, T., & Shreffler, K.M. (2016) *Tough decisions: Exploring women's decisions following unintended pregnancies.* Poster presented at the 2016 National Council on Family Relations annual conference in Minneapolis, MN.

*Shreffler, K.M., Tiemeyer, S., & **Spierling, T.** (2016). Couple congruence on fertility intentions and values and implications for fertility behavior.* Paper presented at the 2016 annual meeting of the Population Association of America in Washington, D.C.

***Spierling, T.** (2015). Promoting resilience in military families faced with deployment.* Paper presented at the 2015 annual meeting of the National Counsel on Family Relations in Vancouver, BC.