

OBJECT REPRESENTATION, RELATIONSHIP SATISFACTION,  
MATERNAL-FETAL ATTACHMENT, AND DEPRESSION IN HIGH RISK  
PREGNANCY

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## DEDICATION

This dissertation is dedicated to Victor R. Rosenblatt, Ph.D. (1948-2009) whose  
unflagging devotion and belief made this work possible.

“Out beyond ideas of wrongdoing and rightdoing, there is a field.

I’ll meet you there.”

Rumi, 13<sup>th</sup> century

OBJECT REPRESENTATION, RELATIONSHIP SATISFACTION,  
MATERNAL-FETAL ATTACHMENT, AND DEPRESSION IN HIGH RISK  
PREGNANCY

by

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The University of Texas Southwestern Medical Center at Dallas, 2009

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Little is known about the nature of a woman's early caregiver object relations and the role they play in her relationship satisfaction, maternal-fetal attachment and possible experience of depression in a high risk pregnancy in the context of antepartum hospitalization. This study investigated the effects of a woman's internal object representations of her early female and male caregivers and the association between her development as evidenced in her rated written narratives and the relationship satisfaction she experience with her current romantic partner, the attachment she felt toward the child she carried, and her experience of depression in a high risk pregnancy. One hundred sixteen women completed the Object Relations Inventory (ORI), Maternal Antenatal Attachment Scale (MAAS), The Edinburg Postnatal Depression Scale (EPDS) and the Depressive Experiences Questionnaire (DEQ) during antepartum hospitalization. Participants also completed the Dyadic Adjustment Scale (DAS). There was a positive correlation between reported satisfaction in a primary romantic relationship and the rating of a woman's representation of her level Differentiation-Relatedness with her primary male caregiver (ORI-DR-M), usually her father. There was also a significant relationship between depressive symptoms, as measured by the EPDS and the Quality of a woman's attachment to fetus or unborn child (MAAS-Q). No relationship between a woman's ORI-DR for her primary male or female caregiver and depressive symptoms was identified. Nor was any association found between dependency (anaclitic depression) and a woman object representation of her mother or self-criticism (introjective depression) and a woman's object representation of her father. The findings do suggest that the object representation level of woman's relationship with her father influences the quality of her relationship with her romantic partner during hospitalization for complications of pregnancy.

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## LIST OF ABBREVIATIONS

DAS– Dyadic Adjustment Scale

ORI-DR-F– Object Relations Inventory, Differentiation-Relatedness Scale,  
narrative female caregiver

ORI-DR-M – Object Relations Inventory, Differentiation-Relatedness Scale,  
narrative male caregiver

ORI-A-F – Object Relations Ambivalence Scale female caregiver, Low 1, 2.  
High 3, 4, 5.

EPDS – Edinburgh Postnatal Depression Scale

STAI-T – State-Trait Anxiety inventory (version 2) Trait only

MAAS-I – Maternal Antenatal Attachment Scale, intensity score

MAAS-Q – Maternal Antenatal Attachment Scale, quality score

DEQ- D – Depressive Experiences Questionnaire, dependency scale

DEQ- SC – Depressive Experiences Questionnaire, self-criticism scale

## **CHAPTER ONE**

### **Introduction**

Research suggests that the relationship between mother and infant begins before birth, even in the absence of observable infant behaviors. In ideal circumstances, this process enables parents to begin the preparation for their baby's arrival and facilitates the transition to parenthood. Sameroff & Fiese (2000) state that, "from conception, the infant is embedded in relationships with others who provide the nutrition for both physical and psychological growth" (p. 5), alluding to the special relationships between the fetus and its interpersonal world even before birth. However, what happens when the pregnancy is "uncertain," as in situations where obstetric factors or fetal anomaly threaten mother and fetus? Are these attachment processes any different than in uncomplicated pregnancy? Do mothers sequestered in hospital rooms away from their partners and families avoid thinking about the endangered transition to motherhood? Before an investigation of what is known about the psychological milieu in which a high-risk infant is delivered, the reader is invited to a brief summary of the importance of early caregiver relationships to babies and to the adults they become.

## **IMPORTANCE OF EARLY CAREGIVER RELATIONSHIPS**

### **Attachment**

Although human interactions are important throughout the lifespan, according to theorists from multiple disciplines the behaviors of mother or primary caregiver toward an infant have increased significance. Nurturing and affectionate behaviors along with appropriate stimulation build the mother-baby relationship and are vital to the development of the newborn infant (Hoghughli, M., 2004). Reciprocal infant behaviors of crying, smiling, cooing, and eye gazing fuel the continued engagement of the caregiver (Hofer, 1995). When interactions are appropriately complementary, there will be a “goodness of fit” between caregiver and infant (Thomas, Chess, & Birch, 1968). Sensitive caregiving and timely caregiver responses allow the infant a “secure base,” a safe haven for comfort, and a platform from which to explore (Ainsworth, 1940; Ainsworth, Bell, & Stayton, 1974; Bowlby, 1988).

It has been hypothesized that infants construct an internal set of expectations about caregiver responses based upon patterns of caregiver-infant interaction (Cassidy & Shaver, 2002; Goodman, 2002). Although preverbal, these first forms of mental representation are records of perceptual data in the infant’s environment (physiological and emotional) that are associated with the interactions, whether or not they are in reality linked with the interaction or due to

another external or internal event. Not only are these earliest social interactions important for the infant, it is suggested that what happens in social exchanges between baby and caregivers forms a template for all future relationships (Bowlby, 1969). Although others may have a part in shaping this template, the baby's first bi-directional relationship with another human, his caregiver (usually the mother), is vital to forming a sense of self and determining how that self will interact with other significant individuals later throughout life (Beebe & Lachmann 2002).

John Bowlby, a child psychiatrist, gave attention to these infant processes and suggested they were part of an evolutionary system initiated by the newborn that promotes caregiver proximity and action in order to ensure the neonate's survival in the external world. Bowlby considered this group of reciprocal behaviors between neonate and early caregivers to be "attachment" (Bowlby, 1969, 1973, 1980). Unlike most animals, the human infant cannot meet any of its basic needs without a caregiver; the infant's immaturity makes him dependent on the care and protection of parents for a longer time than that seen in most other mammals (Bowlby, 1969). For example, the rooting reflex aims the infant towards the breast to obtain nourishment. The reciprocal response programmed in mother is the physiological "letting down" of milk at her baby's nuzzling and/or cries. In an infant's consciousness, the feelings of hunger, cries for food, and subsequent maternal response blend together into what Bowlby called an "internal

working model,” or set of expectations, for what happens between baby and caregiver. These “internal working models” had specific content and were permanently associated with the self as well as others with whom one interacted, becoming a template for all subsequent human relationships, with general expectations of responsiveness or unresponsiveness, cooperation or resistance. Bowlby’s theory was that an individual’s style of relating or attaching to others was based upon the collection of working models an individual has tied to caregiving relationships in his or her environment. Bowlby and Mary Ainsworth, a protégé and colleague of his, both referenced working models connected with early caregivers as very potent in the development of trusting relationships. They proposed that attachment is a strong component of personality formation, and the attachment style a child develops in infancy will continue to be evidenced in future relationships, particularly if a child continues to have the same primary caregivers from infancy to adulthood (Bowlby, 1973).

Stern (1985) suggested that following reciprocal interactions between child and caregiver, the infant forms representations of repeated aspects of the interactions. He called these RIGS, representations of interactions that have been generalized. He said that these representations form a preverbal core of the developing self. For example, if the caregiver shows consistent sensitivity to an infant’s needs, the RIG preserves this sense of being worthy of attention. This will

form part of the budding sense of self and the attachment style the infant will later express.

Ainsworth expanded upon the work of Bowlby by devising a method for evaluating attachment from observing parent-infant interactions (Ainsworth, 1969). She developed the experimental paradigm of the Strange Situation. It became a standard method for classifying parent-infant attachment. Determined for the most part by the child's behavior, Ainsworth identified three types of attachment: "secure," "avoidant," and "anxious-ambivalent." It was presumed that these attachment behaviors reflected the child's internal working model of "mother" or "caregiver." Infants who were securely attached explored the environment when the mother was present, wanted to be near her after separation, and upon reunion felt free to explore once again. Insecure-avoidant infants appeared to ignore their mother's disappearance, and were actively avoidant upon her return. Insecure-resistant babies were very distressed by their mother's departure but greeted her with a mixture of approach and avoidance. Main & Solomon (1986; 1990) ascertained a fourth style which they labeled "disorganized" because of the confusion demonstrated by the child when the mother returned. Ainsworth established that the quality of mother-infant interactions in the first three months of life could predict attachment style as well. Mothers of 12-month-olds classified as securely attached had been more sensitive and responsive the first three months of life; whereas those of insecure-avoidant



infants of that age had been more rejecting and averse to bodily contact than the mothers of secure infants. Insecure-ambivalent infants had mothers who were inconsistent and rejecting during the first three months of life. Since that time, research has continued to explore the contribution that attachment in infancy makes to personality structure throughout human development.

### **Object Representation**

Bowlby's theoretical internal working model was a product of actual interactions, with little said about potential differences between the real event and the infant's perception of events. Bowlby's theory was much more like the impact that a recording has on future experiences than a truly psychological event whereas Freud's original notion of an object strongly conveyed the notion of cathexis, which involves the emotional interpretation of interaction with an object.

Two psychoanalysts, Melanie Klein and Margaret Mahler, drew attention to the importance affect and fantasy play in processing environmental interactions.

The notion of object representation is largely credited to Melanie Klein. She theorized that early relationships are mapped onto later ones. In her terms, the "object representation" refers to an individual's mental image of an object (anything an individual is highly invested in) that contains aspects of the actual

external object but is also colored by the individual's fantasies about the object. This theory posited that the power and type of emotions connected with earlier objects shaped the interpretation of one's current interactions.

Mahler (1975), pioneering developmental infant observation in the United States, agreed with Bowlby that in the first weeks and months of life an infant is thought to record his sensory experiences with no attribution toward a specific object or person. The baby begins life physically attached to its mother as an embryo; after birth the baby is still symbiotically attached to its environment in a way that does not allow an understanding of the environment as separate from self. However, she hypothesized that this was a brief stage of limited awareness. Drawing upon Klein's work, Mahler used her observations of children and mother-child relationships to develop a theory of psychostructural infant development. In her endeavors to describe how children developed internalized object relations and formed mental representations, she hypothesized that, at around four to five months of age, the infant enters a phase of "separation and individuation." Mahler believed the child's particular characteristics and developing internal capabilities shaped internal representations of a separate-self and separate-mother. She stated "if the infant's development of his sense of self takes place in the context of his dependence on the mother, the sense of self that results will bear the imprint of her care-giving" (Mahler & McDevitt, 1982, p. 837).

Object representations, then, become a record of the developing relationship between the “differentiating” infant and external objects (caregivers). Thereafter, in the presence of the object, this representation is elicited from memory. Object representations are tied to memories that have emotional meaning. The renewed presence of an object would elicit emotional states connected with experiences recorded previously between the infant and the object.

From six to eighteen months of age the child is increasingly able to match his mental state with that of a caregiver (Beebe & Lachmann, 2002). Infant imitation or mirroring strongly suggests the beginning of a process which will evolve into affective understanding of self and other and later the ability to reflect. If a mother reflects what her child is feeling, hopefully in a higher order representation of how he is truly feeling, then he will begin to know how he feels. If all goes well, and the mother has taken the opportunity to grow and mature during her pregnancy, the baby’s ability to create his own internal representations will emerge. This eventually helps him to organize and modulate his own internal representations and feelings and relate as a separate human being. (Fonagy et al., 2002).

From another perspective, Piaget’s work on childhood development complemented both Mahler’s hypothesized “object representations” and Bowlby’s attachment theory by providing a cognitive framework characterized by

discrete stages of accomplishment. According to Piaget, the genetically programmed behaviors Bowlby described occurring in the first two years of life were the beginning of the “sensorimotor” stage. Actions originating as primarily instinctual and without deliberate thoughtful intentionality would become intentional as the infant recognizes himself as the agent of action. The primary accomplishments of this stage of development also included differentiating self from objects and gaining the understanding that things continue to exist even when out of sensory perception (or out of sight). In the process of engaging her environment, the infant develops what Piaget called “schemas,” elaborated representations of sets of perceptions, ideas, and/or actions, which fit together. For example, in Piagetian terms, a genetically programmed rooting reflex adapts to (accommodates to or is assimilated by) the specific environment the infant had to navigate to get a need met (mother/caregiver yielding breast or providing food; Greenspan, 1979). In its adapted form, the reflex becomes part of a larger “foodgetting” schema with genetic programming at the root. However, in Piaget’s theory, schemas were cognitive and did not account for any affective elements surrounding the cognitive developments.

Piaget’s sensorimotor-stage, in which the ability to form “permanent objects” (Piaget & Inhelder, 1969, p.16) occurs, corresponds to “separation and individuation” described in Mahler’s theories of development. Though terminology differed, both theorists held that self-other individuation is a

necessary first schema or representation that enables the infant to engage with his or her social world. Piaget's concept of object constancy described the final accomplishment of separation and individuation—the capacity to see and relate to the object as having a separate existence (Piaget & Inhelder, 1962). He understood the psychological importance to the developing child of an environment that could be permanently “pinned down” into some predictable form that the child could rely on in the future. Piaget's model suggests that as one meets a broader range of individuals during later stages of cognitive development (formal operations) social schemas develop which can ultimately be combined or individuated through purely internal experiences of cognition. This idea was similar to Bowlby's contention that attachments change over time.

According to Piaget, over the course of childhood, both language and representations change in a predictable manner. In the sensorimotor (prelanguage) stage (ages 0-2), representations are mere copies of sensory data, lacking flexibility of interpretation and stability. They are tied to a concrete interpretation of experiences. In the preoperational stage (3-7), the objects can be recognized in a variety of contexts, so flexibility is increased, but they cannot yet be recognized and spoken about as unique and individual. In the concrete operational stage (8-13), logic and concepts can be used in both language and other forms of representation. However, purely imaginary objects and concepts cannot yet be mentally manipulated. In the final stage, formal operations (13-adult), the

individual can move beyond concrete experiences and think through hypothetical situations, future possibilities, and complex ideological problems.

Both attachment systems and object representations provide information about interpersonal relatedness (Fishler, P., Sperling, M., & Carr, A., 1990).

Through their organizing functions, object representations can mediate attachment, providing an infant with knowledge of what to expect from his caregiver. By this same process, an attachment system can mediate an object representation. For example, the system might lead us to focus on a particular detail of an interactional engagement that might have not seemed as salient were it not for some “guidance” given by the attachment schema as to what to expect based on prior interactions in tolerably similar situations.

Developmental and personality theorists differ in their beliefs as to how mental representations of specific caregiving interactions lead to the psychological development of the infant. For example, behaviorists postulate that behaviors can be extinguished over time, intimating that not all caregiver effects need be permanently damaging or beneficial (Skinner, 1935). On the other hand, psychoanalysts believe that affect-laden interactions are not annihilated, but become unconscious, awaiting appropriate restimulation from similar future events (Freud, 1913). Psychoanalytic theory depends on the idea of object representations to carry the valence of past interactions when interpreting present experience through transference. Humanistic theorists find that earlier effects can

be overridden by later caregiver behaviors. For example, Rogers's entire conception of client-centered therapy depends on the theory that unconditional positive regard was precisely what did not occur in the original caregiver-child interactions; but that introducing it later resulted in the healing of past wounds (Rogers, 1961). Most likely, an individual's personality is the result of multiple factors and person-specific contexts and few psychologists would argue against the idea that early infancy is a particularly critical developmental period for both mother and neonate and for their future interactions (Bornstein, 2002).

### **Attachment and object representation across the lifespan**

Bowlby (1988) indicated that the attachment system is most prominent in infancy, but he posited that it continued and developed over an individual's entire life. Longitudinal studies begun in late childhood and early adolescence indicate that maternal sensitivity and supportiveness expressed during early years produce a high rate of secure attachment in their offspring during late adolescence (Beckwith, Cohen, & Hamilton, 1999; Sroufe et al., 2005). In a 22-year prospective study Grossmann, Grossmann, & Kindler (2005) measured continuity of attachment in a single cohort every five years. To date, they have gathered measurements in infancy, childhood, and adolescence leading to their conclusion that parental sensitivity and responsiveness in infancy and childhood are important predictors of adult attachment classification. Therefore, infants who are

securely attached have a strong probability of remaining securely attached up to late adolescence with the inverse being true as well.

There is considerable evidence that attachment styles are both stable and malleable. In *Attachment in Adulthood*, Mikulincer & Shaver (2007) summarized twenty-five studies covering continuity of attachment from periods as short as one week to as long as twenty-five years. They found “on average, around 70% of the participants received the same attachment classification or chose the same attachment category at different time points.” (p. 141). As one’s intellectual and cognitive prowess grows, the kinds of information an individual uses to elaborate and adjust his attachment schemas must alter as well. Due to this alone, it should be expected that one’s current assessment of attachment to any particular individual must change over time.

Attachment systems continue to be important in adulthood as they influence relationships with parents, friends, and other non-romantic relationships; however, the most notable impact is on adult romantic and adult parent-child relationships. According to Bowlby (1979), a long-term romantic relationship is the prototypical relationship demonstrating attachment bonds in adulthood. Following his lead, Shaver et al. (1988) proposed that the development of adult affective relationships follows the pattern laid out between infant and early caregivers. “For every documented feature of attachment there is a parallel feature of love, and for most documented features of love, there is either a



documented or a plausible infant parallel.” (p.73). Similarly, Shaver, Hazan & Zeifman (1999) believed that adolescent and adult romantic relationships go through the same stages described by Bowlby and Ainsworth concerning infant-parent attachment. They hypothesized a “single template” developed during infancy that becomes modified over time.

Bowlby (1973) noted that people often attract relationship partners that fit their working models of others, and form attachments that maximize the congruence between current attachment experiences and preexisting models. This process constrains some people to a developmental trajectory established during infancy and childhood allowing for a degree of predictability of adult attachment patterns from what can be observed at earlier ages. However, he also suggested that there were “destabilizing forces” that encourage deviation from early working models: powerful experiences that demand revision and updating of attachment representations. Hence, adult attachment patterns are rooted in early interactions with adult primary caregivers and later attachment experiences challenge the validity of the early working models.

Bowlby also argued that mature autonomy is attained partly by internalizing positive interactions with attachment figures. For example, the ability to self-soothe is based largely on having been comforted by caring attachment figures early in life. A thorough review of the empirical evidence gathered on adult attachment can be found in Attachment in Adulthood: Structure,

Dynamics, and Change, Mikulincer & Shaver (2004). In respect to romantic partners, the adult attachment behavioral system includes activation of mental representations of romantic partners who regularly provide care and protection. These representations can create a sense of safety and security, which helps a person deal successfully with threats. That is, mental representation of attachment figures can become symbolic sources of protection, and their activation can establish what might be called “symbolic proximity” to supportive others. Mental representations of the self come to include “incorporated” or “introjected” traits of security attachment figures, so that self-soothing and soothing by others become alternative means of regulating distress (Mikulincer & Shaver, 2004). Developmental changes in the ability to use mental representations are a strong participant in facilitating these changes.

Fraley (2002) performed a meta-analysis including twenty-seven studies that looked at the stability of attachment across infancy, childhood, adolescence and young adulthood. He built a mathematical model based on the prototype view which suggests that attachment styles last over time, but they can be modified by events atypical of those that produced the prototype. He compared this model with the revisionist continuous change model which does not assume a prototypical template against which later events are compared. Fraley concluded, “In summary there is a moderate degree of stability and attachment, from childhood to adulthood, and the pattern of stability observed is better accounted

for by a prototype-like process than by a revisionist one” (p.135). This provides corroboration for Bowlby’s 1988 hypothesis of a basic attachment structure that can change over time.

### **Impact of poor caregiving**

Main, Kaplan, & Cassidy (1985) suggested that an infant’s behavior develops to conform to specific types of caregiving. That behavior turns into a consistent strategy that regulates the child’s feelings and behaviors. Thompson (1994) expanded on this by hypothesizing that a child learns how to regulate emotions to reach its goals. He said that patterns of attachment match what infants have learned about maintaining relationships. Children who have not had their needs met consistently by caregivers may tone down affective displays to avoid harm or intensify dysphoric emotions to engage inconsistent caregivers.

### **Difficulty with interpersonal relationships**

Just as insecure attachment impacts caregiver-child relationships, it has been found to predict relationship difficulties when the child matures. Hazan & Shaver (1987) found that insecurely attached subjects reported more negative romantic experiences and shorter ones than did secure subjects. Also, they reported more unfavorable descriptions of early relationships with their parents.

Mikulincer & Shaver (2007) stated, “Major organized attachment strategies—secure, anxious, and avoidant—involve particular wishes and fears about regulating security, closeness, dependency, and autonomy within relationships.” (p. 255). That is, people who are secure have learned that being close is rewarding and it augments their self-worth. In contrast, insecurely attached people are more focused on protecting themselves from being hurt. They are anxiously preoccupied with others meeting their needs for dependence and have little insight into what drives their behaviors. For example, avoidant attachment is associated with higher scores on fears of intimacy (Hudson & Ward, 1997). Also, avoidant persons tend to consistently choose larger distances in situations that call for physical proximity, signaling to others that they are unwelcome (Kaitz et al., 2004) and there is considerable evidence that anxiously attached people are consistently fearful of being rejected (Downey & Feldman, 1996).

Mikulincer & Shaver (2007, p. 265 and 269), in major reviews of forty-one studies, found that secure people are significantly better than anxious or avoidant ones in expressing their feelings towards others and in managing conflicts. These qualities can make friendships and romantic relationships more satisfying by fostering interpersonal understanding and intimacy.

Attachment in early childhood is valuable not only as an indication of the parent-child relationship but also for its influence on other characteristics of the child's functioning. This happens as children develop the ability to translate early attachment relationships into mental representations. These then form the child's expectations about the availability and responsiveness in other interpersonal relationships (Bretherton & Munholland, 1999; Sroufe & Fleeson, 1986, 1988; and Thompson, 1988).

Several recent studies have connected early representations of poor caregivers with dysfunctional outcomes in their children. Drodge (1997) found that older adolescents whose parental representations are "qualitatively poor" had a negative view of themselves as well. Huprich, Porcerelli, Binienda, Karana, & Kamoo used the ORI to score parental representations. They found that all scales of that instrument except aggression predicted dysthymia in one-hundred ten African American women. "Common aspects of object relations and self-representations in offspring from disparate dysfunctional families" (Hadley, Holloway & Mallinckrodt, 1993) looked at the children's attachment and object representations. They found that the degree of family dysfunction was significantly associated with internalized shame, object relations deficits, and presence of addictions and emotional problems.

The relationship that a pregnant woman has with her unborn child is also influenced by how she views her own parents and the course that her relationship

with them has taken over time. Poor mental representations of one's parents may indicate a difficult path to a secure bond with one's child.

### **Difficulty bonding with offspring**

It is no surprise that events that occur in one generation can impact the next. The fact that a child is abused by a parent often leads to that individual becoming an abuser when her child is born (Imber-Black, 1993). The concept of multigenerational abuse is now a commonly accepted explanation used to interpret a person's psychological history.

Poor caregiving in infancy is a good predictor of poor caregiving in the next generation (Buchanan, 1998). The effect can be offset by education or psychotherapy (Forehand, 1977; Bakwin & Bakwin, 1972). However, it is far more often the case that individuals treated poorly in infancy and childhood are not aware of alternatives.

When a woman has had poor caregiving early in life, her own personality and sense of self can suffer. Once established, this dynamic can touch all of her close relationships. She may be "present, but not present," avoidant, dismissive, fearful or disorganized causing difficulties in bonding to her own child (Ainsworth et al., 1978).

In recent years it has been noted that poor early caregiving experiences are associated with the structure and content of a person's mental representations (Diamond, Blatt, Stayner & Kaslow, 1991). Interpretation may be as things actually were, or as situations seemed to be as a child, from an adult responding to or reflecting back on how things were. Persons explain or predict behavior, inferring and attributing intention (Fonagy et al., 2002). "Behavior can be caused by representational mental states that can be either true or false in relation to actual reality." (p. 347). A mother's use of language, her style of attachment and communication, the lens through which she sees the world impact the way she thinks about, imagines, and interacts with her spouse, her unborn child (eventually neonate), and the rest of the world. Deficits in these were found to be context specific, different for mother and father (Fonagy et al., 2002).

The heightened activation of the attachment system in pregnancy, especially in a high risk pregnancy, increases the meaning and poignancy of early critical experiences in the development of a new mother/child dyad.

### **Difficulty Maintaining Mental Health**

In *Attachment in Adulthood*, Mikulincer & Shaver (2007) Chapter 13, contend that psychological health or pathology could be highly influenced by attachment style in childhood or later. In that chapter, the authors review dozens

of studies relating an individual's attachment (measured by interview and the major attachment scales) with measures of personality and psychopathology (measured by interview and by symptoms, personality, and psychopathology scales). They found that "attachment insecurities are clearly prevalent among people with a wide variety of psychological disorders, ranging from mild neuroticism and negative affectivity to severe, disorganizing, and paralyzing personality disorders and schizophrenia... insecure attachment styles (whether, anxious, avoidant, or fearful) are fairly general pathogenic states that increase the risk of psychopathology." (p. 403-404).

Caregivers' behaviors with their infants often predict psychopathology in later adulthood (Carlson, 1998). Carlson found that negative forms of attachment in infancy correlate with affective and psychotic disorders at ages seventeen and nineteen. Of all attachment styles, the disorganized infant exhibited the most problems from infancy to adulthood. Several researchers have drawn a connection between personality disorders and attachment. Allen et al. (1998) and Brennan & Shaver (1998) found a consistent correlation between attachment styles and specific personality disorders.

Symptoms listed in the Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM IV) Axis I disorders have also been shown in several studies to correlate with attachment style, particularly in differences in intensity of psychopathology between securely and insecurely attached infants



(Cooper, Shaver & Collins, 1998; Mickelson et al., 1998). Depression or predictors of certain types of depression are of interest. A depressive episode before age 26 was found to be strongly related to having had any type of major anxiety disorder during one's life time, with findings also that generalized anxiety strongly and consistently predisposed a person to a greater number of subsequent depressive disorders having earlier onset. Anxiety outranked self-esteem and personality factors as a marker for future experiences of depression (Parker, Wilhelm, & Asghari, 1997).

In respect to adults, Mikulincer and Shaver (2007; Table 13.3, p. 380-1) reviewed 103 studies of associations between adult attachment and depression<sup>1</sup>. The relationship found between the two was as follows: 1) in 31 of 32 studies, there was an inverse correlation between depression and secure attachment and one study had a nonsignificant finding; 2) in 17 of 21 studies, when depression was significant, insecure attachments were scored significantly more often than secure; 1 of 21 showed the reverse; and three were not significant; and 3) in 65 of 65 studies, when depression was significant, some form of insecure attachment (anxious, avoidant, or fearful) was scored as significant. The great preponderance of studies showed, therefore, that individuals with secure attachments are less

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<sup>1</sup> The studies reviewed by Mikulincer and Shaver were grouped by them into three types of findings. Therefore, the data is presented here in three part so as not to provoke misinterpretation.

susceptible to depression and individuals with insecure attachments are more susceptible to depression.

Mikulincer and Shaver also looked at the relationship between anxiety and the security of adult attachment (Table 13.4 p. 382). In the thirty-eight studies reviewed they found: 1) in 10 of 10 studies, there was an inverse correlation between anxiety and secure attachment; 2) in 7 of 7 studies, when anxiety was significant, insecure attachments were scored significantly more often than secure; and 3) in 20 of 21 studies, when anxiety was significant, some form of insecure attachment (anxious, avoidant, or fearful) was scored as significant; 1 of 21 studies was nonsignificant. The preponderance of studies showed, therefore, that individuals with secure adult attachments are less susceptible to anxiety and individuals with insecure adult attachments are more susceptible to anxiety.

The threat of losing someone important can produce a normal bereavement process or a psychological disorder, sadness, or intolerable, unrelenting grief. What occurs will depend to a great extent on the lessons drawn from earlier losses and separations. It has been shown that, when faced with loss, an individual who has been determined to be securely attached is less likely to develop a clinical level of depression than individuals with insecure attachments (Muir, 1995).

Blatt, a prominent psychoanalyst, suggested that depressive experiences are generally colored by themes of unmet dependency needs or harsh self-

criticism, calling them “anaclitic” and “introjective” respectively. He connected the anaclitic style with an earlier psychological stage (oral), before the individual has developed mature object representations. An introjective style was associated with more mature object representations (during the phallic stage). Both styles significantly impact the experience of depression and color responses to treatment (Blatt, 2004).

Although various means of assessing anxiety, depression, and adult attachment have been used across studies, it is evident that affective psychological disorders are prevalent in individuals with insecure attachments and less prevalent in individuals who report secure adult attachments. This supports Bowlby’s (1973) original concept that secure attachments lend resilience to the personality, while insecure attachments are a breeding ground for psychopathology (Bowlby, 1944).

## **Pregnancy**

Empirical research on prenatal perceptions provides evidence that parents ascribe personal characteristics to their unborn children (Lumley, 1992; Merbert, 1991; Zeanah, Keener, & Anders, 1986; Zeanah, Keener, Stewart, & Anders, 1985). Most studied parental assessments of their infant’s characteristics or temperament in the late third trimester using women’s mental representations. Zeanah and his colleagues stated that parents have stable perceptions of their

infant's temperament in late pregnancy and in early infancy. Zeanah et al (1995) and Merbert & Kalinowski (1996) found that prenatal judgments of perceptions were predictive of the parents's perceptions at four to six months, showing that internal working models begin in utero. Lumley (1982) found that 92% of women in their third trimester conceived of their their fetuses as persons.

When a pregnancy is uncertain, possibilities for this new life and this new relationship are threatened. Attachment theory as originally stated hypothesizes that early experiences are activated in times of danger or stress for protective purposes. A high-risk pregnancy provides such a context, but little is known about a woman's revisit to her early caregiving experiences under this type of distress.

A high risk pregnancy is a powerfully emotional event for the expectant mother. We would expect, therefore, that it would make the impact of early learned attachments far more powerful. The more salient the relationship between the woman and her parents, the more she might use it to interpret the relationship that she, as a threatened parent, has with the threatened child she carries. Little is known about attachment and object representation when the pregnancy is endangered. It would be intuitive to question whether the introduction of danger activates attachment needs, but this has not yet been demonstrated empirically.

## **PURPOSE OF THIS INVESTIGATION**

The purpose of this investigation is to add to the body of knowledge that exists on object representation, mother-fetus attachment, and relationship satisfaction during high risk pregnancy. We will consider whether or not internal representations of the expectant mothers' parents serve as mediating factors in her developing attachment to her fetus and in the satisfaction she finds in her relationship with her partner. We will also explore whether the mental representations she holds of her early caregivers make her more vulnerable to depression when faced with the stress of a high-risk pregnancy. Also, we will attempt to determine if there is a relationship between the themes (dependency or self-criticism) of depressive thoughts and the mental representations she holds of her early caregivers.

## **CHAPTER TWO**

### **Review of the Literature**

As mentioned in Chapter 1, Bowlby (1969,1973, 1980) posited the importance of attachment with early caregivers formed the basis for all other relationships, and Mahler (1975) pointed out that both attachment to and separateness from the mother-figure of infancy were significant.

### **OBJECT REPRESENTATION IN PREGNANCY**

#### **Early Theorists**

Anecdotally, early in the history of psychoanalysis pregnant women were considered un-analyzable, in view of their preoccupation with their fetus. However, the psychological meaning of pregnancy was explored by women who were also psychoanalysts. As theory shifted from personality development based on conflict to a relational psychology with emphasis on early interactions, Deutsch (1945), Benedek (1959), and Bibring (1959) contributed to the study of meaning across the lifespan. They agreed that parents were parents as long as their children were alive, therefore, the study of parenthood is relevant throughout the course of life.

Fulfilling the role of a mother, with its antecedent psychological roots in childhood, was first noted by Deutsch (1946, p.14). “Every mother brings into [motherhood] certain emotional factors and conflicts, that is, a certain psychodynamic background partly determined by her life situation, partly by her inner disposition due to her whole psychological development...it will also tend to revive all the infantile conceptions of

pregnancy and motherhood and childhood emotional reactions.” However, Deutsch held to the strict Freudian psychosexual view that women became pregnant in service to the species and to the male need to dominate.

Benedek (1970) was the first analyst to move from that strict position. She emphasized the drive to procreate as a core positive part of the female personality, not a reaction to deficits connected with her biology. She also gave a more complex description than Deutsch did of the ongoing psychological interrelationship of parent and child. “[The interaction] brings about either pathologic manifestations in the parent, or by resolution of conflict it achieves a new level of integration in the parent. In turn, the child reaches each ‘critical period’ with a repetition of the transactional processes which lead anew to the integration of the drive experience with the related object and self-representations.” (1959, p. 385).

Bibring (1959) saw puberty, pregnancy, and menopause as critical events in a woman’s life that revive past unsettled conflicts. Each woman can then either use the event as an opportunity to resolve the conflict and improve her psychological health or reinforce prior neurotic solutions (1959). She also proposed and did research on her view that the most important tasks for a woman who is pregnant is to initiate an emotional affiliation with the fetus, and to recognize it as a separate individual within her (Bibring et al, 1961). To that date, this was the farthest that a classically trained analyst had turned from Freud’s view of women from a deficit model. The critical stages in a woman’s reproductive function over her entire life could now be seen as challenges that can develop psychological strengths.

Successful meeting of the pregnancy “challenge” also had very significant meaning for the life of her child as well.

Fraiberg (quote 1975, pp. 387-388), proposed a famous description of the forces that quietly underlie the parent-child relationship. “In every nursery there are ghosts. There are the visitors from the unremembered pasts of the parents; the uninvited guests at the christening...Even among families where the loved ones are stable and strong the intruders from the parental past may break through the magic circle in an unguarded moment, and a parent and his child may find themselves reenacting a moment or a scene from another time with another set of characters.” Stern (1985, 1995) qualified this paradigm suggesting that one not only needs to show that a parent’s past influences how he or she carries on the task of parenting, but also that the child’s behavior toward the parent reflects critical events in the parent’s past. In his 1985 book, he published a study which demonstrated that a woman’s narrative concerning her experience provided an understanding of her parenting style, her experience with her own parents, and her child’s later response to her caregiving.

### **Early caregiver relationships and object representation**

The foundation of attachment theory is the construct of “internal working models.” There are many questions regarding the structure and nature of these “mental representations” of self and other. Recently there have been numerous investigations of the connections between attachment and object relations both theoretically and empirically. Quality and effect of internalizations of early experience have been focused on with respect



to perception, affect regulation and behavior (Fishler, Sperling, & Carr, 1990; Zelnick & Buchholz, 1990; Diamond & Blatt, 1994; Levy, Blatt, & Shaver, 1998). The term object representation enters the picture when discussing the relationship between objection relations and attachment. Clarification of the terms used to describe the internalized relationship between parent and child, or adults who share close, meaningful relationships would provide some understanding of these overlapping processes, if meanings for the terms themselves were not overlapping (see Table 1).

Fonagy et al. (1993) followed up on Fraiberg's (1975) and Stern's (1985) interpretation of the intergenerational transmission of critical life events. The security of the relationships between both parents and their children at twelve and eighteen months of age could be predicted on the basis of the parents' accounts of their own childhoods. This confirmed Fraiberg's belief about the reemergence of the parents' childhood conflicts in the early life of a next generation child.

Pietromonaco & Barrett reviewed the theoretical and research literature on internal working models in 2000. They concluded that internal working models provide an overarching goal of increasing an individual's security by specifying who in a particular situation is best capable of reducing a particular stressor. That choice can generalize across people who are similar to that individual. The model also has an affective component. It promotes an affective response in two ways: 1) increased affective reactivity to events that throw off a child's homeostasis and 2) affective regulation capable of returning the child to homeostasis by getting the attention of an appropriate individual in the environment.

Investigations by Priel & Besser (2001), viewed both mental representations and internal working models as following from early sensory and affective experiences with caregivers, and that during the prenatal period, the representation of the participants' mothers mediated the correlation between internal working models and maternal-fetal attachment. Further, through an empirical study of adolescent mothers, Levine, Tuber, Slade, and Ward (1991), using different instruments to measure the constructs of internal working models and mental representations, determined that internal working models and mental representations, although not identical, both facilitated quality of mother-infant attachment.

In addition, a woman's bond with her own mother, the internal working models of relationships that were formed and the mental representation a woman has of that experience fosters her assumption of identity as a mother (Pines, 1972, 1982) and the future relationship she will have with her child (Stern, 1995; Winnicott, 1965). The emotional tie a mother feels toward her unborn child is critical to the well-being of both (Benoit, Parker, & Zeanah, 1997). The internal representations of caregiving a woman has and her sense of well-being will contribute not only to the relationship she has to her pregnancy and her fetus, but also to the satisfaction she is able to experience in her partner relationship as well.

Although it is beyond the focus of this dissertation to go into detail about an individual's paternal representations (data for both mother and father were collected) it is appropriate to note the importance of the father relationship as well as the mother relationship, both to the women who are having babies and to the babies as well. According to Grossman and Grossman, in summary of their longitudinal research (2007): Interactive

quality of the father during exploration or play and also his sensitive challenges to a child's competencies were better predictors of subsequent psychosocial development than infant/father strange situation assessment. Both parents' sensitive joint play with their child in the first six years, especially the father's at 24 months, was significant to later quality of partner representation for the child. And, taken together and each on their own, father and mother acceptance, supportiveness, and appropriate challenging predicted their child's internal working models of close relationships at 22 years of age. "Attachment relationships that were vital for infant survival during human evolution continue to influence thoughts, feelings and motives and therefore close relationships throughout life" (p. 1).

## **RELATIONSHIP SATISFACTION**

### **Relationship Satisfaction and Early Caregiver Relationships**

Over the years since the development of attachment theory and the concept of object representation, research has documented associations between characteristics of early caregiver relationships and later romantic relationships. Findings also suggest that these associations may change over time based on the quality of the adult relationship. For example, Davila et al. (1999) found that during the early years of marriage, couples who had poor early caregiving in their own lives and consequent poor attachment to their own parents were able to improve their attachment styles in respect to each other over time. In 2003, Simpson, Rholes, Campbell, and Wilson noted anxiously attached women who perceived

their partners as supportive, available and accepting during pregnancy were able to move toward security. Increased avoidance was evident in women who sought less spousal support during pregnancy, whereas husbands who ascertained providing increased support became less avoidant. In the same year, Davila and Sargent conducted a diary study that lasted for 8 weeks during which they discovered that felt security declined on days when individuals in relationship interpreted events to mean some sort of personal loss.

It has also been suggested that insecure attachment rooted in early childhood experience may be the root of later dramatically fluctuating changes in attachment style. This has been the case in unstable, vulnerable adults who indicated disorganized childhood interactions (Block, 1961; Rogers, 1961). Some individuals fail to develop stable prototype working models and have inconsistent attachment representations that can be activated when their current interpersonal environment becomes unstable. Relationship satisfaction in many individuals who display dramatic changes in attachment styles is similar to those with insecure attachment styles. Often those individuals come from similar backgrounds. Evidence for a core of insecurity when attachment styles are somewhat labile has been demonstrated by the histories of abuse and depression discovered in a study of women who moved toward insecure attachment in the 2 years following abortion (Davila & Cobb, 2003).

### **Relationship Satisfaction during Pregnancy**

Negative spousal relationships are found to produce difficulties during the pregnancy process. There is evidence that the mother's perception of poor partner support negatively

impacts her mood and the partnership (Sequin, Potvin, and St. Denis, 1995; Pajulo, 2001). Tietjen and Bradley (1985) found that marital discord influenced the woman's relationship with the fetus. When specific attention is paid to women with high risk pregnancies it is revealed that these mothers tend to focus more on the fetus than on their partners, leading to deterioration in the intimate relationship (Delude et al., 2002).

Internal representations of early caregivers are the basis of one's attachment style which influences relationship satisfaction in either positive or negative ways and can change over time. Change can occur from personal vulnerability or lack of clarity of internal working models of self and other, from a personality disorder or psychopathology, or from the stability and support offered by a current relationship. The implications of attachment style for both personal and relationship satisfaction is far reaching, impacting a couple's relationship and the lives of their children in greater or lesser ways for generations to come. Above all, a couple's experience of relationship satisfaction has an effect on maternal-fetal attachment.

## **MATERNAL-FETAL ATTACHMENT**

When a woman becomes pregnant, her body prepares her for the physical birth of the baby, but she must make psychological adjustments as well. Rubin (1967, 1975) suggests that there are four major tasks a woman undertakes to prepare psychologically to redirect her focus from the world to the developing fetus: 1) getting through all facets of the pregnancy

safely; 2) beginning to develop the relationship between her baby and her family; 3) bonding with the child herself; and 4) shifting from her personal development to the development of another human being.

That a woman has a relationship with the fetus within is a concept that has likely been understood implicitly by the majority of women who have become pregnant. Scientifically, however, it was Cranley (1979) who gave the first psychological definition of the concept of maternal-fetal attachment: “The extent to which women engage in behaviors that represent an affiliation and interaction with their unborn child” (p. 282). Lumley (1982) then investigated how women think about the fetus over the course of the pregnancy and found that a woman conceptualizes the fetus as more humanlike as she gets closer to delivery. This was also shown in Spies and Schuelke (1999). Their results indicated that the fantasies of pregnant women about their unborn child have a developmental component across gestational trimesters. Muller (1983) added an emotional component to the conceptual one. Maternal-fetal attachment (MFA) was also the “unique affectional relationship that develops between a woman and her fetus” (p. 201). Accenting the emotional component, Condon (1993) said that the core of the relationship is love. Doan and Zimmerman (2003) gave a full operational definition: “Prenatal attachment is an abstract concept representing the affiliative relationship between a parent and fetus which is potentially present before pregnancy, is related to cognitive and emotional abilities to conceptualize another human being and develops within an ecological system” (p. 210).

It is thought that a woman's early internal working models or object representations of caregiving are revisited when she becomes pregnant with her own child (Rubin, 1967). When a pregnancy is uncertain, possibilities for this new life and this new relationship are threatened. Attachment theory as originally stated hypothesizes that early experiences are activated in times of danger or stress for protective purposes either by seeking actual proximity to or by recalling mental representations of a figure that provided a feeling of security. A high-risk pregnancy provides such a context, but little is known about a woman's revisit to her early caregiving experiences under this type of distress.

On the other hand, another protective function may be served according to Stern (1995) by a decline in elaboration of representations about the child to be beginning around month seven of the pregnancy. This decline in elaboration or positive emotion toward the fetus had been asserted by Fleming et al. (1977) as well, in the months prior to delivery, perhaps to ward off disappointment should the baby be different in reality than in fantasy.

In contrast to the descriptions of "protective purposes" mentioned for the mother, Brandon and colleagues (2006), investigating the impact of obstetric risk upon psychological well-being and antenatal attachment in a group of hospitalized women, found mothers were highly invested in and attached to their unborn children despite the uncertain outcome of the pregnancy. This led them to greater endorsement of positive health practices such as getting enough exercise, maintaining optimal weight, avoiding caffeine, cigarettes, and alcohol, and eating well in order to protect and insure the best possible outcome for their babies (Cranley,

1981; Condon, 1993). This was the primary motive for enduring the personal and family hardship imposed by hospitalization. (See Table 2).

### **Relationship Satisfaction and Maternal-fetal Attachment over the Course of Pregnancy**

It has been suggested that the presence or absence of a romantic relationship as well as the quality of an ongoing relationship can have an impact on a pregnancy.

Field and her colleagues (2006) found that, overall women who were unmarried at the time of pregnancy were more likely to be depressed. This is the case with a viable partner and can also relate more generally to having a lack of support or to facing the future burden of parenthood alone.

Marital adjustment at the start of pregnancy relates directly to the couple's reaction to the pregnancy. The better the relationship, the better the couple is able to accept the pregnancy as a positive event in their lives (Porter and Demuth, 1979). Prior agreement to have a child before becoming pregnant also supports continuing positive marital satisfaction before the child is born (Snowden, Shott, Awallt, Gillis, and Knox, 1998).

Probably the most important factor in how a woman reacts psychologically to her pregnancy is the support she receives from others during its course. Maloney (2001) found that the need for practical and emotional support from the romantic partner is necessary to help the woman deal psychologically with the pregnancy. Zachariah (2004) found that it is the positive relationship with her mate that provides the most extensive sense of support available to her in dealing with the stresses of the process. In addition, he showed that its



effect can be felt throughout the first postnatal year. The quality of that support influences not only the mother, but the baby as well. Women who saw their husbands as supportive tended to rate the degree of stress in the pregnancy as lower than those who saw their mates as unsupportive higher and vice versa (Gurung et al., 2005). The same study also found that those who saw partners as unsupportive had lower mood and experienced more conflict-related events during the pregnancy.

Mercer, Ferketich, DeJoseph, and Sollid (1988) concluded from their study that the relationship with the partner correlated with maternal-fetal attachment in low risk pregnancies, but not in high risk pregnancies. In the later case, presumably the mother's perception of the urgency of risk to her and to the fetus was so high that the father's involvement could not mitigate her stress level. Tietjen and Bradley (1985) and Zachariah (1994) found that women who felt supported reported fewer psychological symptoms both during and after pregnancy. Cranley (1981) also showed a correlation between the husband's support level and maternal-fetal attachment. As the husband's level of support increased, maternal-fetal attachment became stronger. Porter and Demuth (1979) found that if a woman feels that the pregnancy has brought her closer to her partner, she has a more positive view of the pregnancy. If she believes they have been driven apart, she views the pregnancy as less desirable. Just before birth, a woman's relationship with her partner correlates with the level of maternal-fetal attachment (Zachariah, 2004).

Several studies used various measures of relationship and maternal-fetal attachment to show the relationship between the two. In Condon and Corkindale (1997), a significant

correlation was found between scores on the Maternal Antenatal Attachment Scale (MAAS) and the Dyadic Adjustment Scale (DAS). Wilson et al. (2000) found the same correlation between a woman's closeness with her partner and scores on maternal-fetal attachment. Younger mothers, ages fourteen to twenty, with uncomplicated pregnancies had scores on the MAAS that correlated with the stability of relationship with the father.

### **Clinical Importance of Maternal-fetal Attachment**

Cranley (1981) articulated that during the 9 months of pregnancy not only was a fetus developing into a baby but a woman was also developing into a mother. She pointed out, "integral to that development is the consideration of the woman's identity, her role identity, the identity of her developing fetus, and perhaps most important, the relationship between herself and her fetus" (p. 281). The intense grief that a mother may feel upon miscarriage of a baby points to how strong prenatal attachment can be (Kennell, Slyter, & Klaus, 1970). The growing relationship between a mother and her unborn child is critical to their attachment after birth (Fleming, Ruble, Gordon, & Shaul, 1988; Leifer 1980; Muller, 1996). Oppenheim, Karen-Karie, & Sagi-Schwartz (2007) recognized how integral optimal attachment in infancy is to a child's future development. Klaus et al. (1972) further explored effects of early separation of mother and child and found it deleterious. When taken together, three studies (Hart & McMahon, 2006; Lindgren, 2001; Zachariah, 2004) point to the strong connection of psychological well-being to maternal-fetal attachment.

Strong evidence exists that family planning plays a positive role in quality of life and well-being for men, women and children (National Center for Health Statistics, 2000). Spacing and number of children already at home impacts maternal-fetal attachment and spousal relationship satisfaction as well. Substance abuse and deficient prenatal care are often consequences of unplanned pregnancy, meaning that fetal and infant health may be compromised (Kost et al., 1998). Low birth weight, infant mortality and abuse increase (Kost et al., 1998). Unintended pregnancy can negative effect the well-being of women of ages, stages and life circumstances (Brown & Eisenberg, 1995).

Psychological measurement of prenatal attachment began with Cranley's Maternal-fetal attachment Scale (1979). Muller (1983) followed with the Prenatal Attachment Inventory (PAI). It primarily focused on the mother's concept of the fetus and it measured the relationship independent of her feelings about being pregnant or becoming a mother. Condon (1993) developed the Maternal Antenatal Attachment Scale (MAAS), which operationalized the emotional component of the maternal-fetal bond.

There have been a large number of studies showing correlations between the level of attachment expressed by a woman's concept of her unborn child and observable referents in the world. Muller (1976) showed a significant positive correlation between prenatal and postnatal attachment measured by self-report questionnaires. Leifer found correlations between measures of maternal-fetal attachment and attachment measured at seven months after birth (Leifer, 1977; 1980). Fuller (1990) found that a mother's attachment to her fetus

correlates with more engaged infant interactions such as sensitivity to cues, eye contact, physical closeness, and verbal stimulation.

Fonagy, Steele, and Steele (1991) measured attachment styles using levels of object representation during pregnancy obtained by interview. They looked at the woman's report of her own childhood experiences using the Antenatal Assessment Inventory (AAI), and found that it predicted the attachment classification of her own baby at one year, using the Strange Situation. This was the first rigorous study to back up the common sense notion that a woman's childhood interactions with her own parents strongly affect her interactions with her baby. Mikulincer and Florian (1999) did two studies to assess the role of attachment style to a woman's reaction to her pregnancy and to the fetus she carried. In the first study, 260 Israeli women across trimesters were administered instruments to assess bonding to their unborn children and on their attachment styles. In a second study, 30 participants that were already classified by attachment style, ways they coped with pregnancy-related problems, mental health, and bonding to the children they carried were followed for the three trimesters of their pregnancies. Results showed that secure women were strongly attached to the fetus, had positive mental health and sought help throughout their pregnancy. Women with an avoidant style indicated poorer mental health and weaker bonding in their first and third trimesters, with improved scores on measures of both during their second trimester. Avoidant women relied on distancing as a coping strategy throughout. Anxious-ambivalent women reported increase bonding in each trimester but had poor mental health and relied on emotion-focused coping in a consistent manner.

There are several other significant studies of maternal-fetal attachment. Mercer and Ferketich (1994) found a significant relationship between maternal-fetal attachment and maternal competence. Benoit, Parker and Zeanah (1997) showed that a pregnant woman's anticipated relationship with her infant predicts the Strange Situation classification at twelve months with seventy-four percent accuracy. White, Wilson, Elander, & Persson (1999) showed that the maternal-fetal attachment correlates with the Family Dynamics Measure when an infant is between eight and nine months old. PAI scores and postnatal maternal involvement were also found to be correlated (Siddiqui & Hagglof, 2000).

Other significant correlations have been found in prenatal-postnatal studies involving secure mothers and babies and insecure mothers and babies (Levine, Tuber, Slade, & Ward, 1991; Mikulincer & Florian, 1999; and Priel & Besser, 2000). Concerning postnatal interactions, one study examined the correlation between maternal-fetal attachment and a highly adverse parental environment. In that study it was found that the lower the level of prenatal attachment the greater the probability that a child would be removed from the home by the state (Pollack and Percy, 1999). The influence of the maternal-fetal bond can be far-reaching: affecting the mother's proclivity towards depression; her relationship with her existing children, her husband and her family; the physical and emotional well-being of her baby; and even whether social services will need to be utilized.

Knowing the importance of positive well-being to maternal-fetal attachment to the mother and child, both for their future and the future of the family as a whole, being able to predict or assess for responsiveness to attachment gives the opportunity for intervention at

the personal, dyadic, the couple, or the family level to help strengthen the opportunity for the physical and emotional health of all involved. There have been a wide range of interventions aimed at fostering prenatal attachment with the hope that post-natal attachment will be positively affected (Wadhwa & Sandman, 2001; Hayes & Muller, 2004; Dennis & Creedy, 2004; Vieten & Astin, 2008). Changes in behaviors and attitudes have been shown to occur. Because the goal is so multifaceted and complex, whether the effects of interventions will continue well into the post partum will need to be demonstrated longitudinally. Such variables as whether or not the pregnancy was planned and whether or not a supportive partner was present will have to be considered.

### **HIGH RISK PREGNANCY**

The prevalence of high risk pregnancy in the United States is roughly 10 to 20 percent of all pregnancies (Knuppel and Drukker, 1993). According to Maloni, Kane, Suen, and Wang (2002) 700,000 women are hospitalized for complications from pregnancy annually.

Pregnancies are stressful in themselves both physically and psychologically. The inherent stress in high risk pregnancy precipitously increases the psychological impact. In a study done by Richter, Parkes, and Chaw-Kant (2007), the major themes that emerged from interviews with participants included stressors associated with loss of control and feelings of

being a burden. The psychological relationship with the fetus particularly suffers when the mother knows that the pregnancy is high risk.

Penticuff (1982) outlined how ambivalence functions in both normal and high risk pregnancies. In normal pregnancies, there is ambivalence concerning the mother's and father's competence in learning about and fulfilling the role of parent. This is natural, since the change is pervasive in the lives of the expectant parents, creating a new family constellation and dynamic. Penticuff reported that this kind of ambivalence typically is resolved by the end of the first trimester. In a high risk pregnancy, however, the range and intensity of possible negative outcomes produces intense ambivalence about the relationship to the infant. This may lead to a failure to develop love or to withhold love for the fetus. According to Penticuff, even if the outcome is eventually good, the ambivalence may, nevertheless, spill over into the postnatal period, and hinder the mother's feeling of competence in the maternal role (White, Wilson, Elander, & Persson, 1999).

Hospitalization with enforced bed rest provokes a further increase in stress and a further movement from the normal processes of childbearing. Common stressors in hospitalization include separation from the family (Heaman and Gupton, 1998) and disturbing emotions (White and Ritchie, 1984). Women describe this experience as physically, emotionally, and financially stressful (Schroeder 1996). Heaman and Gupton (1998) found that women on bed rest experienced significant impact on the emotional and social wellbeing of both themselves and their families. Hospitalization itself presents a constant reminder to the mother that the mother and fetus are at risk (Barclay and Ziehm,

1977). Women in this situation question if they will ever get to be mothers. Curry (1987) found that women hospitalized for pregnancy complications scored significantly lower on a measure of pregnancy acceptance than those with uncomplicated pregnancy. Hyman (1972) identified the following losses as salient during hospitalization: loss of mobility, loss of independent choice making, loss of home and loved ones, and a “pronounced deprivation of [the woman’s] precious values.”

Understandably, depression is a repeated finding in studies of high risk pregnancy (Maloni et al. 1993; Maloni et al. 2005; Maloni et al. 2006; Kurki, Hiilesmaa, Raitasalo, Mattila, & Ylikorkala, 2000; Heaman, 1992; Dunn, Handley, and Carter, 2006; Brandon et al. 2008). Overall, the causes of depression in high risk pregnancy mirror those of other depressions: the experiences of potential loss, helplessness with the real loss of control over their own fate and the fate of the child, and frequently a sense of hopelessness as long as the outcome remains unknown.

These difficulties may be encapsulated and relegated to certain contexts or they may be pervasive. The primary caregiver may have too many attachment needs or deficits of her own; as a result, her child can suffer from her limitations. This can be ameliorated by the presence of an alternative sensitive caregiver if there is one (Fleming, Kraemer, Gonzales, Lovic, Rees, & Melo, 2002). The heightened activation of the attachment system in pregnancy, especially in a high risk pregnancy, increases the poignancy of this critical time in the development of mother and child.



Overall, high-risk pregnancy produces the following unexpected experiences for the mother: dependency, depression, anxiety, ambivalence, a sense of disconnection from family and home, and movement into a sick role instead of the anticipated new productive and creative role of parent. While the outcome of the pregnancy remains unknown, it is plausible that she remains in a state of near constant distress.

### **DEPRESSION AND ANXIETY**

Although the prevalence rates for depression during pregnancy are variable across studies, Gaynes et al., 2005, by way of a meta-analysis of major and minor depression throughout the perinatal period, estimated that between 8.5% and 11% of women experience depression at some point in their pregnancy. Multiple studies have linked depression during pregnancy with poor self-care, increased substance abuse, pre-term delivery, low birthweight babies, and higher rates of neonatal admission to intensive care (Philip & Carr, 2001). According to De-Kun, Liu, and Odouli (2004), "Post-partum depression has been extensively studied and discussed by the public, but depression during pregnancy is significantly under-recognized and under-diagnosed." Anxiety, on the other hand, has been less explored during pregnancy although it is suspected to have a higher prevalence. A bi-directional model of anxiety and depression in pregnancy has been supported by research. Skouteris, Wertheim, Rallis, Milgrom, and Paxton (2009) controlling for the stability of depression and anxiety across time, found that symptoms of depression early in pregnancy predicted higher levels of

anxiety in the third trimester, and high levels of anxiety in the third trimester predicted an increase of post-partum symptoms of depression.

In light of the fact that mood disorders frequently go undetected, Stephen Matthey has been a pioneer for earlier and more thorough screening and assessment for psychological comorbidity during pregnancy (2004, 2005). He has found that screening is acceptable to both women and the medical professionals who care for them. Considering that postnatal mood disorders can begin before or during pregnancy and that without systematic screening most of these go undetected, and the evidence that prenatal interventions can be helpful to women, he strongly advocates that careful attention be paid to psychosocial risk factors in pregnant women's lives.

Mothers with prenatal complications have reported significantly more post-partum depression (Philip & Carr, 2001). For many the birth of a baby marks the resolution of uncertainties. For others difficulties from earlier developmental stages color the next phase of the mother-child relationship and perhaps even longer (Bibring, 1959; Penticuff, 1982). Priel and Kantor (1988) investigated mothers who carried high risk pregnancies and found that their idea of an "average" infant was very different, in fact much "easier" than mothers who had normal pregnancies. The same mothers did not perceive their own infants as "average." Burger and colleagues (1993) found that mother's with high risk pregnancies believed their children more susceptible to illness, even four and eight years later. These perceptions of one's child being "difficult," more vulnerable to illness, and experiencing post-partum

depression pose significant interruptions to parent-child interaction for years well beyond the post-partum period.

Blatt (2004) proposed a theory of personality development that described two polarities of experience: anaclitic and introjective. He later expanded this to include these polarities as at work in psychopathology and the therapeutic process. His theory of depression integrates the dependency needs that are characteristic childhood experiences of loss and the difficulties involved in the transition into parenthood, anaclitic or dependency-related, springing from early childhood failures to successfully cope with significant losses, and introjective or self-critical, springing from loss of self-esteem when the child is unable to live up to significant parental standards.

Applying Blatt's work on dependency, Bornstein (1995) suggested that among perinatal mothers, those who are self-critical (introjective) are at greater risk for depression than those who are dependent (anaclitic). One explanation for this might be that self-critical women are self-doubters who do not expect to succeed at novel experiences. Therefore, they are vulnerable to becoming depressed when facing the complex and novel role as new parent. Dependent women, on the other hand, are at least "experts" with dependency issues and don't feel as much out of place in the new role.

Priel and Besser (1999) examined how antenatal attachment might serve as a moderating force in the development of depression. Women reporting highly self-critical experiences and few related to dependency needs were found to be at a higher risk for postpartum depression. During pregnancy self-critical women were found to have doubts

about succeeding in their new role of parent. Becoming a parent is a new, untaught, and life-consuming role. Therefore, having no real assurance of success, women with self-critical features may be predisposed to depressive tendencies.

Self-critical traits are associated with negative personal outcomes. In pregnancy, especially high risk pregnancy when relying on others at times is necessary and appropriate, women who place extremely high value on autonomy to the point of not approaching available resources can undermine attachment relationships and contribute to feelings of depression. In fact, there is a tendency for women diagnosed with high risk pregnancy to look for a reason they might find themselves in such a situation. Attributing negative occurrences to internal causes is a central depressive feature that can be transferred to a child over time if not addressed. Interventions to uncover and address self-criticism, especially when there is also depression, are crucial to the well-being of the woman, the child she carries, and her mate (Besser, Priel, Flett, & Wiznitzer, 2007).

Shaver and colleagues found that three attachment styles (secure, resistant and avoidant) can account for the range of interactions in close adult relationships. Secure adults tend to exhibit caring, intimacy, supportiveness, and understanding in relationships. Secure attachment parallels Blatt's use of anaclitic and introjective personality variables in the non-pathological part of the normal curve of those behaviors. Resistant adults tend to show emotional instability, preoccupation with physical attractiveness, and a stated desire for connection with others that parallels the anaclitic variable when it is measured at the pathological extreme of the normal curve. Avoidant adults have a fear of intimacy (Hazan &

Shaver, 1987; 1990) that parallels Blatt's use of the introjective variable measured at its pathological extreme.

The work of Blatt in personality organization and psychopathology focuses on his identification of self-definition and relatedness as critical variables. This emphasis on the self and the other parallels the view of attachment as a psychological byproduct of close interactions between self and other. Using the DEQ, Blatt, Quinlin, Chevron, McDonald, & Zuroff (1982) found that anaclitic dependency is correlated with investment in interpersonal relations. In non-clinical samples, it is expressed as the valuing of emotional closeness; in psychiatric patients, it is expressed as apprehensions and resentments about loss, neglect, and abandonment. Highly dependent nonclinical participants actively seek to establish and maintain good interpersonal relationships. However, clinical patients with high scores are preoccupied with disruptions in interpersonal relationships.

Dependent individuals engage in both adaptive and maladaptive interpersonal relations. They invest considerable effort in establishing and maintaining close relations and avoid confrontation for fear of alienating others. In the long term, the neediness of dependent individuals can leave their significant others feeling depleted. In contrast, the interpersonal context of self-critical individuals is often negative and their tendency toward aloofness can create confrontation and rejection.

Early theorists hypothesized that object representations of early caregivers pass transgenerationally, we do not know if the representations can remain as salient when life or death risks engage her psychologically. Research in adult relationships suggests that parental

representations do carry over to romantic ties. However, it is a less robust carryover than with children. Once again, however, we do not know if the difficulties of high stress further ameliorate the effect of early caregiver representation in respect to her partner. This investigation will explore if the extreme stress involved in high risk pregnancy alters a woman's attachment to her fetus and satisfaction with her partner.

Early theorists believed that poor caregiving produced both insecure attachments and a greater vulnerability to psychological disorder. This has been well borne out by recent research in the relationship between attachment disorders and symptoms of both anxiety and depression. We do not yet know if a positive caregiving experience can mitigate the effects of an extreme stressor, like high risk pregnancy.

Blatt and his colleagues theorized that the maturity of a person's parental object representations will frequently define the type of depression (anaclitic or self-critical) she will experience. He further claimed that more mature representations will produce introjective personality traits and less mature, anaclitic. High stressors, like a high risk pregnancy, should produce symptoms of depression, making it fertile ground to assess anaclitic versus introjective forms of the disorder.

A greater understanding of these concepts could impact clinical understanding and care of women with high risk pregnancy by getting mental health professionals to consider the nature of a woman's attachments when treating the stress she experiences at that difficult time.

## HYPOTHESES OF THIS STUDY

### Primary Hypotheses

In women experiencing high risk pregnancy, are highly developed object representations of early caregivers associated with current relationship satisfaction holding constant symptoms of depression and anxiety?

*Hypothesis 1:* Women hospitalized with obstetric complications who write narratives demonstrating higher levels of separation of self from other and better integration of self as evaluated by the ORI, will also report high relationship satisfaction with their romantic partners on the Dyadic Adjustment Scale (DAS). Women who write less well-developed narratives of early caregivers will report lower levels of relationship satisfaction. In both cases depressive and anxiety symptoms will be held constant.

In women experiencing high risk pregnancy, are object representations of early caregivers associated with maternal-fetal attachment?

*Hypothesis 2:* Women hospitalized with obstetric complications who express high ambivalence toward their mothers (early female caregiver) as evaluated by the ORI will report higher preoccupation with their fetus, but a lower quality of attachment as measured by the Maternal Antenatal Attachment Scale (MAAS). Anxious and depressive symptoms will be held constant.

### **Secondary hypotheses**

Do women who write highly developed narratives of their early caregivers suffer fewer depressive symptoms as measured on the Edinburgh Postnatal Depression Scale (EPDS)?

*Hypothesis 3a:* Women hospitalized with obstetric complications who show better separation of self from other and better integration of self (as measured by narratives written about their mothers and scored using the ORI) will report fewer depressive symptoms (as measured by the EPDS) than those who have less mature representations. Anxiety symptoms will be held constant.

*Hypothesis 3b:* Women hospitalized with obstetric complications who show better separation of self from other and better integration of self (as measured by narratives written about their fathers and scored using the ORI) will report fewer depressive symptoms (as measured by the EPDS) than those who have less mature representations. Anxiety symptoms will be held constant.

Is there an association between representational development as evidenced by the ORI and the type of depressive symptoms reported by women with high risk pregnancy, i.e.



dependency (anaclitic depression) or self-criticism (introjective depression) as measured by the Depressive Experiences Questionnaire (DEQ)?

*Hypothesis 4a:* Anaclitic depression (dependency) will be associated with a higher developmental level of the internal object representation of a pregnant women's mother than of her father.

*Hypothesis 4b:* Introjective depression (self-critical) will be associated with a higher developmental level of internal object representation of a pregnant woman's father than her mother.

## **CHAPTER THREE**

### **Methodology**

#### **PARTICIPANTS**

Data for this investigation was collected from September 2005 through December 2006 in the process of a larger study from which came the doctoral dissertation by Brandon in 2006, and several subsequent dissertations. A publication, Brandon, et al., ensued in 2008 highlighting the prevalence of depressive symptomatology. Subjects were one hundred twenty-nine pregnant women who were considered by their physician to be at sufficient maternal or fetal risk to require hospitalization.

The following individuals were included in this study: All women who spoke either English or Spanish, hospitalized in the antepartum unit of Baylor University Medical Center Hospital for obstetric complications. Women may enter that unit if shown to have a significant probability of negative outcome for either the fetus or the mother. Patients were excluded for the following symptoms: cognitive impairment, actively suicidal, homicidal, or psychotic. In order to be in the study there needed to be an expectation that they would remain hospitalized for longer than 72 hours. Two women were excluded due to terminal illnesses. A third woman was excluded because she was a surrogate mother.

#### **METHODS AND PROCEDURES**

Daily, the study coordinator reviewed the log of admissions to the antenatal unit. Those patients whose chart information suggested a predicted length of stay of at least 72

hours became potential candidates for this study. The project was introduced as a study of women's experiences during hospitalization for complications of pregnancy. After obtaining consent, demographic information was elicited. The self-report measures were then explained to the subject and were left for the patient to complete by a designated time. The chart was reviewed to obtain relevant medical information including gestational age and factors of mother and infant risk. To ensure confidentiality, each mother was assigned a participant number and all study materials bore only that identifying number. The consent forms were locked in a separate file from the measures.

## **MEASURES**

### **Instrument 1: Depressive Experiences Questionnaire (DEQ) (Blatt, D'Affitti, & Quinlan, 1976)**

#### *Description*

This self-report questionnaire was developed in line with Blatt's two-path theory of depression, assessing feelings of dependency (anaclitic) and self-criticism (introjective) (Blatt & et al., 1982). A wide range of items was selected to inquire as to the feelings a subject has about self and others. The 66 items are rated on a 7-point Likert-type scale and the test usually takes about 15 minutes to complete. The scale ranges from "strongly disagree" to "strongly agree." The test has been found to yield three primary factors,

Dependency, Self-Criticism, and Efficacy. As the factor Efficacy is not relevant to this study, only Dependency (elicits concerns about abandonment, separation, loss, and feeling unloved) and Self-Criticism (elicits concerns about failure, guilt, self-definition, and unreasonably high expectations) will be included in the analyses. Higher scores on each scale represent a more a more negative view of the self, either as dependent or self-critical.

For the purposes of this study, a subject was designated “dependent” (anaclitic) or “self-critical” (introjective) if their score deviated above the sample mean by one standard deviation or more.

### *Validity*

The dependency and self-criticism dimensions of DEQ correlate positively with measures of depression (DSM-IV, Beck Depression Inventory) and are well-established (Blatt, Schaffer, Bers, & Quinlan, 1992).

### *Reliability*

The DEQ has been demonstrated to have high internal consistency with Cronbach’s alpha coefficients at greater than .75 (Zuroff, Quinlan, & Blatt, 1990).

**Instrument 2: The Edinburgh Depression Scale (EPDS) (Cox, Holden, & Sagovsky, 1987).**

*Description*

The EPDS was developed to help primary care health professionals screen for perinatal depression in postpartum women. It has been the most frequently used instrument used in previous studies (Gaynes, et al., 2005). Its item pool avoids the use of physiological symptoms common to both depression and pregnancy, therefore improving the sensitivity of the instrument to purely depressive-related symptoms. The 10-item test can usually be completed in less than 5 minutes, and items are rated upon a Likert-type scale with four choices anchored at “Not at all” (0) and proceeding to “Most of the time” (3). Cut-off scores ranging from 9 to 13 have been widely viewed in research and clinical practice as reflective of probable depression (Cox & Holden, 2003b). Where possible, the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I) was administered to women having an EPDS sum score at or above 11 in order to establish or rule out the diagnosis of depression.

*Validity*

It has been repeatedly validated in multiple language editions since its creation (Cox & Holden, 2003a; Cox, et al., 1987).

### *Reliability*

The split-half reliability of the EPDS has been reported to be .88 and the standardized  $\alpha$  coefficient 0.87 (Cox & Holden, 2003a)

### **Instrument 3: The Maternal Antenatal Attachment Scale (MAAS) (Condon, 1993)**

#### *Description*

The MAAS is a self-report measure designed to assess the emotional tie that a pregnant woman has with her fetus. The 19-item test, requiring on average ten minutes to complete, produces a global attachment score and two underlying factors. The original population was 112 pregnant women at less than 38 weeks. The size of the sample allowed for doing a factor analysis in which two factors accounting for 38% of the variance emerged (Hatcher, 1994). The first factor, quality, consisted of 11 items and measures positive emotions and thoughts the woman has concerning the fetus. The second factor, intensity, consisting of 8 items measures the amount of time a woman spends in the attachment “mode,” thinking, feeling, and behaving in respect to her baby. The items are rated on a Likert-type scale. It has been suggested that prenatal attachment styles found using this instrument can be conceptualized as: Strong/healthy, positive affective/low preoccupation, uninvolved/ambivalent, and anxious, ambivalent, or affectless preoccupation.

#### *Validity*

The MAAS has demonstrated good discriminant validity (Condon, 1993).

### *Reliability*

Internal consistency of the 19 items on the global scale was high (Cronbach's  $\alpha = .818$ ) (Condon, 1993). Much of the other psychometric data, including internal consistency of the subscales, seems to be unavailable (Van den Berg, 2009).

### **Instrument 4: The Object Relations Inventory (ORI) (Blatt, Chevron, Quinlan, Schaffer, & Wein, 1992)**

#### *Description*

The ORI is an open-ended projective method developed by Blatt and his colleagues. It integrates psychoanalytic and cognitive theory in an attempt to operationalize and measure aspects of object representations. The subject writes a narrative description of a target individual (e.g., a parent). The narrative is then rated on 7-point Likert-type scale for twelve traits. In the present research study, the following traits were rated: benevolent and punitive (for future research). Each description is also scored for the subject's degree of ambivalence about the person being described (ORI-A-F) and the conceptual complexity (ORI-DR-F or ORI-DR-M) of the description.

#### *Coding*

The Differentiation-Relatedness Scale was introduced by Diana Diamond and Sidney Blatt (Diamond, Blatt, & Kaslow, 1987). Drawing heavily on the theories of Margaret

Mahler, the 10-point coding system rates the narrative from primitive levels of self/other boundary confusion (1-3), through separation-individuation corresponding to levels of early differentiation (4-6), and then to higher levels demonstrating object constancy and intersubjectivity (7-10).

### *Validity*

Previous research supports the construct and predictive validity of these measures of object representation. Conceptual complexity of descriptions of parents in non-clinical samples has been related to experiences of depression (Blatt et al., 1979), emotional awareness (Lane, Quinlan, Schwartz, Walker, & Zeitlin, 1990), negotiation strategies, attachment patterns (Levy et al., 1998), and self-reported acting out (Schultz & Selman, 1989). In clinical samples, psychotic and borderline patients gave less differentiated and less conceptually complex descriptions (Bornstein & O'Neill, 1992; Marziali & Oleniuk, 1990), and more negative representations of both parents, expressing significantly more ambivalence (Bornstein & O'Neill, 1992).

### *Reliability*

Parental descriptions have been scored reliably for both content and structural variables (Blatt et al., 1979; Bornstein, Galley, & Leone, 1986; Bornstein, Leone, & Galley, 1990; Levy, Blatt, & Shaver, 1998). These variables are stable over time (Bornstein et al.,



1990) and are unrelated to intelligence, verbal productivity or socioeconomic status (Blatt et al., 1979; Bornstein et al., 1986; 1990; Wilson, 1982).

Interrater reliability in previous studies has been reported as high as .86 (Diamond, Kaslow, Coonerty, & Blatt, 1990). In this investigation, the narratives were coded by the author and Justine Bolmarcich, a research assistant.

### **Instrument 5: Dyadic Adjustment Scale (DAS) (Spanier, 1976)**

#### *Description*

The DAS is a self-report measure used in determining the degree of dissatisfaction couples are experiencing in intimate relationships. It is one of the most widely used instruments for both clinical and research applications (Spanier, 1988). The 32-item Likert-type scale takes five to ten minutes for the respondent to complete. It yields scores in four areas thought to be important for relationship satisfaction: dyadic cohesion, dyadic satisfaction, dyadic consensus, and affectional expression. It also produces an overall measure of couple's adjustment; that score was used as the measure in this study. The higher the scaled score meant the better the relational adjustment of the partners.

#### *Validity*

Criterion-related validity has been demonstrated through the scale's ability to distinguish married ( $M=114.8$ ) from recently divorced couples ( $M=70.7$ ), while correlations

between the DAS and other relationship scales have demonstrated concurrent validity (Heyman, Sayers, & Bellack, 1994; Spanier & Filsinger, 1983).

### *Reliability*

The total scale score has demonstrated high internal consistency with Cronbach's alpha coefficients at 0.915 (Graham, Liu, & Jeziorski, 2006).

## **Instrument 5: State-Trait Inventory (STAI; Trait form) (Spielberger, 1983)**

### *Description*

The STAI is one of the most commonly used instruments to assess levels of anxiety in a large number of populations (Stanley, Beck & Zebb, 1996). The STAI Form Y is a self-report measure containing 40 items that tap two interrelated dimensions of a person's experience of anxiety. The first 20 items comprises the State Anxiety scale, which asks respondents to evaluate how they feel "right now, at this moment." The second 20 items (comprising the Trait Anxiety scale) assesses how respondents feel "generally". Each item is rated on a 4 point Likert-type scale. Based on established norms for General Medical Patients without psychiatric complications (Spielberger, 1983), a mean threshold score of 42 was used for the State Anxiety scale and mean threshold score of 41 was employed for the Trait - Anxiety scale to distinguish patients with elevated anxiety from those with low anxiety. The STAI has been used extensively in a variety of settings with various populations since its

initial development, including being utilized with obstetric patients (Britton, 2005; Huizink et al., 2004).

### *Validity*

Validity correlations are presented in the manual (Spielberger, Gorsuch, and Lushene (1964) between the STAI and other measures of trait-anxiety. The measures and correlations are 1) Taylor Manifest Anxiety Scale (.80), 2) IPAT Anxiety Scale (.75), and the Multiple Affect Adjective Check List (.52).

### *Reliability*

The authors assessed the stability of STAI scales for test-retest intervals ranging from one hour to 104 days. Reliability coefficients decreased as a function of interval length. Trait-anxiety scale coefficients ranged from .65 to .86. State-anxiety scale coefficients ranged from .16 to .62. The low level of stability for the State-anxiety scale is expected because items on this scale are thought to reflect the influence of transient situational factors at the time of testing. Median alpha coefficients for the S-Anxiety and T-Anxiety scales in Form Y in the normative samples were .92 and .90. Test-retest stability is high for trait anxiety and low for state anxiety as would be expected from situational stress responses.

**Instrument 6: Hobel Risk Assessment (Hobel, C. J., Hyvarinen, M. A., Okada, D. M., & Oh, W. (1973).**

The Hobel Risk Assessment is used to describe the types and severity of obstetric complication, including 126 medical and obstetric risk factors of mother and neonate (Hobel et al., 1973; Hobel, Youkeles, & Forsythe, 1979). From the original instrument, 36 factors are intrapartum (during delivery) and 35 factors are neonatal (assessed after the birth of the infant); these factors were not considered in this project since the focus was antepartum. Four additional items were added that, while not included in the original instrument, account for a large percentage of antenatal hospital admissions. These are premature rupture of the membrane, primary dysfunctional labor, placenta previa, and abruption placentae. This measure was utilized to describe sample demographics.

## **STATISTICAL ANALYSIS PLAN**

### **Primary Hypotheses**

#### **Hypothesis One**

For women hospitalized with obstetric complications, narratives of their early caregivers as evaluated by the Object Representation Inventory Differentiation-Relatedness Scale (ORI-DR) will be positively associated with relationship satisfaction with their romantic partners on the Dyadic Adjustment Scale (DAS) holding constant depression and anxiety symptoms.

Addressing the possibility that depression or anxiety symptoms may influence the association between ORI measures for male or female caregivers separately, a partial correlation removing the influence of depression and anxiety is the proposed statistic for hypothesis 1. Participant scores on the EPDS and STAI will be used to control for depression and anxiety symptoms.

### **Hypothesis Two**

Women hospitalized with obstetric complications who express high ambivalence toward their mothers as measured by the Ambivalence scale of the ORI (ORI-A-F) will report higher preoccupation with their fetus as measured by the Intensity factor, but lower quality of attachment as measured by the Quality factor on the Maternal Antenatal Attachment Scale holding constant depression.

A MANCOVA is the proposed analysis for hypothesis 2. The score on the Ambivalence scale for mothers (early female caregivers) will be dichotomized into Low (1-2) vs. High (3-5) and this measure will be a between-factor in the MANCOVA. Depressive symptoms as measured by the EPDS will be a covariate. MAAS Intensity and Quality scales are the two dependent measures for the MANCOVA.

**Secondary Hypotheses- Exploratory****Hypothesis Three, Part (a)**

Women who have highly developed internal representations of their early female caregivers (ORI-DR-F) will demonstrate fewer depressive symptoms measured by the EPDS than those who do not have such internal representations controlling for the effects of anxiety (STAI).

A partial correlation analysis is proposed for hypothesis 3a, holding constant the effects of anxiety.

**Hypothesis Three, Part (b)**

Women who have highly developed internal representations of their early male caregivers (ORI-DR-M) will demonstrate fewer depressive symptoms measured by the EPDS than those who do not have such internal representations controlling for the effects of anxiety (STAI).

A partial correlation analysis is proposed for hypothesis 3b, holding constant the effects of anxiety.

**Hypothesis Four, Part (a)**

It is hypothesized that anaclitic depression (dependency) as measured by DEQ-D will be more highly associated with the development of the internal

object representation of women's early female caregivers (ORI-DR-F) than early male caregivers (ORI-DR-M).

A Pearson product-moment correlation is proposed for hypothesis 4a. A t-test will be used to compare the correlations of male and female early caregivers with anaclitic depression.

#### **Hypothesis Four, Part (b)**

It is hypothesized that the internal object representation of the early male caregiver (ORI-DR-M) will be more highly associated with introjective depression (self-critical) as measured by DEQ-SC than that of early female caregivers (ORI-DR-F).

A Pearson product-moment correlation is proposed for hypothesis 4b. A t-test will be used to compare the correlations of male and female caregivers with introjective depression.

Proposed statistical tests assume that the assumptions for each test are met.

## **CHAPTER FOUR**

### **Results**

#### **DEMOGRAPHIC INFORMATION**

Data utilized in this analysis were drawn from a larger project conducted at Baylor University Medical Center from October 2005 through December 2006. For further detail, see Brandon et al, 2008. The author of this study contributed to the original accumulation of information for the project by coding the female and male early caregiver narratives using the Separation Differentiation and Ambivalence scales of the Object Representations Inventory.

During the course of data collection, approximately 1,100 patients were admitted to the antepartum unit at Baylor University Medical Center. Hospitalization was based upon the likely possibility for a negative outcome for mother or fetus. Nearly 300 met criteria for inclusion in the larger study, were given an explanation of the proposed study, and invited to participate. Inclusion criteria were English or Spanish literacy and prospective hospitalization for more than 72 hours. Exclusion criteria were cognitive impairment, psychosis, and suicidal or homicidal ideation. Slightly more than half of women approached consented to participate in the longitudinal project (166 of the 300). Due to early delivery/discharge, fetal demise, or withdrawal of consent 37 women did not complete baseline measures leaving a total sample of 129 participants.



## OVERVIEW

### Characteristics of the sample

Table 3 describes the sample demographics. Although 129 women provided baseline data and completed study questionnaires, only 119 of them completed narratives that could be scored on the primary measure of this discussion, the Object Relations Inventory (ORI). Two scales from the narrative provide the data used in the statistical analyses, the Differentiation-Relatedness Scale (designated ORI-DR-F or ORI-DR-M) and the Ambivalence Scale (designated ORI-A).

The resulting sample of 119 pregnant women ranged in age from 17 to 44 (median = 27.0, N = 116). Sixty-five (56%) were Caucasian, 37 (32%) were African-American, 12 were Hispanic (10.3%), and 2 (1.7%) were Asian. Compared to the demographic makeup of Dallas County\* as reported in the U. S. Census Bureau Report in 2008 (U.S. Census Bureau., 2008), Asians were accurately represented in this sample; African-Americans and Caucasians were overrepresented and Hispanics were underrepresented. Sixty-one (55.5%) were married, 32 (29.1%) were single, 13 (11.8%) were living with a partner, and 4 (3.6%) were separated. The proportion of babies born to married women is slightly lower than the national average of 60% (Hamilton, B., Martin, J., & Ventura, S., 2009).

\*Some Dallas County members claim more than one category.

The educational attainment level was higher in this sample than that of the Dallas County population. In this sample, 0.9% did not complete high school compared to 12.9 % in Dallas County. While this sample compared to Dallas County had similar percentages of those with undergraduate degrees or higher (27.2% versus 26.4%, respectively), the proportion completing some college with no degree is substantially higher for this sample compared to Dallas County (34.2% versus 18.9%, respectively).

Nine participants (8.2%) had an annual household income below \$12,000; 28 (25.5%) had an income between \$12, 000 and \$25,000. Twenty (18.2%) reported an income of \$26,000-40,000 annually; 19 (17.3%) reported an income of \$41,000-65,000, and 34 (30.9%) reported incomes in excess of \$65,000 a year.

Thirty women (26.1%) were experiencing their first pregnancy, and a quarter of the sample had had one child. Twenty-three women (20.0%) reported two prior pregnancies, 15 (13.0%) reported three prior pregnancies, and eighteen women (15.7%) reported four or more.

All women in the study were considered at high risk for negative outcome for mother, fetus or both, but there was variety in the severity of risk across the sample population (Table 3). Some women had more than one complication with their pregnancy and are represented in more than one category. Ten women (8.4%) had toxemia, 7 women (5.9%) were diagnosed hypertensive and 3 women (2.5%) were dealing with complications caused by diabetes. Four (3.4%) had

placenta previa, 15 women (12.6%) were carrying multiple fetuses, and 35 women (29.4%) were at risk for preterm birth due to incompetent cervix. Nearly half 54 cases (45.4%) were hospitalized for undetermined preterm labor.

### **Measures used in this study**

Table 4 provides the means, standard deviations, medians and ranges for patients included in this study. Some measures have missing data.

The Dyadic Adjustment Scale (DAS) reported the present level of relationship satisfaction between the participant and her romantic partner. The mean for this sample was 112.37 (SD=21.58), comparing favorably with the mean DAS score in the non-pregnant standardization sample, 114.8, (Spanier, 1975). In this sample, three outliers were more than three standard deviations below the sample mean. To determine the influence of the outliers, statistical tests were performed with and without these outliers. The outliers were found to not influence the statistical results and are included in the analyses described below.

The Edinburgh Postnatal Depression Inventory (EPDS), a screening measure for [perinatal] depression, was represented in this sample by a mean of 9.50, SD=5.85, which is lower than the mean(12.5) for the standardization sample (Cox & Holden, 2003). Fifty-two (44.8%) of the participants scored at or above the threshold for probable depression of 11 for probable depression, and 64 (55.2%) scored below this cutoff score.

Two domains of the Depressive Experiences Questionnaire, Dependency

(DEQ-D) and Self-Criticism (DEQ-SC) which are used in this study were transformed into z-scores (Blatt et al., 1976). In this sample, 38 participants (33%) had z scores one standard deviation or more below 0 and 7 (6%) had z scores one standard deviation or more above 0 for Dependency. For Self-Criticism, 57 (49.6%) scored one standard deviation or more below the mean and 4 (3.5%) were one standard deviation or more above 0.

State-Trait Anxiety Inventory (STAI) provides operational measures of both state (in the moment or acute) and trait (how one generally responds) anxiety; we used the Trait section (STAI-T) of this inventory in our study. The median score in this sample was 37 with a minimum score of 20 and a maximum score of 59. According to established norms for General Medical Patients without psychiatric complications (Spielberger, 1983), a cut score of 41 was used for the trait anxiety scale to define patients with elevated anxiety (high scores). Forty-six of the women (40%) in this sample scored above this threshold.

The Maternal Antenatal Attachment Scale (MAAS) is a self-report questionnaire. Along with a global score, the measure reports on two dimensions of antenatal attachment, Quality and Intensity, to capture the developing attachment of mother to fetus (Condon et al., 1997; Condon, 1993). In this sample, the mean global score was 82.1, the mean score for MAAS Intensity (MAAS-I) on this instrument was 31.00 (SD 4.67) and the mean score for MAAS Quality (MAAS-Q) was 45.97 (SD 3.42). By comparison, in a group of non-

hospitalized pregnant women, Condon (1993) reported a Global mean of ( $M = 75.7$ ,  $SD = 8.1$ ).

The Object Relations Inventory (ORI) scales utilized in this study were the Differentiation-Relatedness scale for male (ORI-DR-M) and female (ORI-DR-F) caregivers and the Ambivalence scale for female caregivers (ORI-A-F). The ORI-DR scales range from 1-10. In this study, developmental levels ranged from 4 to 8 for female caregivers with a median of 6. For early male caregivers, levels ranged from 3 to 9 with a median of 5.

The Object Relations Inventory Ambivalence Scale (ORI-A) has a range of 1 (none) to 5 (much). Sixty-one women (58.1%) in the study sample were rated to demonstrate little to no ambivalence toward their early female caregiver while 44 (41.9%) received ratings of moderate to high ambivalent feelings.

## **RESULTS**

### **Primary Hypotheses**

Before statistics were performed, variables were inspected visually for linearity and normality. All measures met the statistical assumptions for all tests except the DAS, in which three participants had scores located more than three standard deviations from the mean. Analyses were conducted with and without

these three outliers and the results were similar, therefore analyses provided on the following pages include these three DAS outliers.

### *Hypothesis One*

We expected the Differentiation-Relatedness scale of the Object Relations Inventory (ORI-DR) for both female and male caregivers to positively correlate with the DAS total score, holding constant depressive and anxiety symptoms. Pearson product-moment and partial correlation coefficients were calculated and are displayed in Table 5.

The DAS was significantly negatively correlated with depression and anxiety (supporting the appropriateness of holding these measures constant). The correlation of the DAS with depressive symptoms (EPDS) was  $-.19, p < .047, df = 107$  and with anxiety (STAI) was  $-.27, p < .005, df = 106$ . Depression (EPDS) and anxiety (STAI) were also significantly related ( $.701, p < .001, df = 113$ ).

One out of two caregiver partial correlations was significant. Specifically, findings indicate that narratives of early male caregivers (ORI-DR-M) are correlated with the relationship satisfaction of their current partners. The correlation of ORI-DR-M and DAS was  $.24, p = .025, df = 87$  holding constant depressive and anxious symptomatology. This same association was not found between narratives describing the primary female caregiver and relationship

satisfaction holding constant depressive and anxious symptomatology (.17,  $p = .095$ ,  $df = 91$ ).

It is of interest to note that ORI-DR-M and ORI-DR-F were correlated  $r = .26$ ,  $p = .015$ ,  $df = 84$ .

### *Hypothesis Two*

We predicted that women hospitalized with obstetric complications who express high ambivalence toward their early female caregivers as evaluated by the ORI would report higher preoccupation with their fetus, but a lower quality of attachment as measured by the Maternal Antenatal Attachment Scale (MAAS). A MANCOVA was performed with ambivalence for female early caregiver (ORI-A-F), high (3, 4, 5) or low (1, 2), as the independent variable and two antenatal attachment domains (quality and intensity) as measured by the MAAS were the dependent variables. Depression, measured by the EPDS, was a covariate. When the MAAS-Q and MAAS-I were compared at high vs. low ORI-A-F levels, the findings were nonsignificant  $F(2, 99) = 0.62$ ,  $p = 0.539$ . However, depression (EPDS) as a covariate was significant  $F(2, 99) = 10.74$ ,  $p < 0.001$ . Examining the individual ANCOVAs, ORI-A-levels for both MAAS-Q and MAAS-I were non-significant ( $F(1, 100) = 1.25$ ,  $p = 0.267$  and  $F(1, 100) = 0.39$ ,  $p = .532$ , respectively). EPDS was a significant covariate for MAAS-Q ( $F(1, 100) = 20.56$ ,

$p < 0.001$ ) but not MAAS-I ( $F(1, 100) = 1.60, p = 0.209$ ). Means, SDs and F scores for MANOVA and univariate ANOVAs are presented in Table 6.

## **Secondary Hypotheses**

The secondary hypotheses are to be viewed as exploratory.

### *Hypothesis Three a and b*

We expected the ORI-DR for both primary caregivers to positively correlate with depressive symptoms (measured by the EPDS) while holding constant anxiety symptoms (measured by the STAI-T). Table 7 provides the Pearson product moment correlations and the partial correlations results for all measures. The partial correlation of depression for male or female caregivers holding constant anxiety was nonsignificant ( $r(95) = -0.03, p = .789$  and  $r(101) = -.12, p = .232$ , respectively). The results suggest that depression is not associated with ORI-DR rating of male or female caregivers.

### *Hypothesis Four a and b*

The DR scale of the ORI for early female caregivers was expected to positively correlate with Dependency as measured by the DEQ (hypothesis 4a)



and, in parallel, the DR scale of the ORI for early male caregivers was expected to positively correlate with the Self-Critical scale of the DEQ (hypothesis 4b).

Table 8 presents the correlations between the variables.

A Pearson's product-moment correlation was performed between the DEQ  $z$  scores for Dependency (DEQ-D) and Self-Criticism (DEQ-SC) and the ORI-DR-F score and the ORI-DR-M score. Analysis revealed no significant association between the Dependency scores and Self-Critical scores and the patients' level of Differentiation-Relatedness (ORI-DR) development of either their early male or female caregivers. More specifically, Dependency (DEQ-D) was not found to correlate with the ORI-DR-F ( $r(102) = .09, p = .363$ ). Self-criticism (DEQ-SC) was not found to correlate with the ORI-DR-M ( $r(96) = -0.07, p = .485$ ).

## **CHAPTER FIVE**

### **Conclusions and Recommendations**

The primary focus of this dissertation was to discern the impact a pregnant woman's mental representations of her early caregivers, female and male, might have on her relationship with her romantic partner and the attachment she experiences toward her yet-to-be-born child. Secondary aims evaluate potential associations between early caregiver representations and depressive symptoms. Further, it was hypothesized that two types of depressive experiences, dependency and self-criticism, would be differentially associated with early representations of the woman's mother or father.

### **CHARACTERISTICS OF THE SAMPLE**

#### **Demographic Characteristics**

Existing literature is heavily composed of studies conducted with samples of women who were predominantly middle-class, married and Caucasian (Maloni et al, 2002; Gupton et al., 2001). The diverse sample reported upon by this study reflects a population more similar of the US and expands upon what is known regarding contributors to depression in non-white individuals who are faced with high-risk pregnancy (Brandon et al., 2008). Although the sample percentage of Hispanic women is slightly less (10.3% vs. 35.6%) and the percentage of African American women is slightly higher (31.9% vs. 25.9%), almost half (approximately 44%) of the women were not Caucasian.

The average age of the total sample was 27.72 years, with a range of 17 to 44, slightly younger than the high-risk obstetric samples reported upon by Gupton (29.27) and Maloni (31.2).

Along with ethnic diversity, socio-economic status was varied, with approximately half of the sample insured by Medicaid, often used as a proxy for lower socioeconomic groups. The educational level of this group was also different than that reported in previous work, with 34.2% reporting some college and 27.2 reporting the completion of an undergraduate or graduate school degree. In comparison, 94% of Maloni's higher socio-economic sample reported some college.

### **Pregnancy-Related Characteristics**

For the sample included in these analyses, thirty (26.1%) women were experiencing their first pregnancy versus 29 (25.2%) who had been pregnant once before, 23 (20%) twice before, 15 (13%) reported three prior pregnancies, and 18 (15.7%) reported four or more previous pregnancies. More than half (62.2%) of the sample reported at least one child living at home. Almost a quarter of the sample (23.5%) had previously experienced at least one spontaneous abortion, and six women had experienced a previous stillbirth. These data provide some rationale for the increased anxiety and dysphoria many women experienced upon hospitalization with obstetric risk.

## **Obstetric Risk**

Obstetric risk was characterized by the Hobel Risk Assessment system (Appendix A, p. 126-127). The four most common conditions diagnosed in the sample were premature rupture of the membranes, preterm labor, placenta previa, and placental abruption. Five diagnosed to a lesser degree but prominent were incompetent cervix, multiple pregnancy, toxemia, hypertension, and diabetes. Previous studies have not given this level of detail in information about their participants, although Gupton's study included only women hospitalized for more than 48 hours. Because of the wide range of potential complications triggering hospitalization, direct comparisons are difficult. What is known by analysis of these diagnoses is that the participants in this sample were indeed experiencing pregnancies at high risk for poor outcome.

## **DISCUSSION OF THE FINDINGS**

### **Primary Caregiver Object Representations and Relationship Satisfaction**

Previous investigations of the associations between early caregiver experiences and later romantic relationship satisfaction have suggested that the major attachment strategies involved particular expectations about relationships (Mikulincer & Shaver, 2007). Hazan & Shaver (1987) stated that attachment style, particularly insecure caregiver-child relationships was predictive of

relationship difficulties when the child matured. We hypothesized that, in this sample of hospitalized women, the level of development found in narratives describing female early caregivers would be significantly positively associated with the reported relationship satisfaction with the women's current romantic partners. To the contrary, study findings suggest it is actually the narrative describing early male caregivers that is associated with reported relationship satisfaction. This was true controlling for any influence of depression or anxiety.

This result supports the finding that attachment representations are unique to each caregiver. A study was done testing Fraiberg's intergenerational prediction that the parents' childhood conflicts would reemerge in the early life of a next generation child (Fonagy et al., 1993). Mothers and fathers were each separately given the Adult Attachment Interview (AAI) and the Strange Situation with their child at 12 months with the mother and 18 months with the father. It was found that the attachment style of the mother did not "contaminate" the child's attachment style with the child's father and that the child responded to each parent differently in the Strange Situation.

The low validity for predicting future psychosocial development of the infant-father Strange Situation assessment indicated that there were better ways of evaluating subsequent child development with fathers and babies. Grossmann and Grossmann, 2005-2007 found that secure attachment with fathers was evidenced

by a child who felt secure exploring the environment. For example one of the women in our study wrote:

“My dad is precious to me. While I was growing up he worked long hours. What time he did have off, he spent doing stuff with us. He was a man of few words and had a gruff exterior. He had a heart of gold that was hidden right beneath the surface. My father was not a religious man although he did believe in God. He was morally a good man and would help someone if they needed it. I was a tomboy and between liking football and playing sports, I would work on the car with him.”

Beyond the unique nature of mental representations, the findings suggest complex and mature relationships with primary early male caregivers may increase a mother’s capacity for relationship satisfaction with her romantic partner. In addition to what their mothers could teach them, their fathers could bring in playfulness, exploration, and emotion regulation (Holmes, 2007; Lichtenberg, 2007; Holmes. & 2007). From fantasy and playfulness can eventually develop an erotic imagination. For a more complete discussion of these constructs refer to the discussion of infantile sexuality in Attachment and Sexuality, 2007.

Fathers facilitate their children’s growth to a great extent by their participation in the co-parenting experience. Maternal-paternal conflict impacts development as much as direct parental action. Lamb and Elster (1985) actually found stronger associations between later marital satisfaction and the father-child relationship than the mother-child relationship. A good mother-child relationship only may not prepare a woman to deal with a man. One participant in our study

had a fine relationship with her “good Christian” mother. However it was her father who colored her choice of partners and continues to be associated with her relationship with her father:

“My father is a very hard working, trustworthy and honest man. His values and morals are definitely of utmost importance. He is a research biochemist and has worked to support me and his other six children for many years. He is extremely dependable and has always been a constant in my life. He does not have a temper and I have rarely heard him raise his voice. When I need advice or guidance he has always been the place to go because he listens first and then seeks to guide. I could trust my father with anything and am thankful to have a husband that shares many of the same qualities.”

Why is the maternal narrative less significant? In certain situations, although less well documented, it is the experience with the father that provides the basis for future emotional coping, regulation and competence. The gender of the available parent and the gender of the child influenced how a child responded to emotionally arousing events according to Bridges and Grolnick (1998) when studying 12-month-old infants in a delay of gratification task. Different gender children used different strategies that varied with parental gender. Babies tended to play more with toys when fathers were present but not mothers. In Grossmann and Grossmann’s projects between 2005 and 2007, the fathers’ “sensitive challenging behavior” with their 24-month-old toddlers was found to be “the single most influential variable in predicting representation of attachment beyond childhood.” The same authors stated “The most powerful predictor of attachment, as well as partnership representation at age 22, was the child’s representation of

maternal and paternal support during middle childhood age and mothers' and/or fathers' rejection of the child, as indicated in a lengthy interview when the children were 10 years old." The following narrative written by the same person who lost her father when she was 9 years-old embodies many of these concepts:

"I don't know much about my dad because he died when I was 9. But I know he was a kind person who loved children. He taught special ed for 6 years and loved every minute of it. He always showed me he loved me and was proud of me no matter what. He was an excellent dad and I hope I can be as good as a mother as he was as a father."

Luckily she had that experience with her father in early and middle childhood, as she described her mother:

"an evil manipulative woman who only cares about herself and money. She doesn't care whether her children are happy; she wants them to do what she wants."

### **Ambivalence and Fetal Preoccupation**

In regard to overall antenatal attachment, our sample reported slightly higher attachment (mean global score of 82.1) than that reported by Condon (1993) in a group of non-hospitalized pregnant women (mean global score of 75.7). Since this scale has two factors, "intensity" or preoccupation with the fetus, and "quality," positive feelings and expectations regarding the fetus, we hypothesized that a pregnant woman's ambivalence toward her mother would be associated with greater preoccupation (intensity) with her fetus but fewer positive feelings, or a lower quality of attachment. Contrary to our expectations, we



found no such relationship in this sample. However, when depression was added as a covariate, there was a significant relationship between ambivalent feelings toward one's mother and the quality of maternal-fetal attachment. Prior investigations by the team in Israel (Priel et al., 2001) revealed a significant relationship between object representation, the mothers' own attachment style, and antenatal attachment, with insecure attachment between the pregnant woman and her mother predicting poorer maternal-fetal attachment. Their use of the AAI and the ORI in its entirety encompassed both the categorization of attachment style and the element of ambivalence toward one's early female caregiver. It appears that the expression of ambivalent feelings toward one's mother on the ORI-A-F alone was not sufficient for duplicating these findings in the current sample.

Depressive symptoms appear to be a robust predictor in this study. We found that the presence of depression impacted the quality of maternal-fetal attachment, above and beyond the development of a woman's object representations. This is consistent with prior studies that demonstrated the tendency of depressed mothers to be more distant from their children with unfortunate consequences for the children (Dawson, Klinger, Panagiotides, Hill, & Spieker, 1992; Murray, 1992). [Slowed left-frontal brain waves causing depressed people to withdraw]

Implications of antepartum depression are multitudinous. Women with antepartum depression were less likely to seek pre-natal care putting both themselves and their fetus in jeopardy (Vintzileos, Ananth, Smulian, Scorza, & Kuppel, 2002). Lacking pre-natal care increases the experience of preterm birth, the leading cause of infant mortality in the United States (Berkowitz & Papiernik, 1993). Substance abuse is a common risk for depressed women without prenatal monitoring, including alcohol, tobacco, and cocaine (Zuckerman, Amaro, Bauchner, & Cabral, 1998). These impact both mother and fetus. Women are more likely to have premature rupture of the membranes, intrauterine growth restriction, and preterm delivery (Curry, Perrin, & Wall, 1998). Babies are more at risk for congenital deformity, respiratory distress and having dangerously low birth weight (Ludlow & Hulse, 2004). Tobacco use alone during pregnancy has been associated with childhood susceptibility to hypertension, obesity, diabetes, cancer, and asthma (Ng & Zelikoff, 2006).

Molecular markers of endocrine imbalance in depressed mothers is mimicked by the endocrine profile of their infants (Neggars, Goldenbergm, Cliver, & Hauth, 2006) who also have elevated cortisol and norepinephrine levels and lower serotonin and dopamine levels (Field et al., 2004). Other consequences are EEG's that mimic depressed adults (Henriques & Davidson, 1990), poorer performance on newborn assessment inventories and disorganized sleep patterns (Lundy, Field, & Pickens, 1996.)

### **Differentiation-Relatedness and Depressive Symptoms**

Although we expected an association between a woman's level of development in Differentiation-Relatedness (as measured in the ORI-DR) and her experience of depressive symptoms (as reported on the EPDS), data did not reveal a significant relationship between either the male or female caregiver narratives and depressive symptomatology. We expected that a high level of development would enable a woman to manage depressive symptomatology, through more mature coping styles, relational adeptness and more functional thinking skills. This does not support the findings of the Israeli team of Priel and Besser who reported this association in their work with pregnant women in Israel (Priel et al, 2001); however, comparisons are limited by the differences in the two samples (the Priel sample was somewhat younger and experiencing normal, uncomplicated pregnancy). Our use of the ORI assumes that the women's object representations may identify internal working models or style of attachment. Priel and Besser (2001) acknowledge the similarity but stress the differences. Unlike Priel and Besser, we did not take into consideration the positivity or negativity of the parental relationship or whether or not there was congruence between self and other in the women's attachment styles. Future research would do well to take into account both style of attachment as well as level of developmental achievement of differentiation and relatedness, using different measures for each.

### **Dependency, Self-Criticism, and Differentiation-Relatedness**

It was expected that the personality characteristic of dependency would be associated with a woman's mental representation of her mother and that self-critical thinking would be associated with the mental representation of her father. This hypothesis was based, in part, upon Mahler's postulated phases of separation-individuation in which the strong presence of the father (or other early male caregiver) is seen as necessary for a child to test her emerging sense of separateness from her mother or early female caregiver (Mahler et al., 1975). The role of self-definition plays more of a part in introjective personalities or types of depression, because there is theoretically greater super-ego development, ego ideal or conscience, while dependency is associated with a lower level of development, i.e. oral. However, study findings did not support our application of that theoretical construct.

Several reasons could account for the lack of association between dependency and early female caregiver ratings and that between self-criticism and early male caregiver ratings. While we hypothesized that the high-risk situation would activate the attachment system, it could be that the salience of the hospitalization experience had little impact upon internal representations. Also, hospitalization enforced "dependence" for the safety of mother and fetus. with even medical terminology sometimes connoting lower levels of functioning, such

as the common diagnosis of “incompetent cervix.” In this sample, depressive thoughts and symptoms may be more normative to the experience and less pathological than in the normal population. Indeed, it would be considered irrational for one to be cheerful or euthymic in the face of uncertain pregnancy and restriction to bedrest. Many of the women who were forced to be “dependent” may also have struggled with self-criticism, asking “what did I do to cause this?” This would appear to place them in a position of both dependency and inefficacy.

Finally, the failure to find significant associations could also be due to measurement error or to our ability to operationalize theoretical constructs.

## **THEORETICAL IMPLICATIONS**

Much of the past literature focused on negative aspects of the father-daughter relationship i.e. abuse. (Morgan , Wilcoxon, & Satcher, 2003, Nielsen, 2005). Another highlight of the father-daughter literature has been the role the father plays in his daughter’s choice of a future romantic relationship. If, in fact daughters generalize their relationships with their fathers to other males or model in their own relationships the relationship of their mother and father than understanding the role of fathers in their daughters’ lives is crucial to future marital success. High divorce rates and family instability, with proper intervention, might be prevented from becoming intergenerational maladjustment

(Hall, 2009). This particular study, though unexpectedly, contributes in a positive way to research on father-daughter interaction.

In addition, while study findings did not confirm the expected relationships between object representation, relationship satisfaction, maternal-fetal attachment and depression, it contributes to the body of knowledge regarding psychological processes during the experience of hospitalization for high-risk pregnancy. The limited sample size and possible measurement error indicate caution against making strong conclusions, but also point to the limitations of operationalizing older psychoanalytic theoretical constructs.

### **CLINICAL IMPLICATIONS**

A greater understanding of the topics discussed in this dissertation could impact clinical understanding and care of women with high risk pregnancy by encouraging mental health professionals to consider the nature of a woman's attachments when treating the stress she experiences with prenatal complications. Attention should be paid especially to women with histories of trauma or prior depression.

Women's health practices and overt thoughts, behaviors and feelings during pregnancy could be measured as a sign of depression or something amiss with regard to attachment to their unborn children. More covert measures of her

own attachment and relationship experiences could also be used as signals for intervention (Van den Bergh, 2009).

Clinical relevance would suggest if attachment issues are part of a woman's, and every bit as importantly, a couple's profile, screening for relationship issues and psychotherapy during the prenatal pre-natal period for the expectant couple could be implemented to assist with working through the ramifications of that important relationship.

If at-risk couples can be identified and appropriate interventions are available, this has the potential to improve the dyadic functioning of the couple. Helping to improve coping skills and communication in married couples can be a positive influence to the psychological well-being of both partners upon their marital satisfaction.

## **LIMITATIONS**

### **Research Design**

Observational investigations such as this one are limited from making broad statements about a group or groups of individuals. Although the gold standard, a randomized controlled study in which a group of normal or low risk pregnant women could be compared to a group such as this sample, would have added dimension to this study, with naturally-occurring phenomena such as obstetric risk this design is impossible.

## **Instrumentation**

Self-report measures are practical and feasible for convenience samples like ours, but data gathering limited to one style of measurement is inferior to multiple method measurement. Nevertheless, the instruments chosen were considered reliable and valid for the purpose in which they were utilized.

Another significant limitation to these measurements was the use of a single rater on the Object Relations Inventory. Previous investigators have used two raters and averaged the scores to produce an aggregate of the two ratings (Priel & Besser, 2001). The interrater reliability (Bartko, 1966) between the two raters was ( $ICC = .459, p < .001$ ) on the ORI-DR-F and ( $ICC = .429, p < .001$ ) on the ORI-DR-M, providing evidence for moderate agreement. Although the use of a single rater produces scores vulnerable to bias, not all ORI ratings were completed by both raters. So that all of the ORI measurements were consistent, the ORI ratings of a single rater were considered preferable to the use of averaging of some of the ORI scores and the use of a single rater in others.

## **CONCLUSIONS**

A highly developed relationship with a woman's primary male caregiver is related to relationship satisfaction with one's current romantic partner. A positive mate relationship seems to enhance a woman's ability to bond with her fetus-a protective factor against perinatal depression.



For women who report poor partner relationships, interventions aimed at improving communication and coping skills may be indicated as well as efforts to include the primary male caregiver of the baby to be born. Groups or classes designed to increase awareness of the psychological importance of fatherhood or being an early male caregiver for an infant in addition to teaching practical parenting skills, both physical and psychological, not only to future mothers but to future fathers is essential.

Past research has typically been focused on the mother-child dyad. While this relationship is of great importance, future research focusing on attachment in the larger family, even the triad relationship with mother, child, and father requires further investigation. Acknowledgement of early male caregiver effects holds great promise for intervention. This is especially important when related to depression during the antenatal period, because of possibilities for physical and mental health concerns that can be of intergenerational expanse. Remembering always that the greatest predictor of perinatal depression is a prior depressive episode and the greatest predictor of depression is anxiety both before and after birth. For these, as clinicians we should keep an ever watchful eye.

Table 1

*Brief summary of relevant terms*

Term	Definition	Source
Mental representation	A mental representation is an affect-laden, enduring psychological record of an individual's relationship with another part of its environment. It serves to organize and categorize the various parts of the environment for the individual. It can be elicited from memory by the presence of a similar experience and is changeable by future interactions with the environment.	Blatt & Lerner (1983)
Internal working models	A mental representation created from a child's early experiences with caregivers and significant others. It concerns the emotional bonds between the two and the child's expected responsivity of the caregiver when the former is at risk for loss of safety and security.	Bowlby (1969, 1973); Attachment and Loss series, volumes 1 and 2
Schema	A schema is an action sequence that has been generalized by repetition in similar circumstances.	Piaget (1969)
Object representation	An object representation is an individual's emotionally-charged mental representation of persons or things in the external environment which are psychologically significant to the individual. The emotional value is colored by the individual's thoughts and fantasies about the object.	Klein (1935)
Representations of interactions that have been generalized (RIGs)	A RIG is a preverbal core of mental representations of the self formed by generalizing interactions between self and others.	Stern (1985)

Table 2

*Table of Studies found in the Review of the Literature*

Study	Measures	Variable	Participants	Findings
Priel and Besser (2001)	Bartholomew and Horowitz Relationship Questionnaire,  Object Representation Inventory (ORI)	Attachment styles  Characteristics of object representations	120 women in their first pregnancy	During the prenatal period, the representation of the participants' mothers mediated the correlation between internal working models and maternal-fetal attachment.
Davila, Karney, and Bradbury (1999)	Adult Attachment Inventory (AAI) and self-report	Attachment style	172 newlyweds	Couples who had poor early caregiving in their own lives and consequent poor attachment to their own parents, were able to improve their attachment styles in respect to each other over satisfaction could impact early attachments styles due to poor early caregiving in a positive manner over time.
Davila and Cobb (2003)	Self- report and Interviewer-assessed attachment	Attachment	94 young adults over a one year period	Evidence for a core of insecurity when attachment styles are somewhat labile has been demonstrated by the histories of abuse and depression discovered in a study of women who moved toward insecure attachment in the 2 years following abortion.

Study	Measures	Variable	Participants	Findings
Pajulo et al (2001)	Edinburgh postpartum depression scale (EPDS),  Social Support Questionnaire 1 and 2	Depressive symptoms  Level of social support	391 women, 14-37 weeks pregnant	Experienced difficulties in pregnancy with friends, partner, and own mother had a significant association with maternal depression.
Dulude et al. (2002)	Psychiatric Symptoms Index (PSI),  Dyadic Adjustment Scale (DAS)	Psychiatric symptoms  Relationship satisfaction	45 women in high risk pregnancy and their partners	Women with high risk pregnancies tended to focus more on their fetus than on their partners, leading to deterioration in the couple- relationship. High and low risk parents differ in the way they adapt to parenthood.
Spies and Schuelke (1999)	Open-ended questionnaire	Fantasies of pregnant women	184 pregnant women in childbirth education classes	Results indicated that the fantasies of pregnant women about their unborn child have a developmental component across gestational trimesters.

Study	Measures	Variable	Participants	Findings
Brandon (2006)	<p>Center for Epidemiologic Studies Depression Scale (CES-D),</p> <p>Structured Clinical Interview,</p> <p>Depressive Experiences Questionnaire (DEQ), EPDS,</p> <p>Maternal Antenatal Attachment Scale (MAAS),</p> <p>ORI</p> <p>Hobel Risk Assessment</p>	<p>Depressive symptoms</p> <p>Clinical symptoms</p> <p>Depressive symptoms</p> <p>Attachment with fetus</p> <p>Level of representations</p> <p>Prenatal risk factors</p>	91 pregnant women	<p>In a study of high risk pregnancy a group of hospitalized women were found to have high investment in and attachment to their unborn children. This attachment lead to greater endorsement of positive health practices in order to protect and insure the best possible outcome for their babies and was found to be the primary motive for enduring the personal and family hardship imposed by hospitalization.</p>

Study	Measures	Variable	Participants	Findings
Field et al (2006)	CES-D,  State-Trait Anxiety Inventory (STAI),  State-Trait Anger Expression Inventory (STAXI),  Paternal Antenatal Attachment Scale (PAAS)	Depressive symptoms  Anxiety symptoms  Anger  Father's Level of attachment	810 pregnant women at 20 weeks gestational age	Women who were unmarried at the time of pregnancy were more likely to be depressed; a greater number of the depressed women experienced a stressful situation during pregnancy.
Messer, Dole, Kaufman, and Savitz (2005)	Intention to become pregnant	Pregnancy intendedness	Pregnant women, 24-29 weeks	Whether the woman was married or not, unplanned pregnancies have been shown to lead to diagnoses of maternal depression twice as frequently as do planned pregnancies.
Rich-Edwards et al. (2006)	Edinburgh postpartum depression scale (EPDS)	Depressive symptoms	1662 women at mid-pregnancy	Whether the woman is married or not, unplanned pregnancies have been shown to lead to diagnoses of maternal depression twice as frequently as do planned pregnancies.

Study	Measures	Variable	Participants	Findings
Maloni et al. (2001)	Hobel Risk Assessment,  open ended-questionnaire	Prenatal risk factors  Symptoms of dysphoria	89 pregnant women prescribed bedrest in the hospital or at home	A positive correlation between risk assessment score on admission and dysphoria (anxiety, depression, and hostility) was found.
Zachariah (2004)	Self-report questionnaires given periodically during the course of pregnancy	Sense of support during pregnancy	111 pregnant women between 18 and 35	A positive relationship with a pregnant woman's mate provides the most extensive sense of support available to her in dealing with stresses of pregnancy.
Wilson, White, Cobb, Curry, Greene, and Popovich (2000)	Self-report inventory,  Maternal-Fetal Attachment Scale (MFAS)	Intimacy with partner  Level of maternal attachment	75 low-risk pregnant women in the third trimester	Found a correlation between a woman's sense of closeness and intimacy with her partner and maternal-fetal attachment.
Mikulincer and Florian (1999)	Hazan and Shaver Rating Scales;  Mental Health Inventory	Attachment style  Mental health symptoms	Experiment 1: 260 pregnant women Experiment 2: 30 pregnant women	Results showed that secure women were strongly attached to the fetus, had positive mental health and sought help throughout their pregnancy. Women with an avoidant style indicated poorer mental health and weaker bonding in their first and third trimesters, with improved scores on measures of both during their second trimester. Avoidant women relied on distancing as a coping strategy throughout. Anxious-ambivalent women reported increase bonding in each trimester but had poor mental health and relied on emotion-focused coping in a consistent manner.

Study	Measures	Variable	Participants	Findings
Siddiqui and Hagglof (2000)	Prenatal Attachment Inventory (PAI)	Attachment	100 pregnant women and 12 week post-partum babies	PAI scores and postnatal maternal involvement were also found to be correlated
Priel and Besser (2000)	Relationship Questionnaire, MAAS	Perceptions of child  Antenatal attachment	115 first time pregnant women during last trimester and 16 weeks postpartum	Security of attachment was found to facilitate antenatal attachment and perceptions of four month old infants as easier.
Lindgren (2001; 2003)	Self-report instruments	Attachment and maternal behaviors	252 adult pregnant women between 20 and 40 weeks post-conception	Maternal-fetal attachment has also been shown to be associated with observable maternal behaviors: avoiding tobacco, alcohol, and illegal drugs; seeking out prenatal care; improving diet, exercise, and sleep habits; reading books and becoming educated about pregnancy and childcare



Study	Measures	Variable	Participants	Findings
Pollock and Percy (1999)	Maternal Antenatal Emotional Attachment (MAEA) self-report measure,  Millon Clinical Multiaxial Inventory-II (MCMI-II), self report questionnaire	Maternal antenatal emotional attachment  DSM Axis I and II diagnoses	48 pregnant women,	Found that the lower the level of prenatal attachment the greater the probability that a child would be removed from the home by the state.
White, Wilson, Elander, and Persson (1999)	Maternal/Paternal Fetal Attachment Scale.  Family Dynamics Measure, Infant Temperament Questionnaire	Attachment  Infant temperament	91 families during the mother's third trimester of pregnancy	Even if the outcome is eventually good, the ambivalence of mother's with high risk pregnancies, spills from the prenatal to postnatal period, and hinders the mother's feeling of competence in the maternal role.

Study	Measures	Variable	Participants	Findings
Maloni, Park, Anthony, and Musil (2005)	Multiple Affect Adjective Checklist-Revised;  Profile of Mood States (POMS), Depression Scale; CES-D	Affect  Depression	89 high risk pregnant women treated with bed rest	Depression was high on admission as measured by all three instruments.
Kurki, Hiilesmaa, Raitasalo, Mattila, and Ylikorkala (2000)	Beck Depression Inventory (BDI)	Depression symptoms	623 pregnant women from 10-17 weeks gestation and at delivery	Depression is a repeated finding in women with preclampsia during pregnancy.
Dunn, Handley, and Carter (2007)	Spiritual Well-being Scale, Abbreviated  Scale for the Assessment of Psychosocial Status in Pregnancy	Sense of spiritual well-being  Trait anxiety , self-esteem, mastery, depression subjective stress	180 women, pregnant, nonpregnant, and high risk pregnancy	Found that depression correlated with high risk pregnancy.

Study	Measures	Variable	Participants	Findings
Brandon et al (2008)	Edinburgh Postnatal Depression Scale,  Dyadic Adjustment Scale,  Maternal Antenatal Attachment Scale	Depressive symptoms  Relationship satisfaction  Antenatal attachment	129 women hospitalized for high risk pregnancy	Mothers reporting high attachment to the fetus on the MAAS reported lower severity of depressive symptoms; those reporting interpersonal relationship dissatisfaction on the DAS endorsed higher depressive severity
Priel and Besser (1999)	DEQ	Depressive symptoms	73 first time pregnant women assessed in third trimester and postpartum	Self-criticism predicts vulnerability to depression; strong attachment to the fetus mitigates risk for depression. Dependency is not associated with post-partum depressive symptoms.
Besser, Priel, Flett, and Wiznitzer (2007)	DEQ, CES-D	Depressive symptoms	100 women with high risk pregnancy, 109 women with low risk pregnancy	Childbirth is a more stressful experience for self-critical women than it is for dependent women who are depressed. Interventions are crucial to the well-being of the woman, the child she carries, and her mate.

Study	Measures	Variable	Participants	Findings
Gurung et.al. (2005)	State-Trait Anxiety Inventory	Anxiety	453 pregnant women at 20 weeks or less gestational age at first assessment, assessed three times during pregnancy	Prenatal anxiety was higher in women low in mastery, who had less positive attitudes toward their pregnancy, and who experienced a large number of life events during pregnancy. Women who had less favorable attitudes toward their pregnancy and who lower in mastery, reported increases in anxiety from early to late pregnancy.
Hart & McMahon (2006)	Self-report questionnaire	Attachment, symptoms of mental illness	First time low obstetric risk mothers	Higher symptom levels of antenatal anxiety were related to less optimal maternal-fetal quality of attachment, more negative attitudes towards motherhood and the self as mother. Similar trends were found for symptoms of depression however, depression was not significantly related to psychological adjustment to pregnancy variables.
Maloni, et al. (2005; 2006)	Antepartum Stressors Hospital Inventory,  Center for Epidemiologic Studies Depression Scale (CES-D),  Antepartum and Postpartum Symptom Checklists	Antepartum stressors  Depressive symptoms  Ante- and post-partum stressors	31 hospitalized women with twin or triplet gestation	CES-D scores for depressive symptoms were high on antepartum hospital admission. Postpartum symptoms were initially high but had significantly declined by 6 weeks.

Study	Measures	Variable	Participants	Findings
Skouteris, Wertheim, Rallis, Milgrom, and Paxton (2009)	State-Trait Anxiety Inventory Trait subscale  Beck Depression Inventory, and social support and sleep quality measures	Anxiety  Depressive symptoms	207 women during pregnancy and postpartum	Depressive symptoms earlier in pregnancy predicted higher levels of anxiety in late pregnancy and anxiety in late pregnancy predicted higher depressive symptomatology in the early postpartum.

Table 3

*Demographic Characteristics of Participants who completed ORI narratives for Differentiation-Relatedness and Ambivalence Scores (N=119)*

Variable	<i>n</i>	%	Dallas County %
Ethnicity (N=116)			
Caucasian	65	56.0	50.8
African American	37	31.9	25.9
Hispanic	12	10.3	35.6
Asian	2	1.7	2.7
Marital status (N=110)			
Single	32	29.1	-
Married	61	55.5	-
Separate	4	3.6	-
Cohabiting	13	11.8	-
Education (N=114)			
Less than ninth grade	1	0.9	12.9
Some high school	14	12.3	12.5
High school graduate or equivalent	29	25.4	23.7
Some college no degree	39	34.2	18.9
Undergraduate degree or higher	31	27.2	26.4
Pregnancy Complications (N=116)			
Toxemia	10	8.4	-
Hypertension	7	5.9	-
Diabetes	3	2.5	-

Table 3 (*continued*)

Incompetent Cervix	35	29.4	-
Multiple Pregnancy	15	12..6	-
Preterm Labor	54	45.4	-
Placenta Previa	4	3.4	-
Parity (N=115)			
0	30	26.1	-
1	29	25.2	-
2	23	20.0	-
3	15	13.0	-
4 or more	18	15.7	-
Household income (N=110)			
Under \$12,000	9	8.2	-
\$12,000-25,000	28	25.5	-
\$26,000-40,000	20	18.2	-
\$41,000-65,000	19	17.3	-
Over \$66.000	34	30.9	-

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*Note.* Dallas County data calculated from American Community Survey, U. S. Census Bureau, 2006 - 2008.

\*Dallas County data does not add correctly because some individuals belong to more than one category.

\*Participants can be in more than 1 pregnancy complication category.

Table 4

*Descriptive Statistics for Measures Analyzed in this Study*

<i>Measure</i>	n	M	SD	Median	Range
DAS	118	112.37	21.58	117.00	16-143
DAS minus outliers	106	114.91	15.69	118.00	64-143
ORI-DR-F	102	5.42	1.15	6.00	4-8
ORI-DR-M	105	5.38	1.23	5.00	3-9
EPDS	129	9.50	5.85	9.00	0-23
STAI-T	127	37.85	9.99	37.00	20-59
MAAS-I Total	104	31.00	4.67		
Low A (1-2)	59	30.78	5.19	31.00	17-40
High A (3, 4, 5)	44	31.30	3.97	32.00	23-39
MAAS-Q Total	103	45.97	3.42		
Low ORI-A-F (1-2)	59	45.75	3.38	46.00	36-50
High ORI-A-F (3,4,5)	44	46.27	3.51	47.00	36-50
DEQ- D	128	-0.60	0.89	-0.58	-2.69 to 1.21
DEQ-SC	128	-0.85	1.44	-0.99	-2.92 to 2.25



Table 4 (*continued*)

<i>Note.</i>	DAS	= Dyadic Adjustment Scale
	ORI-DR-F	= Object Relations Inventory Differentiation- Relatedness Scale, narrative - female caregiver
	ORI-DR-M	= Object Relations Inventory Differentiation - Relatedness Scale, narrative - male caregiver
	EPDS	= Edinburgh Postnatal Depression Scale
	STAI-T	= State-Trait Anxiety inventory (version 2) Trait only
	MAAS-I	= Maternal Antenatal Attachment Scale, intensity score
	MAAS-Q	= Maternal Antenatal Attachment Scale, quality score
	Low ORI-A-F	= Object Relations Inventory Ambivalence Scale (female caregiver), low ambivalence (1-2)
	High ORI-A-F	= Object Relations Inventory Ambivalence Scale (female caregiver), high ambivalence (3, 4, 5)
	DEQ- D	= Depressive Experiences Questionnaire, dependency scale
	DEQ-SC	= Depressive Experiences Questionnaire, self-criticism scale

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Table 5

*Hypothesis 1: Pearson product-moment correlations (upper matrix), partial correlations (lower matrix)*

	DAS	ORI-DR-M	ORI-DR-F	EPDS depression	STAI-T anxiety
DAS					
Correlation		.22	.17	-.19	-.27
p-value		.041	.098	.047	.005
<i>df</i>		89	93	107	106
ORI-DR-M					
Correlation	<b>.24</b>		.26	-.07	.05
p-value	<b>.025</b>		.015	.477	.624
<i>df</i>	<b>87</b>		84	100	94
ORI-DR-F					
Correlation	.17			.01	.02
p-value	.095			.927	.877
<i>df</i>	91			95	99
EPDS					
Correlation					.701
p-value					<.001
<i>df</i>					113

*Note.* All statistical tests are two-tailed

Table 5 (*continued*)

<i>Note.</i>	DAS	= Dyadic Adjustment Scale
		Object Relations Inventory, Differentiation –
	ORI-DR-F	= Relatedness Scale, narratives- female caregiver
	ORI-DR-M	= Object Relations Inventory, Differentiation –
		Relatedness Scale, narratives- male caregiver

EPDS	Edinburgh Postnatal Depression Scale
STAI-T	State-Trait Anxiety inventory (version 2) Trait only

Table 6

Hypothesis 2: Multivariate Analysis of Variance Results for Maternal Antenatal Attachment Scales Intensity and Quality

	ORI-A-F				MANCOVA		ANOVA	
	LOW (1-2) N = 59		HIGH (3,4,5) N = 44		Group ORI-A-F (1-2 vs. 3-5)	EPDS	Group ORI-A-F (1-2 vs. 3-5)	EPDS
Measures	M*	SD	M*	SD	P value	P value	P value	P value
MAAS-I	30.75	4.70	31.34	4.70)	.539	<.001	0.532	.209
MAAS-Q	45.67	3.15	46.37	3.15			0.267	<.001

\*Means evaluated with the covariate included in the model.

Note: ORI-A-F = Object Relations Inventory Ambivalence Scale for female caregivers  
 MAAS-I = Maternal Antenatal Attachment Scale, Intensity factor  
 MAAS-Q = Maternal Antenatal Attachment Scale, Quality factor  
 EPDS = Edinburgh Postnatal Depression Scale  
 MANCOVA = Multivariate Analysis of Covariance  
 ANOVA = Analysis of Variance

Table 7

Hypothesis 3a and 3b:

*Pearson product-moment correlations (upper matrix), partial correlations (lower matrix)*

	ORI-DR-M	ORI-DR-F	EPDS	STAI-T
ORI-DR-M				
Correlation		.26	-.01	.02
p-value		.015	.963	.835
<i>df</i>		86	97	96
ORI-DR-F				
Correlation			-.07	.02
p-value			.471	.845
<i>df</i>			103	102
EPDS				
Correlation	<b>-.03</b>	<b>-.12</b>		.70
p-value	<b>.789</b>	<b>.232</b>		<.001
<i>df</i>	<b>95</b>	<b>101</b>		113

Note. All significance tests are two-tailed

Table 7 (*continued*)

*Note.*    DAS            = Dyadic Adjustment Scale

ORI-DR-F    = Object Relations Inventory, Differentiation-  
Relatedness Scale, narratives --female caregiver

ORI-DR-M    = Object Relations Inventory, Differentiation-  
Relatedness Scale, narratives --male caregiver

EPDS            = Edinburgh Postnatal Depression Scale

STAI-T        = State-Trait Anxiety inventory (version 2), Trait only

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Table 8

*Hypotheses 4a and 4b: Pearson Product-moment Correlations between Anaclitic and Dependent Personality Traits*

	ORI-DR-M	DEQ-D	DEQ-SC
ORI-DR-F			
Correlation	.26	.09	-.01
p-value	.015	.363	.921
N	88	104	104
ORI DR-M			
Correlation		.13	-.07
p-value		.199	.485
N		98	98
DEQ-D			
Correlation			.072
p-value			.443
N			115

*Note.* All p-values are two-tailed

Table 8 (*continued*)

<i>Note.</i>	DEQ-D	= Depressive Experiences Questionnaire, dependency scale
	DEQ-SC	= Depressive Experiences Questionnaire, self-criticism scale
	ORI-DR-F	= Object Relations Inventory, Differentiation- Relatedness Scale, narratives- female caregiver
	ORI-DR-M	= Object Relations Inventory, Differentiation- Relatedness Scale, narratives- male caregiver



**APPENDIX A**  
**Baylor Internal Review Board Approval**





## **APPENDIX B**

### **Letter of Consent**















## **APPENDIX C**

### **MEASURES**

# SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger  
in collaboration with  
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

## STAI Form Y-1

**DIRECTIONS:** A number of statements which people have used to describe themselves are given below. Read each statement and mark the appropriate box to the right of the statement to indicate how you feel *right* now, that is, *at this moment*. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

		Not at all	Some- what	Moder- ately so	Very much so
1.	I feel calm				
2.	I feel secure				
3.	I am tense				
4.	I feel strained				
5.	I feel at ease				
6.	I feel upset				
7.	I am presently worrying over possible misfortunes				
8.	I feel satisfied				
9.	I feel frightened				
10.	I feel comfortable				
11.	I feel self-confident				
12.	I feel nervous				
13.	I am jittery				
14.	I feel indecisive				
15.	I am relaxed				
16.	I feel content				
17.	I am worried				
18.	I feel confused				
19.	I feel steady				
20.	I feel pleasant				

## SELF-EVALUATION QUESTIONNAIRE

Developed by Charles D. Spielberger  
in collaboration with  
R. L. Gorsuch, R. Lushene, P. R. Vagg, and G. A. Jacobs

### STAI Form Y-2

**DIRECTIONS:** A number of statements which people have used to describe themselves are given below. Read each statement and mark the appropriate box to the right of the statement to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

		Not at all	Some- what	Moder- ately so	Very much so
21.	I feel pleasant				
22.	I feel nervous and restless				
23.	I feel satisfied with myself				
24.	I wish I could be as happy as others seem to be				
25.	I feel like a failure				
26.	I feel rested				
27.	I am "calm, cool, and collected"				
28.	I feel that difficulties are piling up so that I cannot overcome them				
29.	I worry too much over something that really doesn't matter				
30.	I am happy				
31.	I have disturbing thoughts				
32.	I lack self-confidence				
33.	I feel secure				
34.	I make decisions easily				
35.	I feel inadequate				
36.	I feel content				
37.	Some unimportant thought runs through my mind and bothers me				
38.	I take disappointments so keenly that I can't put them out of my mind				
39.	I am a steady person				
40.	I get in a state of tension or turmoil as I think over my recent concerns and interests				

### DEPRESSIVE EXPERIENCES QUESTIONNAIRE (DEQ)

Listed below are a number of statements concerning personal characteristics and traits. Read each item and decide whether you agree or disagree and to what extent. If you strongly agree, circle 7; if you strongly disagree, circle 1; The midpoint, if you are neutral or undecided, is 4.

	Strongly Disagree					Strongly Agree	
1. I set my personal goals and standards as high as possible.	1	2	3	4	5	6	7
2. Without support from others who are close to me, I would be helpless.	1	2	3	4	5	6	7
3. I tend to be satisfied with my current plans and goals, rather than striving for higher goals.	1	2	3	4	5	6	7
4. Sometimes I feel very big, and other times I feel very small.	1	2	3	4	5	6	7
5. When I am closely involved with someone, I never feel jealous.	1	2	3	4	5	6	7
6. I urgently need things that only other people can provide.	1	2	3	4	5	6	7
7. I often find that I don't live up to my own standards or ideals.	1	2	3	4	5	6	7
8. I feel I am always making full use of my potential abilities.	1	2	3	4	5	6	7
9. The lack of permanence in human relationships doesn't bother me.	1	2	3	4	5	6	7
10. If I fail to live up to expectations, I feel unworthy.	1	2	3	4	5	6	7
11. Many times I feel helpless.	1	2	3	4	5	6	7
12. I seldom worry about being criticized for things I have said or done.	1	2	3	4	5	6	7
13. There is a considerable difference between how I am now and how I would like to be.	1	2	3	4	5	6	7
14. I enjoy sharp competition with others.	1	2	3	4	5	6	7
15. I feel I have many responsibilities that I must meet.	1	2	3	4	5	6	7
16. There are times when I feel "empty" inside.	1	2	3	4	5	6	7

17. I tend not to be satisfied with what I have.	1	2	3	4	5	6	7
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- |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|
| 18. I don't care whether or not I live up to what other people expect of me.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. I become frightened when I feel alone.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. I would feel like I'd be losing an important part of myself if I lost a very close friend.                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 21. People will accept me no matter how many mistakes I have made.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 22. I have difficulty breaking off a relationship that is making me unhappy.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 23. I often think about the danger of losing someone who is close to me.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 24. Other people have high expectations of me.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 25. When I am with others, I tend to devalue or "undersell" myself.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 26. I am not very concerned with how other people respond to me.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 27. No matter how close a relationship between two people is, there is always a large amount of uncertainty and conflict. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 28. I am very sensitive to others for signs of rejection.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 29. It's important for my family that I succeed.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 30. Often, I feel I have disappointed others.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 31. If someone makes me angry, I let him (her) know how I feel.   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 32. I constantly try, and very often go out of my way, to please or help people I am close to.                            | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 33. I have many inner resources (abilities, strengths).   | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 34. I find it very difficult to say "No" to the requests of friends.  | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

35. I never really feel secure in a close relationship.	1	2	3	4	5	6	7
36. The way I feel about myself frequently varies: there are times when I feel extremely good about myself and other times when I see only the bad in me and feel like a total failure	1	2	3	4	5	6	7
37. Often, I feel threatened by change.	1	2	3	4	5	6	7
38. Even if the person who is closest to me were to leave, I could still "go it alone."	1	2	3	4	5	6	7
39. One must continually work to gain love from another person: that is, love has to be earned.	1	2	3	4	5	6	7
40. I am very sensitive to the effects my words or actions have on the feelings of other people.	1	2	3	4	5	6	7
41. I often blame myself for things I have done or said to someone.	1	2	3	4	5	6	7
42. I am a very independent person.	1	2	3	4	5	6	7
43. I often feel guilty.	1	2	3	4	5	6	7
44. I think of myself as a very complex person, one who has "many sides."	1	2	3	4	5	6	7
45. I worry a lot about offending or hurting someone who is close to me.	1	2	3	4	5	6	7
46. Anger frightens me.	1	2	3	4	5	6	7
47. It is not "who you are," but "what you have accomplished" that counts.	1	2	3	4	5	6	7
48. I feel good about myself whether I succeed or fail.	1	2	3	4	5	6	7
49. I can easily put my own feelings and problems aside, and devote my complete attention to the feelings and problems of someone else.	1	2	3	4	5	6	7
50. If someone I cared about became angry with me, I would feel threatened that he (she) might leave me.	1	2	3	4	5	6	7
51. I feel comfortable when I am given important responsibilities.	1	2	3	4	5	6	7
52. After a fight with a friend, I must make amends as soon as possible.	1	2	3	4	5	6	7



53. I have a difficult time accepting weaknesses in myself.	1	2	3	4	5	6	7
54. It is more important that I enjoy my work than it is for me to have my work approved.	1	2	3	4	5	6	7
55. After an argument, I feel very lonely.	1	2	3	4	5	6	7
56. In my relationships with others, I am very concerned about what they can give to me.	1	2	3	4	5	6	7
57. I rarely think about my family.	1	2	3	4	5	6	7
58. Very frequently, my feelings toward someone close to me vary: there are times when I feel completely angry and other times when I feel all-loving towards that person.	1	2	3	4	5	6	7
59. What I do and say has a very strong impact on those around me.	1	2	3	4	5	6	7
60. I sometimes feel that I am "special."	1	2	3	4	5	6	7
61. I grew up in an extremely close family.	1	2	3	4	5	6	7
62. I am very satisfied with myself and my accomplishments.	1	2	3	4	5	6	7
63. I want many things from someone I am close to.	1	2	3	4	5	6	7
64. I tend to be very critical of myself.	1	2	3	4	5	6	7
65. Being alone doesn't bother me at all.	1	2	3	4	5	6	7
66. I very frequently compare myself to standards or goals.	1	2	3	4	5	6	7

**EDINBURGH POSTPARTUM DEPRESSION SCALE (EPDS)**

**Please circle the answer that best describes how you have felt over the past 7 days.**

**In the past 7 days:**

1. I have been able to laugh and see the funny side of things -  
  - 0 As much as I always could
  - 1 Not quite so much now
  - 2 Definitely not so much now
  - 3 Not at all
2. I have looked forward with enjoyment to things -  
  - 0 As much as I ever did
  - 1 Rather less than I used to
  - 2 Definitely less than I used to
  - 3 Hardly at all
3. I have blamed myself unnecessarily when things went wrong -  
  - 0 No, not at all
  - 1 Hardly ever
  - 2 Yes, sometimes
  - 3 Yes, very often
4. I have been anxious or worried for no good reason -  
  - 3 Yes, quite a lot
  - 2 Yes, sometimes
  - 1 No, not much
  - 0 No, not at all
5. I have felt scared or panicky for no very good reason -  
  - 3 Yes, quite a lot
  - 2 Yes, sometimes
  - 1 No, not much
  - 0 No, not at all

6. Things have been getting on top of me -
- 3 Yes, most of the time I haven't been able to cope at all
  - 2 Yes, sometimes I haven't been coping as well as usual
  - 1 No, most of the time I have coped quite well
  - 0 No, I have been coping as well as ever
7. I have been so unhappy that I have had difficulty sleeping -
- 3 Yes, most of the time
  - 2 Yes, sometimes
  - 1 Not very often
  - 0 No, not at all
8. I have felt sad or miserable -
- 3 Yes, most of the time
  - 2 Yes, quite often
  - 1 Not very often
  - 0 No, not at all
9. I have been so unhappy that I have been crying -
- 3 Yes, most of the time
  - 2 Yes, quite often
  - 1 Only occasionally
  - 0 No, never
10. The thought of harming myself has occurred to me -
- 3 Yes, quite often
  - 2 Sometimes
  - 1 Hardly ever
  - 0 Never

(J.L. Cox, J.M. Holden, R. Sagovsky, Department of Psychiatry, University of Edinburgh)  
MATERNAL ANTENATAL ATTACHMENT SCALE (MAAS)

These questions are about your thoughts and feelings about the developing baby. Please tick one box only in answer to each question.

- 1) Over the past two weeks I have thought about, or been preoccupied with the baby inside me:  

<input type="checkbox"/>	Almost all the time
<input type="checkbox"/>	Very frequently
<input type="checkbox"/>	Frequently
<input type="checkbox"/>	Occasionally
<input type="checkbox"/>	Not at all
  
- 2) Over the past two weeks when I have spoken about, or thought about the baby inside me I got emotional feelings which were:  

<input type="checkbox"/>	Very weak or non-existent
<input type="checkbox"/>	Fairly weak
<input type="checkbox"/>	In between strong and weak
<input type="checkbox"/>	Fairly strong
<input type="checkbox"/>	Very strong
  
- 3) Over the past two weeks my feelings about the baby inside me have been:  

<input type="checkbox"/>	Very positive
<input type="checkbox"/>	Mainly positive
<input type="checkbox"/>	Mixed positive and negative

- ☐ Mainly negative
- ☐ Very negative
- 4) Over the past two weeks I have had the desire to read about or get information about the developing baby. This desire is:
- ☐ Very weak or non-existent
- ☐ Fairly weak
- ☐ Neither strong nor weak
- ☐ Moderately strong
- ☐ Very strong
- 5) Over the past two weeks I have been trying to picture in my mind what the developing baby actually looks like in my womb:
- ☐ Almost all the time
- ☐ Very frequently
- ☐ Frequently
- ☐ Occasionally
- ☐ Not at all
- 6) Over the past two weeks I think of the developing baby mostly as:
- ☐ A real little person with special characteristics
- ☐ A baby like any other baby
- ☐ A human being
- ☐ A living thing

☐ A thing not yet really alive

- 7) Over the past two weeks I have felt that the baby inside me is dependent on me for its well-being:

☐ Totally

☐ A great deal

☐ Moderately

☐ Slightly

☐ Not at all

- 8) Over the past two weeks I have found myself talking to my baby when I am alone:

☐ Not at all

☐ Occasionally

☐ Frequently

☐ Very frequently

☐ Almost all the time I am alone

- 9) Over the past two weeks when I think about (or talk to) my baby inside me, my thoughts:

☐ Are always tender and loving

☐ Are mostly tender and loving

- ☐ Are a mixture of both tenderness and irritation
- ☐ Contain a fair bit of irritation
- ☐ Contain a lot of irritation

10) The picture in my mind of what the baby at this stage actually looks like inside the womb is:

- ☐ Very clear
- ☐ Fairly clear
- ☐ Fairly vague
- ☐ Very vague
- ☐ I have no idea at all

11) Over the past two weeks when I think about the baby inside me I get feelings which are:

- ☐ Very sad
- ☐ Moderately sad
- ☐ A mixture of happiness and sadness
- ☐ Moderately happy
- ☐ Very happy

12) Some pregnant women sometimes get so irritated by the baby inside them that they feel like they want to hurt it or punish it:

- ☐ I couldn't imagine I would ever feel like this
- ☐ I could imagine I might sometimes feel like this, but I never actually have

- ☐ I have felt like this once or twice myself
- ☐ I have occasionally felt like this myself
- ☐ I have often felt like this myself

13) Over the past two weeks I have felt:

- ☐ Very emotionally distant from my baby
- ☐ Moderately emotionally distant from my baby
- ☐ Not particularly emotionally close to my baby
- ☐ Moderately close emotionally to my baby
- ☐ Very close emotionally to my baby

14) Over the past two weeks I have taken care with what I eat to make sure the baby gets a good diet:

- ☐ Not at all
- ☐ Once or twice when I ate
- ☐ Occasionally when I ate
- ☐ Quite often when I ate
- ☐ Every time I ate

15) When I first see my baby after the birth I expect I will feel:

- ☐ Intense affection



- ☐ Mostly affection
- ☐ Dislike about one or two aspects of the baby
- ☐ Dislike about quite a few aspects of the baby
- ☐ Mostly dislike

16) When my baby is born I would like to hold the baby:

- ☐ Immediately
- ☐ After it has been wrapped in a blanket
- ☐ After it has been washed
- ☐ After a few hours for things to settle down
- ☐ The next day

17) Over the past two weeks I have had dreams about the pregnancy or baby:

- ☐ Not at all
- ☐ Occasionally
- ☐ Frequently
- ☐ Very frequently
- ☐ Almost every night

18) Over the past two weeks I have found myself feeling, or rubbing with my hand, the outside of my stomach where the baby is:

- ☐ A lot of times each day
- ☐ At least once per day

- ☐ Occasionally
- ☐ Once only
- ☐ Not at all

19) If the pregnancy was lost at this time (due to miscarriage or other accidental event) without any pain or injury to myself, I expect I would feel:

- ☐ Very pleased
- ☐ Moderately pleased
- ☐ Neutral (i.e. neither sad nor pleased, or mixed feelings)
- ☐ Moderately sad
- ☐ Very sad

## Chart Review

Participant number

Obstetrician of record

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Birthdate

Ethnicity

Af Am	Asian	Caucasian	Latino	Other
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Marital Status

Single	Married	Separated	Divorced	Widowed	Cohabiting
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Total Pregnancies (Prior)

Full Term (Prior)

Premature (Prior)

Abortions induced

Abortions spontaneous

Ectopics

Multiple births (Prior)

Living

Stillborn

List any interventions that have been initiated or ordered by the doctor:

## HOBEL RISK ASSESSMENT-- PRENATAL

	yes	no
Moderate to severe toxemia	10	0
Chronic Hypertension	10	0
Moderate to severe renal disease	10	0
Severe heart disease, Class II-IV	10	0
History of eclampsia	5	0
History of pyelitis	5	0
Class I heart disease	5	0
Mild toxemia	5	0
Acute pyelonephritis	5	0
History of cystitis	1	0
Acute cystitis	1	0
History of toxemia	1	0
Diabetes $\geq$ Class A-II	10	0
Previous endocrine ablation	10	0
Thyroid disease	5	0
Prediabetes (A-I)	5	0
Family history of diabetes	1	0
Previous fetal exchange transfusion for Rh	10	0

Previous stillbirth	10	0
Post-term > 42 weeks	10	0
Previous premature infant	10	0
Previous neonatal death	10	0
Previous cesarean section	5	0
Habitual abortion	5	0
Infant > 10 pounds	5	0
Multiparity > 5	5	0
Epilepsy	5	0
Fetal anomalies	1	0
Uterine malformation	10	0
Incompetent cervix	10	0
Abnormal fetal position	10	0
Polyhydramnios or oligohydramnios	10	0
Small pelvis	5	0
Abnormal cervical cytology	10	0
Multiple pregnancy	10	0
Sickle cell disease	10	0
Age $\geq 35$ or $\leq 15$	5	0
Viral disease	5	0
Rh sensitization only	5	0
Positive serology	5	0
Severe anemia (< 9 Gm. Hgb)	5	0
Excessive use of drugs	5	0
History of TB or PPD $\geq 10$ mm.	5	0
Weight < 100 or > 200 pounds	5	0
Pulmonary disease	5	0
Flu syndrome (severe)	5	0
Vaginal spotting	5	0
Mild anemia (9-10.9 Gm. Hgb)	1	0
Smoking $\geq 1$ pack/day	1	0
Alcohol (moderate)	1	0
Emotional problem	1	0
Premature rupture of membrane (PROM)	5	0
Primary dysfunctional labor (PTL)	5	0
Placenta previa	10	0
Abruptio placentae	10	0

**OBJECT RELATIONS INVENTORY (ORI)**

**DESCRIBE YOUR MOTHER.**

**OBJECT RELATIONS INVENTORY (ORI)**

**DESCRIBE YOUR FATHER.**



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