

Prenatal Attachment: A Developmental Model

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Abstract: The attachment relationship between a pregnant woman and her developing fetus has been demonstrated to be of importance because of the potential link between prenatal attachment and parental behaviour both before and after birth (Condon & Corkindale, 1997; Pollock & Percy, 1999). While there is consistent evidence of individual differences in the level of attachment (Doan & Zimmerman, 2002), there is still a need to clarify the factors that may help to explain this variation in scores. Over the past few years, our research has examined a number of cognitive, emotional and situational factors that relate to the level of prenatal attachment (Doan & Zimmerman, 2003, 2006). While we have examined the effects of many factors on prenatal attachment, the two variables that most consistently related to the level of prenatal attachment are empathy and the cognitive ability to mentally represent the fetus. Against the backdrop of current research literature, we will propose an integrative framework that takes into account the linkages between empathy and cognition as a means for enlarging our understanding of the complexities of prenatal attachment.

Zusammenfassung: Die Bindungsbeziehung zwischen einer Schwangeren und ihrem sich entwickelnden Kind hat sich wegen des möglichen Bezuges zur vorgeburtlichen Bindungsbeziehung und elterlichem Verhalten vor und nach der Geburt als bedeutsam erwiesen (Condon & Corkindale, 1997; Pollock & Percy, 1999). Während es eine verlässliche Evidenz für individuelle Unterschiede in der Bindungsbeziehung gibt, ist es noch notwendig die Faktoren zu klären, die diese Unterschiede erklären können. In den vergangenen Jahren hat unsere Forschung eine Anzahl von kognitiven, emotionalen und situativen Faktoren überprüft, die einen Bezug zum Grad der vorgeburtlichen Bindung haben (Doan & Zimmerman, 2003, 2006). Während wir die Wirkungen von verschiedenen Faktoren für den Grad der vorgeburtlichen Beziehung prüften, hat sich gezeigt, dass zwei Faktoren am meisten und am beständigsten zu dem Grad der vorgeburtlichen Bindung in Bezug standen, und zwar Einfühlung und die Fähigkeit, sich das vorgeburtliche Kind innerlich vorstellen zu können. Entgegen dem Trend in der Forschungsliteratur möchten wir einen integrativen Rahmen vorschlagen, der die Verbindungen zwischen Einfühlung und Kognition einbezieht, um unser Verständnis für die Komplexität der vorgeburtlichen Bindungsbeziehung zu erweitern.

Keywords: prenatal attachment relationship, pregnant woman, developing fetus, parental behaviour

The attachment relationship between a pregnant woman and her developing fetus has been demonstrated to be of importance because of the potential link between prenatal attachment and parental behaviour both during pregnancy and after birth (Condon & Corkindale, 1997; Lindgren, 2003; Pollock & Percy, 1999; Priel & Besser, 2000; Spiby, 2006; Sjögren et al, 2004). It, therefore,

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becomes of importance to examine the development of prenatal attachment and the factors that affect this development.

The purpose of this paper is to examine the extensive literature on prenatal attachment and to develop an initial integrative, developmental model that will summarize the important factors determining the level of prenatal attachment experienced by the mother-to-be during her pregnancy.

From an extensive review of the literature, several conclusions can be drawn:

■ There is a developmental progression to the timing, intensity, and form of expression of prenatal attachment. There are four types of evidence for this conclusion.

1. Researchers have studied the levels, or intensity, of attachment during different stages of pregnancy. Doan & Zimerman (2007) summarized some of both longitudinal and cross-sectional research that demonstrated a consistent increase in scores on prenatal attachment measures over the course of the pregnancy (e.g., Bloom, 1995; Koniak-Griffin, 1988; Koniak-Griffin, Lominska & Brecht, 1993; Muller, 1993; Phipps & Zinn, 1986; Wayland & Tate, 1993).
2. Some researchers, e.g., Leifer, 1977, described the type of progression that occurred during pregnancy. Leifer stated that prenatal attachment developed in an orderly sequential way during the course of pregnancy. In the first trimester relatively low levels of prenatal attachment were observed, increasing after quickening, then, progressing to attachment (e.g., talking to the fetus, having pet names for the fetus) and “nesting” behaviours in the second and third trimesters.
3. Another body of evidence has examined the capability of women, prior to becoming pregnant, to conceptualize being pregnant and attached to the fetus, and the extent to which this conceptualization is positive. It is clear that women and men can imagine themselves attached to an imagined baby. However, there is a variation of scores in the ability to imagine themselves pregnant and attached to the developing child (Doan, Zimerman & Howell, 1997, 1998; Guger & Doan, 1995). In addition, adolescents vary in the degree to which they have idealized beliefs of pregnancy. For example, Condon, Donovan and Corkindale (2000) found that between one quarter and one third of their sample of Australian adolescents exhibited idealized beliefs of pregnancy.
4. The literature on prenatal attachment has clearly demonstrated that individual differences do exist in this early relationship, varying from being highly attached early in the pregnancy, to demonstrating low, or no, attachment during the pregnancy (Doan & Howell, 1998; Mikulincer & Florian, 1999).

■ Situational factors are correlated with the level of prenatal attachment and can be described as acting as moderators determining the intensity of expression of prenatal attachment. Several factors have been examined as potentially related to prenatal attachment, such as, social support (e.g., Koniak-Griffin, 1988; Wilson et al, 2000); twin pregnancies (e.g., Damato, 2004); the use of ultrasound during pregnancy (e.g., Boukydis et al, 2006; Sedgmen et al, 2006); loss or stillbirth in a previous pregnancy (e.g., Armstrong & Hutti, 1998; Tsartsara & Hohnson, 2006); maternal age (e.g., Berryman & Windridge, 1996); maternal personality

(e.g., Sjögren et al, 2004); physical symptoms and body image (e.g., Huang, Wang & Chen, 2004; Lai, Tan & Tse, 2006); and depression and anxiety (e.g., Hart & McMahon, 2006; Honjo et al, 2005).

While many factors have been studied, there are few factors where the studies demonstrate consistent effects of prenatal attachment. Doan & Zimmerman, (2007) summarized some of the consistent findings. For example, they noted that:

1. First time mothers tend to have higher levels of maternal-fetal attachment than experienced mothers (e.g., Lorensen, Wilson & White, 2004; Mercer & Ferketich, 1995; Pascoe, Koktailo & Broekhuizen, 1995; Zimmerman & Doan, 2003).
2. Maternal-fetal attachment scores are higher after awareness of fetal movement (e.g., Heidrich & Cranley, 1989; Lerum, Major, LoBiondo-Wood, 1989; Mikhail et al, 1991).
3. High and low risk pregnant women have similar levels of responding to measures of prenatal attachment (e.g., Kemp & Page, 1987; Mercer, Ferketich, May, DeJoseph & Sollid, 1988; Zimmerman, 2003; Zimmerman & Doan, 2003; in press).
4. Researchers have demonstrated that the pregnant woman's own attachment style was related to her level of fetal attachment (Mikulincer & Florian, 1999; Priel & Besser, 2000). Women who had a secure attachment style, with their own parents, had higher levels of, and earlier occurring, prenatal attachment. In addition, Siddiqui, Hagglof and Eisemann (2000) reported that "women who experienced more emotional warmth from their mothers and rejection from their father were better in establishing an affectionate relationship with their unborn baby" (p. 70).
5. Women who had in vitro fertilization manifested the same level of maternal-fetal attachment as those who had no history of infertility (e.g., Bernstein, Lewis & Seibel, 1994; Hjelmstedt, Widström & Collins, 2006).

■ Several researchers have identified the multidimensional nature of prenatal attachment (Doan & Zimmerman, 2007). As Doan & Zimmerman (2007) noted different approaches have been used to discuss the multidimensional nature of the construct, however, the different findings suggest that there is a cognitive, emotional and behavioural component. For example:

Cranley (1981) represented the multidimensionality of prenatal attachment by identifying components that described the behaviours that represent affiliation and interaction with the unborn child. Her components can be described as cognitive (e.g., differentiation of self from the fetus; attributing characteristics and intentions to the fetus); emotional (e.g., giving of self); and behavioural (e.g., interaction with the fetus and role taking) in nature. Her measure of prenatal attachment included items of each of these components.

Other researchers (e.g., Siddiqui, Hagglof & Eisemann, 1999; Muller & Ferketich, 1993) have factor analyzed the data they obtained using measures of prenatal attachment and, while they identified different components from Cranley, their factors had cognitive, emotional and behavioural attributes.

From summaries of the theoretical literature, other researchers (e.g., Shieh,

Kravitz & Wang, 2001) have stressed the multidimensional nature of prenatal attachment and identified similar “critical attributes” (p. 450), related to cognitive, emotional and behavioural components.

Doan & Zimerman (2003) suggested that prenatal attachment involves an interaction between cognitive, emotional and situational factors. With regard to cognitive skills and prenatal attachment, they summarized some of the research that discusses the cognitive skills of internal working models, the ability to fantasize, and maternal representations of the fetus. Doan & Zimerman described studies, such as that of Zeanah, Zeanah and Stewart (1990) that indicated that only 8 fathers in their study did not know what their fetus’s personality was or did not believe that the fetus had a personality and noted that many parents have a mental representation of their fetus that includes a personality. They also summarized some of the research that pregnant women’s fantasies about their unborn children. They concluded that the data implied that without the ability to conceptualize the abstract experience of pregnancy in terms of the fetus as a separate person, prenatal attachment would be very low. In other words, the cognitive ability to conceptualize the fetus as a person is a prerequisite for prenatal attachment.

Doan and Zimerman (2003) also concluded that, from the literature, it was apparent that emotional factors were also related to prenatal attachment. While there has been conflicting results in the literature studying the relationship between anxiety (e.g., Cox, 2002), depression (e.g., Armstrong, 2002; Lindgren, 2001) and prenatal attachment, the few studies that have examined the relationship between empathy and prenatal attachment have consistently demonstrated a significant relationship (e.g., Doan, Zimerman & Howell, 1997, 1998; Doan & Howell, 1998; Zimerman & Doan, in press).

It can be hypothesized that the foundation for the cognitive and emotional skills and strategies that are related to prenatal attachment have their roots in skills and strategies that are developing during childhood. In addition, childhood attachment styles and the type of relationship they have with their parents may be important determinants of the timing and intensity of later prenatal attachment.

An additional factor relating to prenatal attachment are the self care practices of pregnant women expressed as good health practices (Lindgren, 2003); nourishing the self (Sjögren et al, 2004), maternal well being (Priel & Besser, 2000), intention not to harm the fetus (Pollock & Percy, 1999); and not smoking during pregnancy (Slade, Laxton-Kane & Spiby, 2006).

Therefore, from a review of the literature, a model of prenatal attachment can be hypothesized. The model would be based on the following components:

1. Prenatal attachment can be described in terms of three aspects, i.e., when it begins (e.g., early in the pregnancy; after fetal movement or an ultrasound; in the last trimester or not during pregnancy); the level of prenatal attachment (e.g., low, medium or high); and the form of expression (e.g., cognitive, emotional or behavioural).
2. The skills and strategies that may be a foundation for prenatal attachment begin in childhood, are evident during teenage and early adult prepregnancy

years, and in adulthood after becoming pregnant. Therefore, a developmental progression may be hypothesized to best describe the process of developing a prenatal attachment to the unborn child.

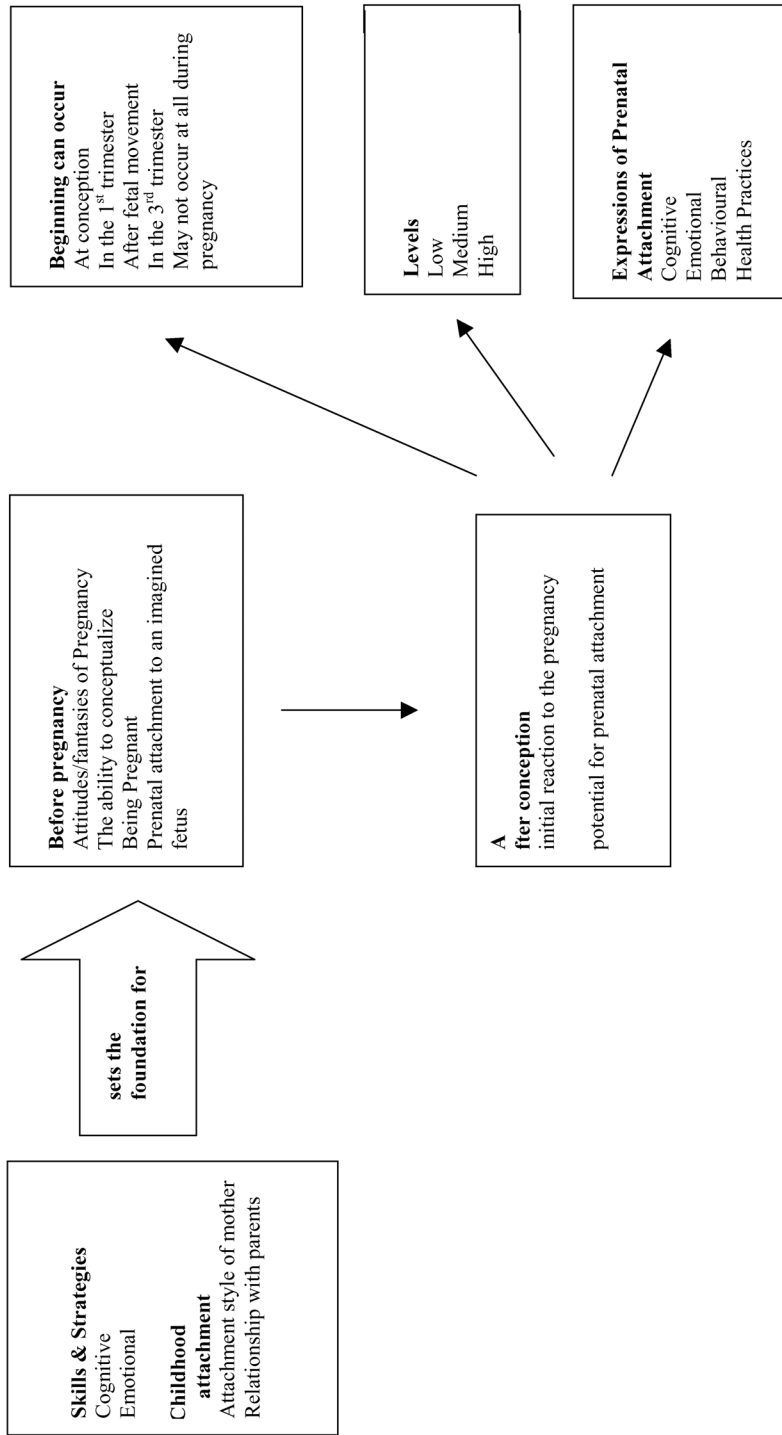
3. The antecedent conditions for prenatal attachment, beginning in childhood could include cognitive skills and strategies (related to the ability to think abstractly and to fantasize and mentally represent, or form an internal working model of, an abstract 'other'); and emotional skills and strategies linked to perspective taking and empathic concern (i.e., empathy), the ability to be sensitive to and respond to the cues of others, and an ability to separate self and other and be able to focus on the needs of others. In addition, the positive perception of one's relationship with parents and the attachment style (e.g., secure, avoidant, etc) that is developed through childhood experiences can influence one's ability to be attached to one's developing fetus.
4. During the teenage and early adulthood years, there may be different levels of potential for prenatal attachment expressed in terms of an ability to positively conceptualize, or fantasize about, being pregnant; or the ability to conceptualize themselves as being attached to an imagined fetus.
5. After becoming pregnant, the level of prenatal attachment may be related to situational factors in the woman's life, e.g., the stage of gestation, whether they have experienced fetal movement or have seen an ultrasound image of the developing fetus, or their previous experiences with pregnancy and parenthood, which may determine the timing, intensity and form of expression of prenatal attachment.
6. Prenatal attachment may be expressed in terms of cognitive attachment (e.g., the ability to conceptualize the fetus as a person or be able to differentiate themselves from the fetus), emotional attachment (e.g., an empathic affectionate bond to the fetus), attachment behaviours (e.g., responding and interacting with the fetus) and self care practices (e.g., maintaining good health practices).

Graphically the model could be expressed as follows:

Summary

Using a regression analysis model, Zimmerman (unpublished manuscript) found that three factors, i.e., the extent to which a pregnant woman engaged in cognition about the stressors of pregnancy; the level of empathic concern; and the initial reaction to the pregnancy, accounted for twenty-five percent of the variance on the measure of prenatal attachment, i.e., Condon's (1993) measure of the quality of attachment. Her study emphasized the role of factors such as empathy in helping to understand the varying levels of maternal-fetal attachment. Her findings also supported the view that prenatal attachment is a multidimensional concept influenced by many variables and pointed to the importance of clarifying some of the factors that may help to elucidate the different levels of prenatal attachment both within and between groups of pregnant women.

The present model is an attempt to integrate the literature on prenatal attachment and demonstrate some of the factors that may influence the multidimensionality of prenatal attachment. It may also help to explain the wide variation of scores found in the different studies on attachment.



Developmental model

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