

Antenatal Attachment, Empathy, Depression and Coping with Stress in Three groups of Pregnant Women¹

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Abstract

This presentation describes some of the results of a study of antenatal (prenatal) attachment, as measured by the Maternal Antenatal Attachment Scale (MAAS, Condon, 1993), in three groups of pregnant women. Of main interest in this study were the following possible influences on antenatal attachment: empathy, stress/coping, and status of parenthood (the three groups were: first-time mothers (FT Moms); being a mother to typically developing child/children and expecting again (TS Moms); and being a mother of a child with Down syndrome and expecting again (DS Moms)).

The results of this study revealed that there were significant differences between the groups on several variables. As well, it was apparent that several factors are strongly associated with antenatal attachment. They are: stress perception (as measured by the Cognitive Adaptation to Stressful Events of pregnancy, (CASE, Affonso, Mayberry, Lovett, and Paul, 1994); some aspects of cognitive as well as emotional empathy (as measured by the Interpersonal Reactivity Index, (IRI, Davis, 1983); and, for some mothers, their initial reaction to the pregnancy.

Introduction

Definitions

Antenatal attachment has been studied for several decades now and has been defined by several researchers. The definitions include some agreement or overlap as well as some original aspects, unique to each author. Although there is relative consensus about the definition, the following examples of definitions, indicate that the study into antenatal attachment is still in need of much investigation:

- Condon (1993) “The emotional tie or bond which normally develops between the pregnant woman and her unborn infant”
- Cranley (1981a) “The extent to which women (and men) engage in behaviours that represent affiliation and interaction with their unborn child“
- Doan and Zimmerman (2002) “An abstract concept, representing the affiliative relationship between a parent and a fetus, which is potentially present before pregnancy, is related to

¹ Based on data collected for A. Zimmerman’s doctoral dissertation.

Thanks to the pregnant women who generously shared their time and personal information

cognitive and emotional abilities to conceptualize another human being, and develops within an ecological system”

The importance of antenatal attachment

- Low antenatal attachment is linked to fetal abuse (Pollack and Percy, 1999)
- Low post-natal attachment linked to a variety of problems (Ainsworth, 1985)
- Antenatal Attachment is linked to post natal bonding and attachment (Siddiqui and Hagglof, 2000)
- Antenatal Attachment is linked to the likelihood of breastfeeding (Zimmerman, 1992)

Hypothesized influences on prenatal attachment

Based on previous research (Doan and Zimmerman, 2003; Zimmerman and Doan, 2003; Doan and Zimmerman, 2002, Zimmerman, 2003) the following factors were hypothesized to be associated with antenatal attachment:

Emotional

- Empathy - emotional aspects
- Initial reaction - very happy/not-at-all happy (to be pregnant)

Cognitive

- Empathy - cognitive aspects
- Coping mechanisms - perception of stressors

Ecological

- Marital relationship
- Expected supportiveness of partner
- Parenting status:
 1. Expecting first child (“First time mothers”)
 2. Already a mother of a typically developing child (“Typical subsequents”)
 3. Already a mother of a child with Down syndrome (“Down syndrome subsequents”)

Hypotheses

The following were the hypotheses guiding the study:

1. FT Moms would have higher antenatal attachment scores, especially in the Frequency subscale (denoting more preoccupation);
2. DS Moms would have higher empathy scores;
3. DS Moms would have higher stress scores;
4. Emotional empathy would be positively correlated with antenatal attachment;
5. Stress perception would be negatively correlated with antenatal attachment;
6. Expected supportiveness would be positively correlated with antenatal attachment;
7. Marital satisfaction would be positively correlated with antenatal attachment.

In addition, group differences in levels of the initial reaction to the pregnancy, and depression, were examined.

Participants

Number and categories of participants

First time mothers (FT Moms) =	171
Typical subsequents (TS Moms) =	50
Down syndrome subsequents (DS Moms) =	15
Total sample =	236

Participants' demographics

The three groups of participants' demographics were as follows: FT Moms' mean age was 30.6 (± 4.2); TS Moms' age was 34.2 (± 3.1); and DS Moms' age was 35.8 (± 3.8). The length of marital/cohabitation relationship was 3.7 (± 2.5) for FT Moms; 6.5 (± 3.5) for TS Moms, and, 8.7 (± 3.8) for DS Moms. The income and education levels were comparable for the three groups, with average income at the \$60,000 to \$69,000 a year, and average education levels of some university studies.

Instruments

Validated in the literature

1. The Maternal Antenatal Attachment Scale (MAAS; Condon, 1993). Analyses make use of the MAAS global score, as well as the two subscales, namely *Quality* and *Frequency*. The Quality subscale requires the participant to rate qualitatively, their behaviours, thoughts, and feelings about the fetus. The Frequency subscale requires the participant to rate the frequency of their behaviours, thoughts, and feelings about the fetus.
2. The Interpersonal Reactivity Index (Empathy measure; IRI, Davis, 1983a; 1983b), which includes the following subscales: Emotional empathy subscales: *Empathic Concern*, and, *Personal Distress*; and, Cognitive empathy subscales: *Perspective Taking*, and, *Fantasy*.

While subscales such as the cognitively oriented subscale

Perspective taking, and the emotionally oriented subscale Empathic concern, are both 'other' focused, the emotional subscale Personal distress is 'self' focused. The cognitive subscale Fantasy, deals with how one reacts to characters in fiction.

3. Cognitive Adaptation to Stressful Events (in pregnancy) (CASE; Affonso et al, 1994). This is a measure of how preoccupied the pregnant woman is with symptoms, concerns, and worries of the pregnancy. A low-medium rating indicates coping, while a high rating indicates that the individual is highly stressed and preoccupied by these issues.

Developed for this study

1. Marital Satisfaction – a 10-point rating scale, from 1 = 'not at all satisfied', to, 10 = 'very satisfied'
2. Expected supportiveness of partner with new baby – a 10-point rating scale, from 1 = 'not at all supportive', to, 10 = 'very supportive'.
3. Initial reaction to this pregnancy – a 10-point rating scale from 1 = 'not happy at all', to, 10 = 'very happy'.

Results and Discussion

Examination of group differences

Antenatal Attachment (Hypothesis 1). Analyses of Variance, using SPSS, showed that, as hypothesized, antenatal attachment's Global score ($F=7.993$, $p<.001$) as well as the Frequency

score ($F=16.762$, $p<.001$) were indeed higher for FT Moms than TS Moms, but the DS Moms' score did not differ significantly from the other two groups.

Possibly, pregnant women expecting a subsequent child, are busy with their child or children, which leaves them less time to engage in thinking about their developing fetus. Another possibility is that having experienced pregnancy and birth previously, these TS Moms feel less preoccupied with the fetus and pregnancy, and regard it more routine, therefore report less time spent in these activities as described by the Frequency subscale of the MAAS. The DS Moms' scores offer little insight into any possible differences between the groups.

Initial reaction to the pregnancy. The mean responses for each group on the Initial reaction to pregnancy scale were (rated from 1 = not at all happy, to 10 = very happy):

FT Moms – 9.13 (sd = 1.58)
TS Moms – 8.94 (sd = 1.94)
DS Moms – 7.07 (sd = 2.94)

Analyses of Variance, using SPSS, showed that, First time mothers' and Typical subsequent's scores were significantly higher than those of the Down syndrome subsequent ($F=9.349$, $p<.001$).

This simple rating scale has the power to allow the difference between the DS Moms and the other two groups, to show. Here, clearly, the initial reaction to expecting a child is very different for the women who have been mothering a child with Down syndrome. This difference could be related to the group difference in the percent of planned pregnancies, which was as follows: 78.9% FT Moms, 80% TS Moms, and 40% of DS Moms. It should also be noted, however, that the remaining 60% of the DS Moms' group, reported that they were not actively trying to prevent the pregnancy, therefore, should not have been surprised by it. Nevertheless, most DS Moms did not describe their initial reaction to the pregnancy to be as happy as those Moms who were either expecting their first baby, or have already had a typically developing child or children. Anecdotal reports of mothers of a child with Down syndrome, often describe worrying over issues such as the new baby surpassing the development of the child with Down syndrome, therefore highlighting the limitations of their sibling; or, having a child who is developing without a disability automatically assumes that the future needs of the sibling with Down syndrome will have to be met by the non-disabled sibling. Other issues which often concern the parents of a child with Down syndrome, involve the amount of time needed to effectively care and advocate for the child as it grows up, and beyond, thus having little time or energy to devote to other children.

Hypothesis 2 and 3 – Group differences in levels of empathy and stress perception.

This hypothesis was not confirmed by the analyses.

Hypothesis 4 - Antenatal attachment and emotional empathy.

As hypothesized, there were several significant correlations, indicating a strong association between empathy and antenatal attachment. The significant correlations were as follows:

Global Antenatal Attachment (MAAS)

With *Global Empathy (IRI)*

FT Moms – $r=.206$ ($p<.01$)

TS Moms – $r=.320$ ($p<.01$)

With *Empathic Concern subscale of IRI*

FT Moms – $r=.323$ ($p<.01$)
DS Moms – $r=.568$ ($p<.01$)
With *Personal Distress subscale of IRI*
DS Moms – $r=-.597$ ($p<.01$)

Quality subscale of MAAS
With *Empathic Concern subscale of IRI*

Frequency subscale of MAAS
With *Global Empathy (IRI)*
FT Moms – $r=.241$ ($p<.01$)
TS Moms – $r=.425$ ($p<.01$)
With *Empathic Concern subscale of IRI*
FT Moms – $r=.292$ ($p<.01$)
With *Perspective Taking subscale of IRI*
FT Moms – $r=.150$ ($p<.05$)
TS Moms – $r=.285$ ($p<.05$)
DS Moms – $r=.580$ ($p=.05$)
With *Personal Distress subscale of IRI*
TS Moms – $r=.489$ ($p<.05$)
DS Moms – $r=-.585$ ($p<.01$)

The results of the present study indicate that the relationship between empathy and antenatal attachment is not straightforward. Empathy, as anticipated, plays an important role on antenatal attachment, but, depending on the type of empathic component, as well as the parenting status of the pregnant woman, it may be positively or negatively correlated.

We see in the results of the present study:

- That the higher the cognitively oriented component of empathy, as measured by the IRI subscale Perspective taking--the higher the Frequency subscale of antenatal attachment for all three study groups.
- That for the TS and FT Moms, the higher the other-oriented emotional component of empathy, as measured by the Empathic concern subscale of the IRI--the higher the antenatal attachment.
- That, for the DS Moms only, the higher the self-oriented IRI subscale (emotional) Personal distress—the lower the global MAAS and the Frequency subscale of antenatal attachment.
- That, for the TS Moms only, higher the self-oriented IRI subscale (emotional) Personal distress—the higher the Frequency subscale of antenatal attachment.

A possible explanation for this finding may be that, while the Empathic concern and the Perspective taking subscales are clearly ‘other’ focused, the Personal distress subscale is ‘self’ focused. For instance, the Empathic concern subscale consist statements clearly dealing with others. For example:

I often have tender, concerned feelings for people less fortunate than me;

When I see someone being taken advantage of, I feel kind of protective towards them;

Examples of the statements on the Perspective taking subscales are:

I sometimes try to understand my friends better by imagining how things look from their perspective;

When I am upset at someone, I usually try to “put myself in his shoes” for a while;

The Personal distress subscale, on the other hand, clearly describes how upset **the subject** gets when witnessing someone else’s distress. The following are examples of the statements on the Personal distress subscale:

I sometimes feel helpless when I am in the middle of a very emotional situation;

I tend to lose control during emergencies;

The negative correlation between antenatal attachment and the Personal distress subscale which is associated with a focus on ‘self’, appearing only in the group of pregnant women who already are the mothers of a child with Down syndrome, may be indicative of characteristics which may have resulted from that very process of mothering a child with Down syndrome. As pointed out by Quinn (1991), the relationship between mothers and their infants who have disabilities, may not follow the same expected pattern or sequence of those who mother typically developing infants. The difference may be due to characteristics of the infant, the mother, or the social context of the mother-infant relationship. Although infants with Down syndrome may not be emitting cues to elicit maternal solicitude and bonding at the same age that their typically developing counterparts do, they may in fact be promoting extra attention due to their vulnerabilities. Quinn (1991) postulated that more empathic mothers would demonstrate positive attachment with their infants who have Down syndrome. Although the attachment relationship between these pregnant mothers and their children with Down syndrome was not examined in this study, the significant difference between the three study groups’ responses to these two variables, antenatal attachment and the ‘self-focused’ empathy subscale, indicate that having had a child with this particular disability has had some profound impact on these mothers. These mothers demonstrated that, after mothering a child with Down syndrome, ‘self’ oriented traits or reactions are not compatible with having attachment feelings towards their next, preborn, baby. However, if the child one has mothered prior to a present pregnancy is typically developing, having some ‘self’ oriented reactions can coexist with antenatal attachment. For moms expecting a first child, the relationship between these two variables is non-existent. The results of the present study indicate that, empathy, which traditionally has been regarded as a trait, rarely if ever lending itself to change, may be altered by life situations such as, for example, having to care for a child with disabilities.

From a statistical point, these results confirm that the parenting status (as defined for the purpose of this study as FT Moms, TS Moms, and DS Moms) acts as a **MODERATOR** (see Baron and Kenny, 1986) on the relationship between antenatal attachment and the empathy subscale, Personal distress.

Hypotheses 5– Antenatal attachment and stress perception.

Although the correlations among these variables were not all as hypothesized, several were as predicted. For First time mothers, the CASE (Cognitive adaptation to stresses of pregnancy) was significantly negatively correlated with the MAAS’ Quality subscale ($r=-.459$, as well with the MAAS global score ($r=-.230$, $p<.01$). For the Typical subsequent the MAAS subscale Quality was significantly negatively correlated with the CASE ($r=-.376$, $p<.01$), while the Frequency subscale of the MAAS was positively correlated with the CASE ($r=.292$, $p<.05$).

These results suggest that the DS Moms’ attachment scores were not correlated with the stress/coping measure.

For the FT Moms, all correlations between any antenatal attachment subscale or global scale, and the stress perception measure were negative. For this group, prior to the birth of the baby, any associations between anxious feelings and thoughts occur with lower antenatal attachment, and the report of being less stressed is associated with higher antenatal attachment. It is possible that this more “black and white” thinking is the result of the lack of parenting experience. As seen in these results, the TS Moms’ stress perception goes up as the Frequency subscale of the MAAS goes up, but higher stress perception is associated with lower scores on the Quality subscale of the MAAS. Possibly, once one is a parent, one might realize that negative feeling can occur with positive feelings, and as a parent, frustrations and acknowledgement of stressors do not diminish the love and solicitude one has towards one’s child.

It is also possible that the frequency with which one engages in thoughts, feelings, and behaviours towards the fetus (“frequency” subscale) actually denotes more stressful feelings about the fetus and pregnancy in subsequent mothers; but in first time mothers, it actually is indicative of more “healthy” or “normal” preoccupation.

Hypothesis 6 and 7 – Antenatal attachment, expected supportiveness, and marital satisfaction.

Antenatal attachment and expected supportiveness of partner. Only the MAAS subscale Quality and expected supportiveness of partner were significantly correlated, and only for the Typical subsequents ($r=.330$, $p<.05$).

Antenatal attachment and marital satisfaction. Only the MAAS subscale Quality was correlated with marital satisfaction. The correlation between these two variables was approaching significance for the Down syndrome subsequents ($r=.385$, $p<.06$), and was significant for the Typical subsequents ($r=.465$, $p<.01$).

It appears that for the TS and DS Moms, the attachment relationship with their fetus is associated with either their expectations of partner-supportiveness once the child is born, or, with their satisfaction with the relationship with their partner. It is possible, that the reason this does not hold true for FT Moms, is that, not having experienced how their relationship with their partner translates to the reality (supportiveness or lack thereof) of raising a child, they simply do not make the connection beforehand. They may wish for a positive experience, but their “wishful thinking” about supportiveness, or their marital relationship, is not associated with their feelings towards the fetus. However, once having experienced a supportive or non-supportive partner in raising a child – the experience is associated not only with marital (partnership) satisfaction, but also with the mother’s feelings (attachment) towards her fetus. A woman, who during pregnancy knows from experience, that her partner, with whom she has a good relationship, will “be there” for her – has a positive attachment relationship with her fetus. Equally, the woman who is dissatisfied from her relationship with a partner, and who knows from her previous experience with him that he is not likely to be as supportive as she needs him to be once the baby is born – will have a less positive attachment relationship with her fetus.

It has long been identified that, generally speaking, becoming parents may have adverse effects on the quality of the marital relationship (Pape, Cowan and Cowan, 1995). Thus, if the marital relationship survives the first child, that experience has a bearing on how the woman relates to the fetus of a subsequent pregnancy.

Conclusion

The results of this study illustrate the importance of a multidimensional approach when examining the factors associated with antenatal attachment. Our results support the Doan and

Zimmerman (2002) definition of antenatal attachment, highlighting the relevance of cognitive and emotional factors, the ability to conceptualize 'other', and the significance of the partner as part of the pregnant woman's ecological/support system.

Clinical implications and directions for future studies

- Our data indicates that previous parenting experience is an additional and important factor to understanding antenatal attachment. In special populations, such as in mothers of a child with Down syndrome, special care should be taken in assessing the needs of the pregnant woman, as her needs may be different from those of first time mothers, or those who are already mothers of typically developing children. Services, treatment, and professional support should consider the different needs of women according to their previous parenting experience.
- Our study illustrates the importance of both the emotional and cognitive aspects of empathy in antenatal attachment. Therefore, future studies should examine the effectiveness of promotion of empathy during pregnancy, as part of childbirth preparation and prenatal classes.
- The initial reaction to a pregnancy was lower in mothers of a child with Down syndrome, which suggests that early intervention should be considered with this population, during a subsequent pregnancy.
- The simple 10-point rating scale of the initial reaction to a pregnancy should be explored as a possible screening tool for early detection of possible problems.

Limitations of the study

In the generalizability of the present study, one concern is the number and mode of participant attainment of the group, Down syndrome subsequents. The number (15) is clearly much smaller than the other two groups (50 and 171). It should be noted that, all statistical analyses were conducted to accommodate for this cell-size discrepancy.

Another concern is that, due to the difficulty in participant recruitment for the DS Moms group, the mode of participant recruitment and attainment was different than the one for the other two groups. Recruitment for the DS Moms group consisted mostly of advertising for the study in newsletters and websites addressing Down syndrome, while the two other groups were recruited mainly from childbirth education classes.

References

Affonso, D.D., Mayberry, L.J., Lovett, S.M., & Paul, S. (1994). Cognitive adaptation to stressful events during pregnancy and postpartum: Development and testing of the CASE instrument. *Nursing Research, 43* (6), 338-343.

Alterman, A. I., McDermott, P. A., Caciola, J. S., and Rutherford, M. J., (2003). Latent structure of the Davis Interpersonal Reactivity Index in Methadone maintenance patients. *Journal of Psychopathology and Behavioural Assessment, 25* (4), 257-265.

Baron, M. and Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173-1182.

Condon, J. T. (1993). The assessment of antenatal emotional attachment: Development of a questionnaire measurement. *British Journal of Medical Psychology, 66*, 167-183.

Coffman, S., Levitt, M., and Brown, L. (1994). Effects of clarification of support in prenatal couples. *Nursing Research*, 43(2), 111-116.

Davis, M. H. (1983a). The effects of dispositional empathy on emotional reactions and helping: a multidimensional approach. *Journal of Personality* 51(2), 167-184.

Davis, M. H. (1983b). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44(1), 113-126.

Doan, H. McK., And Zimerman, A. (2002). Prenatal attachment: Where do we go from here? *The International Journal of Prenatal and Perinatal Psychology and Medicine*, 14(3/4), 177-188.

Doan, H. McK., and Zimerman, A. (2003). Conceptualizing prenatal attachment: Toward a multidisciplinary view. *Journal of Prenatal and Perinatal Psychology and Health*, 18(2), 109-130.

Hannush, M. J. (2002). *Becoming Good Parents: an existential journey*. State University of New York Press, Albany, New York.

Pape Cowan, C. and Cowan, P. (1995). Interventions to ease the transition to parenthood: Why they are needed and what they can do. *Family Relations*, 44, 412-423.

Perez-Albeniz, A., and de Paul, J. (2003). Dispositional empathy in high- and low-risk parents for child physical abuse. *Child Abuse and Neglect*, 27(7), 769-780.

Quinn, M.M. (1991). Attachment between mothers and their Down syndrome infants. *Western Journal of Nursing Research*, 13(3), 382-392.

Zimerman, A., and Doan, H. McK. (2003). Prenatal attachment and other feelings and thoughts during pregnancy in three groups of pregnant women. *Journal of Prenatal and Perinatal Psychology and Health*, 18(2), 131-148.

Zimerman, A. (2003). Prenatal attachment, empathy, and cognitive adaptation to pregnancy subsequent to having a child with Down syndrome. *Journal on Developmental Disabilities*, 10(1),141-150.