

## Prenatal Attachment and Other Feelings and Thoughts During Pregnancy in Three Groups of Pregnant Women

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**Publication info:** Journal of Prenatal & Perinatal Psychology & Health 18. 2 (Winter 2003): 131-148.

[ProQuest document link](#)

**Abstract:** None available.

**Full Text:** Headnote ABSTRACT: It has been established that attachment to one's preborn child is often associated with attachment with the child after the birth (Benoit, Parker, & Zeanah, 1997; Muller, 1996; Fuller, 1990). Also attachment between child and primary care giver has been shown to be paramount to the emotional well being of children (Bowlby, 1969; Ainsworth, 1985a). As well, attachment to one's fetus may contribute to lower risk of child abuse (Pollock & Percy, 1999). There has been considerable interest in the past 20 years in antenatal attachment and its correlates. Despite some contradictory results, the literature highlights that prenatal attachment is likely contextual (i.e., it interacts with demographic, situational, and personality variables, and is influenced by, for example, culture, age, social and health-related support, marital relationship, etc.; Salisbury, Law, LaGasse, & Lester, 2003). However, pregnancy occurring when one is already a mother, is infrequently examined. Further, the context of a mother of a child with disabilities who is expecting another baby, constitutes an intuitively important, yet neglected area in the study of prenatal attachment. This paper reports results of a study where mothers of a child with Down syndrome (DS) who are pregnant again, pregnant mothers of 'typically' developing child(ren), and first-time mothers-to-be, were surveyed on a number of areas related to prenatal attachment. Results indicated that there were group differences in a number of domains. For example, initial reaction to pregnancy was less joyful for mothers of a child with DS; prenatal attachment was lower in mothers expecting a subsequent baby; and women expecting their first child spent more time in prenatal attachment behaviors than those expecting a subsequent baby. As well, correlations among the variables were different in the three groups. An interesting finding was that half of the DS group did not plan this pregnancy (compared with only 20% and 21% respectively for the other groups), and cited religious or moral reasons for having the baby. Further study is needed in order to, improve the knowledge in the area of subsequent pregnancy, especially after having a child with disabilities, and to enhance clinical and social service delivery systems for this population. Headnote KEY WORDS: prenatal attachment, empathy, subsequent pregnancy, Down syndrome. INTRODUCTION The optimal environment for a developing child is one in which parents exhibit behaviors which are supportive and sensitive to the child's needs, and which lead to strong and positive parent-child attachment (Ainsworth, 1985; Bowlby, 1969). A positive attachment between parent and child means that the child can expect the parent to correctly interpret and fulfill his/her physical, emotional, and cognitive needs most of the time. A positive attachment with a primary caregiver sets the foundation for lifelong patterns in future relationships. There are many factors that may contribute to an optimal attachment between parent and child and recent research suggests that this relationship can start prior to the birth of the child. For example, it has been demonstrated that mothers' attachment-promoting behaviors (e.g. holding, kissing, etc.) are correlated with, among others, the following: positive attitudes during pregnancy, emotional attachment to the preborn, and cognitive adaptation to the pregnancy (accepting the pregnancy, preparing for the maternal role, etc) (Bryan, 2000; Fonagy, Steele & Steele, 1991; Muller, 1996; Stoleru, Grinshpoun, Guillet, & Morales-Huet, 1995). Prenatal attachment has held the interest of researchers and clinicians alike for several decades now. However, it is considered a relatively new concept still in need of much study (Doan and Zimmerman, in press; Salisbury, Law, LaGasse, & Lester, 2003). Nevertheless, there is ample evidence that expectant parents experience feelings towards their preborn children, which can be expressed and measured using paper-pencil instruments (Condon, 1993; Cranley, 1981a; Muller, 1993). In addition, these

instruments can detect a range of responses indicating prenatal attachment from low to high (Doan & Zimmerman, in press). In some cases, the way women rate their feelings on these prenatal attachment scales predicts their bonding behaviors once the child is born (Benoit, Parker & Zeanah, 1997; Condon & Corkindale, 1997; Fonagy, Steele & Steele, 1991; Muller, 1996). Condon and Corkindale (1997) state that a strong attachment to one's fetus should result in the wish to safeguard it both pre- and postnatally and therefore reduce the risk of abuse or neglect. On the other hand, difficulties in adapting to pregnancy, as well as a lower level of attachment to the fetus, may indicate potential problems in the relationship between mother and child (Pollock & Percy, 1999). As well, according to Ainsworth (1985), promoting a positive attachment between mother and child depends largely on the mother's ability to sensitively interpret and respond to her child's cues. Although directly it is sensitivity that Ainsworth and others discuss, empathic ability has been implicated as an important attribute leading to sensitive responding (Quinn, 1991). Quinn (1991) examined the attachment patterns of youngsters with Down syndrome and related them to their mothers' empathic ability and perceived social support. She found a significant, albeit small, positive correlation between mothers' empathy and the dyadic attachment patterns. Quinn's study supports the notion that empathy should have a function in any theory on parenting. The question remains: does a general empathic ability enhance the ability to effectively parent a child; and further, is empathic ability related to "prenatal parenting," as seen in prenatal attachment? When a child with disabilities is born, parents are faced with a plethora of issues additional or different from those of parents of children without disabilities. Although a large body of literature describes most aspects of the challenges these parents face, a rarely discussed matter is the experience of these parents when they have additional children. In fact, the matter of subsequent pregnancies (and children) is generally a rarity in the literature. Frequently, when data is collected separately from women pregnant with a first child and women who are pregnant and already have a child(ren), the data ends up collapsed across the groups for lack of sufficient differences between them (e.g., Mercer, Ferketich, May, DeJoseph & Sollid, 1988; Wilson, White, Cobb, Curry, Greene & Popovich, 2000). The lack of adequate research about the psychological processes during a pregnancy in women who are already mothers of one or more child(ren), with or without disabilities, raises the issue of the effect of motherhood on a subsequent pregnancy. For example, one could ask about the concerns and the experience of parents of a child with DS who are expecting another child. And further, one can question what can be learned from that experience which may help parents understand and cope better with subsequent pregnancies and their respective expanding family. The present study, which is part of a larger project in progress, is a comparison of three groups of expectant mothers: those expecting their first child, those expecting a baby after having a 'typically' developing child or children, and those who are pregnant subsequent to a child with Down syndrome. The three groups are compared on measures of prenatal attachment, empathy, initial reaction to pregnancy, and a number of satisfaction and demographic variables. As mentioned above, a gap in the literature on prenatal and early parenting experience is the lack of sufficient and appropriate research on the experience of subsequent pregnancy for parents of either 'typically' or 'atypically' developing children. An examination of the literature on prenatal attachment and the early parenting experience results in some unanswered questions, to which an attempt at answers is presented here: Do women who experienced raising a 'typically' developing child, an 'atypically' developing child, and those who have not yet experienced mothering at all, differ in their prenatal attachment and empathy? What are the correlates of prenatal attachment, and do they differ in the three groups? METHOD Participants The study was advertised in prenatal programs such as preparation for childbirth programs, pregnancy exercise classes, etc., physicians' offices, and community newspapers. As well, in order to recruit pregnant women who had a child with Down syndrome already, the study was advertised in Down syndrome websites, newsletters and two national conferences. The sample was comprised of the following three groups: one hundred and seventy-one women expecting a first child (FT); fifty women expecting subsequent to a 'typically' child or children (TS); and, twelve women expecting subsequent to a child with Down syndrome (DS). First group: Expecting a first child (FT). One-hundred-and-seventy-one women, expecting their

first child, responded. They ranged in age from 20 to 41.4 years, with a mean age of 30.6. One hundred and ten (64.3%) were working full time; 16 (9.3%) worked part time or on contract; 27 (15.8%) were on maternity leave; seven (4.1%) were homemakers; five (2.9%) students; and five (2.9%) were unemployed. On average, they were highly educated, three (1.8%) reported having completed only grade school; and 10 (5.8%) were high school graduates; fourteen (8.3%) had some university or college; one hundred and five (61.4%) had an undergraduate degree; and 38 (21.3%) had a graduate degree. Their total family income was on average in the \$60,000 to \$70,000 range. One hundred and sixty seven (96.5%) were married or in a permanent relationship. The mean length of years living together was 3.7 years, ranging from four months to 12 years. Twenty-two (12.9%) planned to share parental leave with their partner. For 147, it was their first pregnancy, and 24 have experienced a previous pregnancy loss (14%). For 18 of the women, who experienced a previous loss, it was their second pregnancy; for five it was their third; and for one it was her 8th pregnancy. The mean gestational time (number of weeks pregnant) was 30.3 weeks, ranging from 12 to 39 weeks. This group of 24 women was included in the analyses because their prenatal attachment scores were not significantly different from the rest of the group.

Second group: Expecting a child subsequent to a 'typical' child or children (TS). Fifty women who were already mothers of at least one child responded. They ranged in age from 27 to 41.9 years, with a mean age of 34.2 years. Twenty-seven (54%) were working full time; nine (18%) were working part time or contracts, two (4%) were on maternity leave; 11 (22%) were homemakers/stay at home mothers; and one (2%) was unemployed. This group as well was educated: one (2%) finished high school; five (10%) had some college or university education; thirty five (70%) had an undergraduate degree or diploma; and nine (18%) had a graduate degree. The total family income for this group was on average in the \$70,000 and above range. All but one woman in this group were married or living with a partner (98%). The average length or cohabitation was 6.5 years, ranging from 1.5 years to 17 years together. Three (6.2%) were going to share maternity leave with their partner. For 31 (62%) it was their second pregnancy, for 13 (26%) it was their third, for two (4%) it was their fourth, for two (4%) it was their fifth, and for two (4%) it was their sixth pregnancy. Ten (20%) women in this group had also experienced a loss in pregnancy. Again, this group of women who experienced a previous loss in pregnancy did not differ from the rest of this group in their prenatal attachment scores, and therefore their responses were also included in the analyses. The mean gestational time (number of weeks pregnant) was 31.3 weeks, ranging from 14 to 39 weeks.

Third group: Expecting a subsequent to a child with Down syndrome (DS). Twelve women who were already mothers of a child with Down syndrome responded. They ranged in age from 28 to 41.9 years, with a mean age of 35.7 years. Three (25%) were working full time; two (16.7%) were working part time; five (41.6%) were homemakers/stay at home mothers; one (8.3%) was on disability; and one was a volunteer (8.3%). This group was also well educated: one (8.3%) finished high school; five (31.7%) had some college or university education; three (25%) had an undergraduate degree or diploma; and three (25%) had a graduate degree. The total family income for this group was on average in the \$60,000 to \$70,000 range. All the women in this group were married or living with a partner. The average length or cohabitation was 8.25 years, ranging from 3 years to 15 years together. None of the women in this group were going to share maternity leave with their partners. For three (25%) it was their second pregnancy, for four (33.3%) it was their third, for four (33.3%) it was their fourth, and for one (8.3%) it was the 7th pregnancy. Two (16.7%) women in this group had also experienced a loss in pregnancy. The mean gestational time (number of weeks pregnant) was 26.3 weeks, ranging from 12 to 38 weeks.

Instruments The Maternal Antenatal Attachment Scale (MAAS, Condon, 1993). This is a 19-item self-report paper and pencil questionnaire which was validated through item analysis where the 19 retained items achieved a high internal consistency of  $\alpha=.818$ . Factor analysis yielded two distinct factors, namely, quality of attachment ("Quality"; 10 items), and, time spent in attachment mode, also known as frequency of attachment behaviors and feelings ("Frequency"; 9 items). For example, one item (with possible responses) which is included in the Quality factor is: "Over the past two weeks my feelings about the baby inside me have been: (a) very weak or non-existent; (b) fairly weak; (c) in between strong and weak; (d) fairly

strong; (e) very strong". An example of an item loading on the "Frequency" subscale is: "Over the past two weeks I have been trying to picture in my mind what the developing baby actually looks like in my womb: (a) almost all the time; (b) very frequently; (c) frequently; (d) occasionally; (e) not at all". The items were scored from "0" to "4", yielding a possible range of scores of: 0 to 76 for the total MAAS; 0 to 40 for the Quality subscale; and, 0 to 36 for the Frequency subscale. The Interpersonal Reactivity Index (IRI, Davis, 1983 a; 1983 b). The IRI is a self-report questionnaire, comprised of 28 statements, which has been well validated. Davis describes the IRI as possibly the only empathy measure which takes both the cognitive as well as the emotional aspects of empathy into consideration. It is rated on a five-point scale from "0" to "4" indicating degree of agreement with statements from low to high. The IRI is comprised of four subscales which have consistently been shown, through factor analyses, to be 'distinct'. They are: a) Perspective taking-a cognitive aspect of empathy; b) Fantasy-also a cognitive aspect of empathy; c) Empathic Concern-an emotional aspect of empathy, and d) Personal Distress-also an emotional aspect of empathy. Each subscale consists of seven items. Reliability for all subscales has been shown to be satisfactory ranging from .71 to .77 for internal reliability and, .62 to .72 for test-retest reliability. The Open-ended Questions and Demographic Questionnaire. This questionnaire was developed for this specific study and had three general sections: information about the mother-to-be (basic demographic questions for a total of 18 scaled and five open-ended questions), information about the pregnancy and baby (21 questions, five of which were open-ended and required describing feelings and thoughts about the pregnancy and baby, and five open-ended questions requiring factual information in regards to prenatal testing and problems, if any, with the pregnancy), and information about the woman's relationship with her partner (eight questions about the perceived relationship between the woman and her partner, for example, level of marital satisfaction; level of expected supportiveness with the baby). Procedure Women responded to the advertising or personal requests by indicating their interest in the study. They were then either emailed a questionnaire package, or mailed by post a questionnaire package and a self-addressed stamped envelope. The completed questionnaires arrived either by post or email. RESULTS As can be seen in Table 1, the MAAS subscales of Frequency and Quality were not correlated in either of the subsequent groups (TS and DS), but they were significantly correlated for the FT group. Table 2 describes the means, standard deviations, and the range of scores on the MAAS. Using SPSS, ANOVAs revealed differences between the groups on the MAAS total mean score and the MAAS frequency subscale mean score, and the mean rating of the initial reaction to the pregnancy (not-happy-at-all to very happy).

**Table 1**  
**Intercorrelations among the MAAS Total Score and the**  
**Frequency and Quality subscales**

<i>Group</i>	<i>Scale</i>	<i>MAAS</i>	<i>Quality</i>	<i>Frequency</i>
FT n = 171	MAAS	—	.818**	.876**
	Quality	.818**	—	.458**
	Frequency	.876**	.458**	—
TS n = 50	MAAS	—	.714**	.852**
	Quality	.741**	—	.252
	Frequency	.852**	.252	—
DS n = 12	MAAS	—	.746**	.866**
	Quality	.746**	—	.364
	Frequency	.866**	.364	—

*Note.* MAAS—Maternal Antenatal Attachment Scale—total score; Quality—quality subscale of the MAAS; Frequency—frequency subscale of MAAS; FT—first-time mothers; TS—pregnant women who are already mothers of 'typically' developing child(ren); DS—pregnant women who are mothers of a child with Down syndrome. \*\*  $p < .01$ .

Although the mean fetal attachment score (MAAS) was similar for the two subsequent groups (TS = 53.98; DS = 54.17), only the TS group was significantly lower than the FT group (FT = 57.55;  $p = .001$ ). There were no

group differences on the Quality subscale of the MAAS. However, both subsequent groups had significantly lower mean scores on the Frequency subscale than did the FT group (FT = 21.18; TS = 17.62; DS = 18.17; FT >TS,  $p = .000$ ; FT >DS,  $p = .039$ ). Rating their initial reaction to the pregnancy was significantly lower for the DS group than either of the other two groups (mean scores on a 10-point scale where 1 = not-at-all-happy, and 10 = very happy; FT = 9.13; TS = 8.94; DS = 7.00;  $p = .000$ ). Correlations The variables of prenatal attachment (MAAS Total, Frequency, and Quality scores), empathy (Total, Perspective Taking, Fantasy, Empathic Concern, and Personal Distress), marital satisfaction, expected supportiveness of partner, initial reaction to pregnancy of the mother-to-be, the perceived initial reaction of the Dad-to-be to the pregnancy (as reported by the mother-to-be), and regarding the fetus as a person, were intercorrelated for each of the three study groups. Following is the description of the significant correlations.

**Table 2**  
**Means, Standard Deviations, and Range of Scores**  
**on the MAAS**

Scale		MAAS	Quality	Frequency
Possible range		0–76	0–40	0–36
<b>Group</b>				
FT n = 171	mean	57.55	35.99	21.18
	SD	6.25	3.28	4.12
	range	36–70	22–40	11–30
TS n = 50	mean	53.98	36.04	17.62
	SD	5.57	3.27	3.99
	range	33–68	23–40	8–29
DS n = 12	mean	54.17	35.83	18.17
	SD	6.21	3.07	4.26
	range	45–66	29–40	11–26

*Note.* MAAS—Maternal Antenatal Attachment Scale—total score; Quality—quality subscale of the MAAS; Frequency—frequency subscale of MAAS; FT—first-time mothers; TS—pregnant women who are already mothers of ‘typically’ developing child(ren); DS—pregnant women who are mothers of a child with Down syndrome. \*\*  $p < .01$ .

Correlations for the MAAS Total, and the Frequency and Quality Subscales The FT group. Fetal attachment (total MAAS score) was significantly correlated with Reaction to pregnancy ( $r = .277$ ,  $p = .000$ ), the Empathy subscale of Concern ( $r = .323$ ,  $p = .000$ ), the total Empathy score ( $r = .206$ ,  $p = .007$ ), and with Regarding the fetus as a person ( $r = .381$ ,  $p = .000$ ). For the Quality subscale the significant correlations were with: the Reaction to pregnancy ( $r = .389$ ,  $p = .000$ ), the Empathy subscale of Concern ( $r = .264$ ,  $p = .000$ ), and Regarding the fetus as a person ( $r = .415$ ,  $p = .000$ ). The Frequency subscale was correlated with the Empathy subscale of Concern ( $r = .292$ ,  $p = .000$ ), Regarding the fetus as a person ( $r = .260$ ,  $p = .001$ ), and the total Empathy score ( $r = .241$ ,  $p = .002$ ). The TS group. Total MAAS score was correlated with total Empathy score ( $r = .320$ ,  $p = .024$ ), and with regarding the fetus as a person ( $r = .375$ ,  $p = .007$ ). The fetal attachment subscale of Frequency was correlated with the following two Empathy subscales: Fantasy ( $r = .284$ ,  $p = .046$ ), Distress ( $r = .489$ ,  $p = .000$ ), Perspective taking ( $r = .285$ ,  $p = .045$ ) and the total Empathy score ( $r = .425$ ,  $p = .002$ ). The fetal attachment subscale of Quality was correlated with Regarding the fetus as a person ( $r = .504$ ,  $p = .000$ ). The DS group. The fetal attachment subscale of Quality was correlated with the Empathy subscale of Concern ( $r = .639$ ,  $p = .025$ ). The fetal attachment subscale of Frequency was correlated to the Empathy subscale of Perspective taking ( $r = .795$ ,  $p = .002$ ). Other Correlations The only two variables which were significantly correlated for all three groups were marital satisfaction and expected supportiveness of partner (FT:  $r = .727$ ,  $p = .000$ ; TS:  $r = .577$ ,  $p = .000$ ; DS:  $r = .846$ ,  $p = .001$ ). For the FT group, marital satisfaction was correlated with mother's reaction to the pregnancy as well as the perceived reaction of the father-to-be to the pregnancy (mother's-to-be reaction:  $r = .362$ ,  $p = .000$ ; father's-to-be reaction:  $r = .459$ ,  $p = .000$ ). In other words, the higher the marital satisfaction as reported by the mother-to-be, the happier her reported initial reaction to the pregnancy and her

perception of her partner's reaction to the pregnancy. For the DS group, the total Empathy score was significantly correlated with the father's-to-be reaction to the pregnancy ( $r = .684, p = .014$ ). Decision to Have This Child and Initial Feelings Table 3 describes the reasons cited for having the unplanned child. The DS group. Six of the 12 participants stated that they did not plan the current pregnancy. The timing of the pregnancy was causing difficulties only for one of those (16.6%). Of the six whose present pregnancy was planned, three disclosed that they postponed pregnancy until health or behavior issues of their child with DS were settled; one thought that the child with DS should have a younger sibling; and one "always wanted another child." Five women in the unplanned pregnancy group were continuing with the pregnancy, citing religious/moral beliefs, for example: "God's plan," "He knows what's best for us," and "Don't believe in abortion." Two described their initial feelings about the pregnancy as joyful. The remaining ten all expressed some level of anxiety, fear, shock or anger. For example, six women were worried about the reaction of older child(ren), partner or extended family, while three of them had worries about the health of the baby, and one was outright angry and disappointed to be pregnant.

**Table 3**  
**Reasons for Having the Unplanned Child**

<i>Group</i>	<i>FT</i> <i>n = 36</i>	<i>TS</i> <i>n = 10</i>	<i>DS</i> <i>n = 6</i>
God's will	0	0	4 (66%)
Won't abort	8 (22%)	3 (30%)	1 (16%)
Its time/meant to be	8 (22%)	3 (30%)	1 (16%)
Blank	6 (16%)	0	0

The FT and TS groups. Thirty-six of the present pregnancies were not planned (21%) for the FT group, and the timing of the pregnancy was causing difficulty for 12 (33%) of them. When citing reasons for having this a child at this time, 12 (33%) said that they were happy anyway, eight (22%) cited the moral reason that they would not consider an abortion, and ten (36%) said "it was time anyway." Six (16%) did not complete this section. The TS group's rate of unplanned pregnancies was similar at 20% ( $n = 10$ ) and the timing of the pregnancy was causing difficulty for three (33%) of those. They reported similar reasons for going on with the pregnancy to the FT group: four (40%) were happy anyway, three (30%) would not consider abortion, and three (30%) felt "it was time anyway." DISCUSSION Group Differences on Prenatal Attachment and Initial Reaction to the Pregnancy The main objective of this study was to examine whether the experience of being a mother to either a 'typically' or "atypically" developing child would impact on variables such as prenatal attachment and empathy. The results of this study showed that there were differences in the way women expecting their first child and those who are already mothers, responded to these paper-pencil measures of prenatal attachment. The TS group rated their fetal attachment significantly lower than the FT group which corroborates previous research, for example, Siddiqui, Hagglof, and Eisenmann (1999). The DS group's mean score was very similar to the TS mean score, yet it did not differ significantly from the FT group's score. Although the difference between the score of the DS group and the FT group was not significant, it may be that the small size of the DS group contributed to that. These group differences in prenatal attachment contradict the finding of studies such as Armstrong (2002) who found that couples, pregnant either for the first time, or subsequent to a successful or failed pregnancy, did not differ in prenatal attachment. A previous study by Armstrong and Hutti (1998), however, found that pregnant women after a loss in pregnancy had significantly lower prenatal attachment scores than those pregnant for the first time. The present study suggests that mothers of children with DS do not have lower prenatal attachment scores in a subsequent pregnancy than mothers of 'typically' developing children. It appears that the difference in the Total fetal attachment score stems from the significant difference on the Frequency subscale. For this subscale both DS and TS groups scored significantly lower than the FT group, yet there were no group differences on the Quality subscale. Items of the Frequency subscale include a

frequency measure of the following: preoccupation with the baby, trying to picture the baby, talking to the baby, taking care of what she (the Mother) eats, desire to read about the developing baby, dreams about the baby, and feeling or rubbing the pregnant belly. The Quality subscale was not different for the three groups. Items on the Quality subscale depict the degree of affection the mother-to-be experiences towards the baby, for example: the degree of sadness or happiness when thinking about the baby, loving or irritable feelings towards the baby, feeling emotionally close or distant to the baby, etc. It appears that, as groups, all three had equally high levels of Quality of attachment. The differences in the Frequency subscale might be due to the fact that when a woman already has a child or children, regardless of whether they have a disability, her preoccupation is divided between the children she is caring for, and the one she is still carrying inside. What remains unclear is the implication of the difference in one subscale and not the other. If the importance of this measure lies in the Quality subscale, then the difference in the Frequency subscale is not of a concern. However, if the Frequency subscale is as important, or more, as the Quality, then further research is needed to examine the implication of this significant difference. Certainly, the two MAAS subscales are distinctly different, as Condon initially suggested (1993), only in the group of women expecting a subsequent child. The data of this study suggest that this is not the case for women expecting their first child, and that there is an overlap in the two subscales in this group. An interesting finding is that for women expecting their first child, the total fetal attachment score is significantly correlated with a simple rating scale on the degree of happiness when the woman first discovers that she is pregnant ("initial reaction to pregnancy"). Using the Maternal Fetal Attachment Scale (MFAS; Cranley, 1981), Doan and Green (2001) similarly found that, using the same rating scale, the MFAS was correlated to the initial degree of happiness to the pregnancy. Although this correlation does not occur for women who are already mothers, it nevertheless may be a potentially useful tool to identify problems with fetal attachment in early pregnancy for firsttime mothers. Due to the fact that most of the first time mothers were recruited from prenatal programs, a selection bias may be present. Therefore further investigation should take place to verify this finding using other recruitment methods, for example, in obstetricians' offices. The Reaction to pregnancy scale, where a mother-to-be rates her initial degree of happiness with the pregnancy, was significantly lower (less happy) for women who were mothers of a child with DS. While we could not differentiate between the two groups of subsequent pregnant mothers on the attachment scale, the difference was obvious in their initial reaction to pregnancy. The implication for clinical practice is that when mothers of a child with DS are pregnant again, and are not happy with the new pregnancy, it should not be assumed that they will have problems with prenatal attachment.

**Empathy and Prenatal Attachment Correlations** Although no significant differences between the groups were found on any subscales of Empathy, the pattern of correlations with this measure differed for the three groups. The following points are of particular interest: \* The total Empathy score was correlated to the total fetal attachment score for the FT and TS groups, as was the Frequency subscale of fetal attachment. Possibly, the lack of correlation for the DS group can be attributed to the small group size. \* For the FT group, the Concern subscale, which measures items such as feeling sorry for others who have problems, or having tender feelings towards people who are less fortunate, was significantly correlated with both the total fetal attachment score, and its Frequency subscale. However, for the two subsequently pregnant groups, the subscale Concern was correlated only with the Quality subscale of fetal attachment. This finding further supports the distinctiveness of the two attachment subscales for women who are pregnant with a subsequent child, but not for those expecting their first child. Further, the subscale of Concern, which depicts a reflective, sensitive to others, aspect of empathy, is correlated with the Quality subscale of fetal attachment which also describes being attentive and sensitive to another being, one that is developing within the woman. \* Both the Fantasy, (a cognitive subscale measuring item such as: "I really get involved with the feelings of the characters in a novel") and the Distress, (an emotional subscale with items such as: "In emergency situations I feel apprehensive and ill-at-ease") were correlated with the Frequency subscale of fetal attachment for the DS group only. The DS group's responses on these subscales and their correlations with the Frequency subscale

of fetal attachment might reflect that their preoccupation with the fetus is related to these particular aspects of Empathy. This relationship may be due to the fact that being faced with, and then parenting a child with Down syndrome might highlight the relative helplessness and lack of control one has over one's life's outcomes. However, most of the mothers of children with DS did stress the fact that it was possible and even rewarding to raise a child with disabilities. The Distress subscale deals with one's ability or inability to be effective in difficult situations. It therefore makes sense that the groups of mothers who have dealt with difficult situations from the time their child with DS was born, relate to fetal attachment in terms of their degree of ability to deal with difficult situations. \* The Perspective subscale, another cognitive subscale measuring items such as and trying to "put myself in his shoes" when one is upset at someone, was correlated with Frequency (Fetal attachment subscale) for the DS and TS groups only. Again, one wonders about the effects of parenting a child on one's ability to see things from the standpoint of another. Parenting requires the skill of interpreting the child's motivation in order to understand the child's behavior. It follows that the ability to interpret a child's cues is possibly a skill that develops through parenting, and is reflected in the correlation with the frequency of preoccupation with the fetus, during a subsequent pregnancy. What these correlations with the Empathy and Fetal attachment indicate, is that, as hypothesized, empathy, or aspects of empathy, plays a role in fetal attachment. Further, it supports the possibility that some aspects of empathy are enhanced and continue to develop as a result of raising a child, especially with disabilities. The notion of increase empathic ability in parents of children with disabilities was first presented by Solnit and Provence (1979). They posited that, with competent parents, a child with disabilities evokes extra attention and this may result in the enhanced development of empathy. Expectations of Supportiveness and Marital Satisfaction The correlation between the measures of marital satisfaction and the expected supportiveness of the partner once the baby is born, is hardly surprising. Coffman, Levitt and Brown also found that marital satisfaction and expected mutual supportiveness were highly correlated in couples expecting their first child and more so for women (1994). However, what does seem curious is the fact that the strongest correlation is in the DS group, followed by FT group. It seems that women who have yet to experience parenting, may have a more idealized expectation of supportiveness, which relates to their satisfaction with their marriage. However, for women who are raising a child already, it may be more apparent that the two, marital satisfaction and supportiveness with the child, are not dependent on one another, therefore the correlation is weaker. However, women who have a child with DS may experience parenting differently from those with a 'typically' developing child. For example, there might be more time spent in medical appointments, social services, and educational concerns. Possibly, for some women, having to partake in whatever raising a child with DS entails, might also strengthen the marital relationship. This is further supported by the findings of Trute and Hauch (1988), who pointed out that having a child with disabilities, can actually strengthen the marital relationship. Unplanned Pregnancies The DS group differed significantly from both other groups, both on the reported rate of unplanned pregnancies (i.e., 50% for the DS group), and the reasons for having the child at this time. Again, the small sample size of the DS group prompts us to caution against generalizing these results. As well, none of the subjects in the DS group were recruited from prenatal programs whereas the vast majority of both other groups were. Notwithstanding these factors, the groups did not differ significantly on any demographic variables but their age and length of relationship. The majority of the unplanned DS group gave spiritual/religious reasons for having the unplanned baby. Religiosity and spirituality in families of children with DS has been previously noted. In a review of the literature, Byrne and Cunningham (1985) did not find religion to be a factor in family adjustment (in families of children with disabilities). On the other hand, Gan-Wong (1991) found that families of children with Down syndrome reported that they used religion as a way of coping and finding hope. Coping in families of children with cognitive disabilities was also found to be related to religiosity and moral beliefs by Nihira, Meyers, & Mink (1980). This is not to say that the women in the present study did not have previous religious or spiritual beliefs, but rather, that after having a child with DS, they were more likely to draw on these beliefs, especially when explaining another pregnancy. Presumably, if one can accept the



existence of a child with DS as part of God's will, a subsequent unplanned pregnancy would warrant the same explanation. SUMMARY AND RECOMMENDATIONS The results presented and discussed here provide a foundation for further study in the areas of prenatal attachment, empathy, parenting a child with developmental disabilities, and their inter-relationships. There is a suggestion that the experience of being a mother has an influence on how a woman perceives, reacts and relates to, and develops with a subsequent pregnancy. It is expected that as the study continues, the number of women in the DS group will grow. A larger sample size in this group will afford the project the validity when analyzing the data further. For one, regression analysis will likely result in a theoretical model explaining prenatal attachment and its correlates. References

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**Publication title:** Journal of Prenatal & Perinatal Psychology & Health

**Volume:** 18

**Issue:** 2

**Pages:** 131-148

**Number of pages:** 18

**Publication year:** 2003

**Publication date:** Winter 2003

**Year:** 2003

**Publisher:** Association for Pre & Perinatal Psychology and Health

**Place of publication:** Forestville

**Country of publication:** United States

**Journal subject:** Medical Sciences--Obstetrics And Gynecology, Psychology, Birth Control

**ISSN:** 10978003

**Source type:** Scholarly Journals

**Language of publication:** English

**Document type:** General Information

**ProQuest document ID:** 198785522

**Document URL:** <http://search.proquest.com/docview/198785522?accountid=36557>

**Copyright:** Copyright Association for Pre & Perinatal Psychology and Health Winter 2003

**Last updated:** 2010-06-06

**Database:** ProQuest Public Health

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