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**The expected child versus the actual child: implications for the mother-baby  
bond**

Helen Pearce

St. George's Hospital Medical School, London, U.K.

Susan Ayers

City University London

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Pearce, H., & Ayers, S. (2005). The expected child versus the actual child: Implications for the mother-baby bond. *Journal of Reproductive and Infant Psychology*, 23(1), 89-102.

## **The expected child versus the actual child: implications for the mother-baby bond**

### **Abstract**

The aim of this study was to examine whether women's perceptions of their infant remain stable between late pregnancy and the early postnatal period, and to examine the effect of women's expectations and evaluations of their infant on the mother-baby bond. Participants completed questionnaires at 39 weeks gestation and 3 weeks after birth. Questionnaires measured demographic details, expected/actual infant characteristics, symptoms of anxiety & depression and the mother-baby bond (postpartum only).

It was found that there was a significant difference between expectations and evaluations, with infants being perceived as less fussy, more adaptable and dull than they were expected to be. Both expectations of the baby and evaluation of the baby had a significant effect on the mother-baby bond. Women who expected their infant to have a more difficult temperament and then evaluated them similarly, reported a poorer mother-baby bond postpartum. Symptoms of anxiety and depression in pregnancy were unrelated to expectations of the baby, or to the postnatal mother-baby bond. The effects of parity and postnatal anxiety and depression were also examined. The results are discussed with a view to that a subgroup of women who have negative perceptions of their infant before and after birth may be at risk of mother-infant attachment problems and long-term mother-infant difficulties.

**Key words:** infant characteristics, mother-baby bond, expectations

## **Introduction**

Pregnancy gives a woman time to prepare herself for a completely new role. It is a time during which she can anticipate the arrival of her new baby and the consequent changes to her life. Previous research demonstrates that mothers develop a coherent mental representation of their infants during pregnancy, although it is not clear whether this representation changes after the baby is born. Similarly, research has not examined the effect of women's expectations of her infant on the subsequent mother baby bond; or whether a mismatch between women's expectations of the infant and the actual infant has an affect on the mother-baby bond. The current study addresses these points.

Research looking at women's representations of their infants during pregnancy has found that at 37 weeks gestation mothers can abstractly describe their infant's personality and their anticipations about his or her appearance (Zeanah, Keener & Anders, 1986). Other studies have shown that parents' perceptions of their infant's temperaments remain stable during the course of pregnancy (e.g. Mebert 1989; Mebert, 1991). However, research looking at whether women's perceptions of her infant change between pregnancy and postpartum has inconsistent results. For example, Benot, Parker & Zeanah (1997) found that maternal classification of their infant remains stable from the third trimester of pregnancy to 12 months postpartum. In contrast, Mebert (1991) found maternal perceptions of infant temperament to be more favourable after birth than they were during pregnancy. Indicating that the reality of the infant may affect the way a mother perceives her child.

It is possible that a woman's expectations of her baby, and subsequent perceptions of the baby after birth, will affect the mother-baby bond. There is some research evidence for this. For example, Benoit et al (1997) found that

women's descriptions of their infants before birth were associated with infant security of attachment after birth. This finding implies that women's expectations of the infant during pregnancy can affect infant attachment security after birth. However, a number of other studies indicate that infant characteristics (as rated by their mothers) are also significant predictors of attachment security (e.g. Izard, Haynes, Chisholm & Baak, 1991). It appears therefore that both women's expectations and the infant's characteristics play an important part in the formation of the mother-baby bond.

Two factors that may have a significant effect on a mother's perceptions of her infant and on the mother-baby bond are symptoms of anxiety and depression. Depression is associated with negative automatic thoughts and anxiety is associated with greater perception of future threat (e.g. MacLeod & Mathews, 1988). It is therefore unsurprising that anxiety and depression have been found to affect prospective cognitions, such as expectations. Interestingly, where anxiety is associated with increased negative anticipation, depression appears to cause a reduction in positive anticipation (MacLeod, 1999). Therefore it seems likely that a woman who is anxious or depressed may have more negative and/or fewer positive expectations of her child.

Depression and anxiety may also affect the way mothers perceive their infant after birth. It is possible that depressed or anxious mothers will perceive their infant more negatively. However, it is difficult to tease out cause and effect in such instances, as it is also possible that a difficult infant will result in mothers having more symptoms of anxiety and depression. The evidence is therefore conflicting. For example, in a longitudinal study following mothers and fathers from pregnancy to 3.5 months postpartum, Mebert (1991) found that anxiety and depression in pregnancy was related to negative perceptions of the infant after

birth. Mebert interpreted this as the mother evaluating the infant more negatively (both in pregnancy and after birth) because of pre-existing symptoms of anxiety or depression. Other research suggests that the infant plays a greater role. For example, Cutrona and Troutman (1986) measured infant temperament using three separate measures – one of which was a maternal rating scale. They found that infant temperamental characteristics were strongly associated with postnatal depression, with a ‘difficult’ infant accounting for 30% of the variance in postnatal depression scores. However, other studies have found no effect, with neither anxiety nor depression being associated with parents’ expectations or perceptions of their infant (e.g. Diener, Goldstein & Magelsdorf, 1995; Ventura and Stevenson, 1986).

Previous research on the association between expectations of the infant, the mother-baby bond, and the influence of depression and anxiety, has therefore been inconclusive. From the evidence reviewed it appears that at least some dimensions of mother’s perceptions of infant temperament remain stable from late pregnancy into the early postnatal period. It also seems that both women’s expectations and infant characteristics (as rated by the mother after birth) may have an effect on the mother-baby bond, but the role of anxiety and depression is not clear. In addition, previous research has not examined whether a ‘mismatch’ between the mother’s expectations of the baby during pregnancy and perception of the baby after birth has an effect on the mother-baby bond. It seems likely, at least in theory, that the closer the match between the mother’s expectations of her infant before birth and her perceptions of it after birth the more likely the development of a strong mother-baby bond. Conversely, if there is a high degree of mismatch between the expected child and the actual child, particularly if the

infant is perceived as being more difficult than expected, then it could be postulated that this will have a negative effect on the mother-baby bond.

The current study therefore follows on from previous research and looks firstly at the relationship between women's expectations of the infant in pregnancy and evaluations of the infant after birth and, secondly, the effect of these on the mother-baby bond. Finally, the effect of anxiety and depression on these variables is examined.

## **Method**

### Design

This was a prospective questionnaire study looking at women's expectations of their infant's characteristics during pregnancy, their perception of the infant after birth, and the bond between the mother and infant postpartum. Questionnaires were completed at 39 weeks gestation (mean 39 weeks, S.D. 1.79) and 3 weeks postpartum (mean 3.7 weeks, S.D. 1.95). During pregnancy measures were taken of demographic details, expectations of infant characteristics, and symptoms of anxiety and depression. After birth measures were taken of the perception of infant characteristics, mother-baby bond, and symptoms of anxiety and depression.

### Participants

Sixty-five women were recruited from antenatal clinics at a teaching hospital in London (n = 53) and a community health centre (n = 12). Women had to be over 17 years old, read and write English fluently, and not be in treatment for current psychiatric problems. Fifty-one (78.5%) women completed the study. Four (6.2%) women gave birth before completing the prenatal questionnaires, one (1.6%) woman was removed because her child was admitted to the neonatal unit,



and 9 (14.8%) women did not return the postnatal questionnaires. The mean age of women was 31 years (S.D. 5.41).

### Materials

The questionnaires used in this study were as follows:

*Demographic Questionnaire:* The demographic questionnaire used in this study has been used in obstetric samples at the same hospital on previous occasions. The questionnaire asks for basic demographic information and obstetric history.

*Hospital Anxiety and Depression Scale:* The Hospital Anxiety and Depression Scale (HADS; Zigmond and Snaith, 1983) is a 14-item measure of state anxiety (7 items: e.g. 'I get a sort of frightened feeling as if something awful is about to happen') and depression (7 items: e.g. 'I look forward with enjoyment to things' [reverse scored]). It was designed for use in medical outpatient clinics to assess psychological distress without being confounded by physical symptoms. It is therefore suitable for use with pregnant and postpartum women who may have a number of physical symptoms (Ayers, 2001). The internal consistency is good for both anxiety (0.93) and depression (0.90) (Spinhoven et al., 1997).

*Infant Characteristics questionnaire:* The Infant Characteristic Questionnaire (ICQ; Bates et al., 1979) measures infant temperament. It contains 24 items, rated on seven-point scales from optimal temperament to difficult temperament. Higher scores indicate more difficult infant characteristics. The questionnaire contains four independent sub-scales: the fussy-difficult subscale has nine items measuring infant mood (e.g. 'how much does your baby cry and fuss?'); the unadaptable subscale has five items measuring how adaptable the baby is to changes in the environment (e.g. 'how well does your baby adapt to new situations?'); the dull subscale has four items measuring how socially

responsive and active the baby is (e.g. ‘how much does your baby smile and make happy sounds?’); and the unpredictable subscale has five items which primarily measure how predictable the baby’s physical comfort needs are (e.g. ‘how easy or difficult is it for you to predict when your baby will go to sleep and wake up?’). Women completed this scale in pregnancy and postpartum. During pregnancy items were phrased in the future tense e.g. ‘how well will your baby adapt to new situations?’ The internal consistency of these subscales is 0.79, 0.75, 0.39 and 0.50 respectively (Bates et al., 1979). In the present sample internal consistency was 0.87, 0.67, 0.42, and 0.74 respectively.

*Mother-Baby Self-Rating Scale:* The mother-baby self-rating scale was adapted from the Bethlehem Mother-Infant-Interaction Scale (an observer measure of mother-baby interaction). The self-rating scale has been used for a number of years in a mother and baby unit at a London teaching hospital. The mother-baby self-rating scale contains 6 items, which measure the following aspects of the mother-baby bond: (1) the amount that mother and baby like looking at each other; (2) the amount that mother and baby like touching each other; (3) the reactivity of the infant to the mother; (4) the ability of the mother to read and understand the infants moods; (5) the ease with which the infant gets into a routine; (6) the likelihood that the infant will come to harm. A higher score indicates a poorer mother-baby bond. In the present sample the internal consistency of the questionnaire was 0.76.

### Procedure

Women were recruited from hospital and community antenatal clinics. Women were told about the study and given an information sheet to read. Women who were eligible for the study and agreed to take part were asked to sign a consent form and were given the first set of questionnaires (demographic details, ICQ &

HADS). The majority of women completed and returned this questionnaire immediately. Those women who did not get time to finish the questionnaire, or who wanted to take it home, were provided with reply-paid envelopes so the questionnaires could be returned by post.

Maternity ward registers were checked at regular intervals to find out when women in the study had given birth. Obstetric details were noted and records checked for any adverse events, such as stillbirth, which might prevent women from continuing in the study. The second questionnaire (ICQ, HADS & Mother-baby self-rating scale) was sent to all remaining participants at their home approximately 10 days after their baby was born. If questionnaires were not returned within 10 days, women were contacted by telephone or post, up to a maximum of three times.

### Statistical Analysis

Variables were screened and all conformed to the assumptions of parametric statistics. A few women missed questions on some of the questionnaires so, providing 75% of the questionnaire had been answered, remaining missing values were prorated using the individual's average score on the rest of the questionnaire (Tabachnik and Fidell, 2001). Pearson's correlations were used to examine relationships between expectations and the mother-baby bond. ANOVA was used to examine the effect of expectations and postnatal evaluation of the baby on the mother-baby bond, depression, and anxiety. All analyses were 2-tailed.

## Results

The demographic characteristics of the sample are reported, followed by the results of analyses for the aims of the study.

### Demographic Characteristics of the Sample

The demographic characteristics of the sample are shown in Table 1. As can be seen, the sample contained equal numbers of primiparous and multiparous women and they were broadly matched on sociodemographic characteristics, with the exception of marital status where a larger proportion of primiparous women were cohabiting ( $\chi^2 = 4.25$ , df 1,  $p = .039$ ). Compared to the UK population, the sample included a high proportion of women from minority ethnic groups and of high socio-economic status (SES). Although these proportions differ from the national average, they are similar to that found in previous studies carried out at this hospital and are therefore representative of the local population from which these women were recruited. Analyses were carried out to check that variables on which this sample differed were not influencing the outcome variables of anxiety, depression, and the mother-baby bond. There were no differences in scores on the measure of mother-baby bond for different SES or ethnic groups. There were, however, significant differences in ethnic groups on anxiety during pregnancy ( $F(2, 55) = 5.07$ ,  $p = .010$ ), with Indian women reporting significantly higher levels of anxiety than either African or white European women. There were no differences in scores of anxiety and depression symptoms for different SES groups.

[insert Table 1 here]

### Expectations in pregnancy and evaluation of the infant after birth

Repeated measures ANOVA was used to examine differences between expectations in pregnancy and evaluation of the baby postpartum. In addition,

differences between primiparous and multiparous women were examined as the previous experience of multiparous women is likely to influence expectations during pregnancy. The results therefore indicate whether there was (1) a difference between expectations and experience (change in perceptions); (2) a difference between multiparous and primiparous women (parity); and (3) an interaction between parity and change in perceptions. The results are shown in Table 2 and it can be seen that there were significant differences between expectations and evaluation of the infant's characteristics, with women evaluating their babies as being significantly less fussy and difficult, more adaptable, yet more dull than they expected.

Parity had very little effect on ratings of infant characteristics. The exception to this was that multiparous women expected their infants to be less adaptable and evaluated them as less adaptable than primiparous women did. No significant interaction was found between parity and a mismatch to expectations, indicating that primiparous women were not more prone to 'false' expectations about their infant than multiparous women.

[insert Table 2 about here]

#### Maternal representations of the infant and the mother-baby bond

Correlations were used to examine the relationship between women's representations of their infant and the mother-baby bond. The results are shown in Table 3. Women's expectations of their infant before birth were significantly associated with the mother-baby bond in the early postnatal period, although the correlation coefficients are fairly low (0.3 – 0.44). If the infant's characteristics were expected to be less optimal during pregnancy then the mother-baby bond after birth was also less optimal. A poor mother-baby bond was associated with expecting the baby to be unadaptable and dull. There was no significant

association between the mother-baby bond and expectations of whether the infant would be fussy-difficult or unpredictable. Maternal evaluation of the infant after birth as more temperamentally difficult was consistently associated with a poorer mother-baby bond with higher correlation coefficients (0.37 - .072).

[insert Table 3 about here]

### Symptoms of anxiety and depression

To account for the possibility that symptoms of anxiety and depression in pregnancy could influence women's expectations of their baby and also the mother-baby bond postpartum, correlations were carried out to examine this relationship. The analyses indicated that there was no significant relationship between symptoms of anxiety or depression in pregnancy and either (1) expectations of the baby in pregnancy or (2) the mother-baby bond postpartum. The only significant correlation was between postnatal symptoms of depression and a less optimal mother-baby bond ( $r = 0.34$ ,  $p = <.05$ ).

### What happens when the infant's characteristics are not as expected?

The effect of a mismatch between women's expectations of their infant and their postnatal evaluations of the infant was examined further by dividing women into groups according to whether they had positive or negative expectations of the baby; and whether they subsequently evaluated their baby in a positive or negative way. Median splits were used to keep group numbers as equal as possible and analyses carried out using 2 x 2 ANOVA. Unfortunately, cell sizes were not equal, with a larger number of women having their expectations confirmed (e.g. having positive expectations of their infant and evaluating their infant positively), rather than disconfirmed (e.g. having positive expectations but evaluating the infant negatively). However imbalances in cell sizes were not considered large enough to invalidate analyses (Tabachnik and Fidell, 2001).

*The effect of a mismatch on the mother-baby bond:* Consistent with the previous correlational analyses, results showed that expectations of the infant had a significant effect on the mother-baby bond ( $F(1, 47) = 5.46, p = .024$ ), with women who expected their baby to be more difficult reporting a poorer mother-baby bond. Evaluation of the baby postpartum also had a significant effect on the mother-baby bond ( $F(1, 47) = 6.7, p = .013$ ), with women who evaluated their baby as being more difficult also reporting a poorer mother-baby bond. Finally, there was a significant interaction between expectations and evaluation of the baby on the mother-baby bond postpartum ( $F(1,47) = 4.81, p = .033$ ) which is shown in Figure 1. This shows that women who had a mismatch between their expectations and evaluations did not have a significantly poorer mother-baby bond, but women who had negative expectations of their infant and evaluated their infants as more difficult reported a poorer mother-baby bond after birth (i.e. they had higher ratings for the mother-baby bond questionnaire). These effects remained significant when symptoms of depression in pregnancy and postpartum were controlled for (expectations of the baby  $F(1,45) = 5.07, p = .029$ ; evaluation of the baby postpartum  $F(1,45) = 4.56, p = .038$ ; interaction between expectations and evaluation  $F(1,45) = 7.09, p = .011$ ).

[insert Figure 1 about here]

*The effect of a mismatch on postpartum mood:* Postnatal symptoms of anxiety were significantly affected by prenatal expectations of the infant ( $F(1,47) = 4.06, p = .050$ ) and postnatal evaluation of the infant ( $F(1,47) = 8.01, p = .007$ ). For expectations, the direction of this effect was surprising in that women who had more positive expectations of their baby reported higher symptoms of anxiety postpartum. However, this effect disappeared when anxiety in pregnancy was controlled for ( $F(1,46) = 3.13, p = .083$ ). For postnatal perception of the

infant the opposite effect was seen, where women who evaluated their babies more positively had lower postnatal anxiety than women who evaluated their babies more negatively. This effect remained significant after controlling for anxiety in pregnancy ( $F(1,46) = 7.10, p = .011$ ). Postnatal anxiety was not affected by a mismatch between expectations and evaluation of the infant.

Postnatal symptoms of *depression* were not affected by expectations of the infant during pregnancy, but were affected by postnatal perceptions of the infant. Women who evaluated their infant more positively reported lower depressed mood than women who evaluated their infant more negatively ( $F(1,47) = 4.82, p = .033$ ). However, this effect disappeared when depression in pregnancy was controlled for ( $F(1,46) = 3.47, p = .069$ ). Postnatal depression was not significantly affected by a mismatch between expectations and evaluation of the infant.

### Discussion

The aims of this study were to look at the relationship between women's expectations of the infant in pregnancy and subsequent evaluations of the infant after birth. In addition, we aimed to examine the effect of expectations and evaluations of the infant on the mother-baby bond and, finally, to look at the role of symptoms of anxiety and depression. The key findings were that (i) infants were perceived as different to expectations, with infants being rated as less fussy-difficult, more adaptable and more dull (less socially responsive and active) than expected; (ii) expectations of the infant in pregnancy and evaluations of the infant after birth were both associated with the mother baby bond; and (iii) that a mismatch between expectations and evaluations of the infant was not associated with the mother-baby bond or postnatal symptoms of anxiety and depression (after controlling for symptoms in pregnancy), and that it is actually women who



have negative expectations that are confirmed who are at greatest risk of a poor mother-baby bond. These results will be discussed separately below.

#### The expected versus the actual infant

The findings of this study suggest that, for the majority of women, the characteristics of their infant actually exceed their expectations. Furthermore, this was the case for both primiparous and multiparous women. Previous research has been inconsistent with regard to whether women's expectations are concordant with their evaluations of the baby after birth. Therefore the current study adds to this debate, with increasing evidence that women's expectations of the infant are not consistent with postnatal evaluations.

The exception to this was that women did not rate their baby as more or less predictable than they expected them to be in pregnancy. This subscale measured how easy or difficult it was for women to know what was bothering their baby when they cried, how much the baby wants to be held, and how well women could predict when the baby was hungry, needed to sleep, or have a nappy changed. The majority of these items are therefore about predicting physical needs, which women may find easier to predict and respond to – hence the lack of any difference between their expectations in pregnancy and subsequent postnatal evaluations.

An interesting difference between primiparous and multiparous women was that multiparous women both expected their baby to be more unadaptable, and evaluated their baby as more unadaptable after birth. There are a number of reasons why this may be the case, which could be individual or environmental. For example, multiparous women may perceive babies as less adaptable because of retrospective evaluation of their other children as infants. Alternatively, or in

addition, environmental factors such as other childcare responsibilities, may lead to the perception of the infant as more demanding or unadaptable.

#### Implications for the mother baby bond

The finding that both expectations and evaluation of the infant are associated with the mother-baby bond is consistent with previous research outlined in the introduction (e.g. Benoit et al 1997; Izard et al 1991). The interesting points to arise from the current study are that (i) the effect of expectations and evaluation of the infant on the mother-baby bond remained after depressed mood in pregnancy and postpartum were controlled for; (ii) that expectations were more moderately correlated with the mother-baby bond than postnatal evaluations; and (iii) that expectations of the infant as unadaptable or dull were associated with the mother-baby bond, yet expectations of the infant as fussy or unpredictable were *not* associated with the mother-baby bond.

To take each of these points in turn: the finding that the association between perceptions of the infant and the mother-baby bond remains after controlling for depression can inform the debate over whether depressed mood affects women's perceptions of the infant, self-report measures of infant characteristics, or the mother-baby bond. This study suggests that symptoms of depression do not affect women's perceptions of the infant in pregnancy, indicating no effect of depressed mood on maternal reports of expected infant characteristics. In addition, this study indicates that depressed mood in pregnancy is not associated with the mother-baby bond, but postnatal depressed mood is. Suggesting that the relationship between depressed mood and a poor mother-baby bond is concomitant, rather than causal.

These results are inconsistent with previous research and literature in two areas. First, research looking at the effect of depression and anxiety on future

expectations in samples of students and clinically depressed/anxious subjects finds that anxiety and depression are usually associated with particular patterns of expectations for future events. The results of the current study indicate that mood does not have the same effect in pregnant women and their expectations of their infant. Secondly, the finding that depressed mood is concomitant with a poor mother-baby bond is in contrast to previous research which suggests that a difficult infant may be causal in postnatal depressed mood – although research in this area has been generally inconsistent. One possible explanation for this is that different aspects of infant behaviour and/or temperament play varying roles in maternal depressed mood. For example, Sutter-Dallay, Murray, Glatigny-Dallay & Verdoux (2003) found that infant orientation performance (measured by the Brazelton Neonatal Behavioral Scale) three days after birth predicted postnatal depressed mood six weeks after birth. It is possible, therefore, that different measures of infant characteristics can account for some of the inconsistency in the association between infant characteristics and maternal depressed mood.

The finding that expectations of the infant are more moderately correlated with the mother-baby bond than evaluations of the infant is unsurprising because of the time lag between measurement points. It is probable that measures taken four weeks apart will have weaker relationships than measures taken concurrently. However, it is possible that the stronger relationship between postnatal evaluations of the baby and the mother-baby bond is partly due to the influence of postnatal symptoms of depression.

Finally, the finding that expectations of the infant as unadaptable or dull were associated with the mother-baby bond, yet expectations of the infant as fussy or unpredictable were *not* associated with the mother-baby bond is intriguing but difficult to interpret. The subscales of fussy and unpredictable measure mood

states and predictability of physical comfort needs respectively. Mebert (1991) carried out a factor analysis of the ICQ and other measures (such as anxiety and depression) and found that the total scores for the fussy and unpredictable subscales loaded onto one component, which she described as ‘caretaking expectations’. The total scores of the subscales of unadaptable and dull loaded on a separate component, which Mebert described as ‘expectations of infant behaviour’. The results of the current study could therefore be re-interpreted as expectations of infant behaviour having an affect on the mother-baby bond; in contrast to expectations of caretaking, which did not affect the mother-baby bond. This seems a possible explanation, however, at this stage, it is impossible to do more than speculate as to why this may be the case.

#### What happens when the infant’s characteristics are not as expected?

The results of this study looking at the effect of a mismatch between the expected and the actual infant are intriguing. Firstly because a mismatch between antenatal expectations and postnatal evaluations of the infant was not associated with a poor mother-baby bond or symptoms of anxiety or depression (after controlling for symptoms in pregnancy). Secondly, because women who appear to be at greater risk of a poor mother-baby bond are those who have their negative expectations confirmed.

These findings are inconsistent with expectancy-based theories of outcome, which would predict poorer outcome if expectancies are not matched. For example, Grey (1994) posits that anxiety occurs when reality does not match expectations. Other research has also supported this, for example, Brown, Andrews, Harris, Adler & Bridge (1986) found that women were more at risk of depression if they felt let down by a significant other in a crisis. It is unclear whether the results of the current study are due to actual differences in the effect

of a mismatch when it concerns an infant, or to methodological issues. For example, the use of median splits in the current study was not ideal and women whose evaluations only marginally changed between pregnancy and postpartum were included in ‘mismatch’ groups, which could potentially lead to Type II errors. For this reason, it would be better to use top and bottom quartile splits in this kind of analysis but, unfortunately, the small sample size of the current study meant quartile splits resulted in empty cells. So, although this study can provide an interesting first step towards understanding of the effect of a mismatch between expectations and experience, it should be replicated using larger samples where it is possible to focus only on women with a clear mismatch.

#### Methodological issues

In addition to the problem of median split analyses raised above, there are a few other methodological issues that should be considered when evaluating the results of the current study. Firstly, the measure of mother-baby bond used was a very broad measure that has not been widely used or validated. Therefore it would be advisable to try and replicate the results of the current study using different, or multiple, measures of mother-baby bond. Similarly, the ‘Dull’ subscale of the ICQ had very low internal reliability and the results for this subscale should therefore be treated with caution. Finally, this study was carried out on a fairly small sample, which is not representative of the UK population of pregnant women (with a higher proportion of ethnic minority groups and more highly educated women). These methodological issues mean it is important that research is carried out to try and replicate these results using different measures in larger, more representative samples. However, this study provides a useful first step in trying to understand the relationship between expectations of the infant,

evaluations of the infant, and the mother-baby bond, whilst controlling for symptoms of anxiety and depression.

### Summary & Conclusion

This study suggests that mother's perceptions of their infants, both in pregnancy and after birth, have a strong effect on the mother-baby bond. In contrast, symptoms of anxiety and depression do not appear to affect either maternal perceptions of their infant, or the mother-baby bond. The exception to this is postnatal depressed mood, which appears to be concomitant with a poor mother-baby bond, rather than causal. Mismatch analysis suggests that a subgroup of women with negative perceptions of their infant before and after birth may be at risk of later attachment difficulties, as they have a poorer mother-baby bond in the early postnatal period. However, further research attempting to replicate these results with larger samples and over longer time frames is necessary before any firm conclusions can be drawn.

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**Table 1. Demographic characteristics of the sample**

		Frequency	Primiparas	Multiparas
		% (n)	% (n)	% (n)
Parity			51% (26)	49% (25)
Marital Status	Married	71% (36)	58% (15)	84% (21)
	Living with partner	29% (15)	42% (11)	16% (4)
Ethnic Origin	African or Afro-Caribbean	8% (4)	12% (3)	4% (1)
	Indian, Bangladeshi or Pakistani	12% (6)	12% (3)	12% (3)
	White European	76% (39)	69% (18)	84% (21)
	Other	4% (2)	8% (2)	0 (0)
Educational	GCSE's or equivalent	21% (11)	11% (3)	32% (8)
Qualifications	A Levels or equivalent	14% (7)	15% (4)	12% (3)
	Diploma / City and Guilds	24% (12)	35% (9)	12% (3)
	Degree	23% (12)	19% (5)	28% (7)
	Higher Degree	4% (2)	8% (2)	0 (0)
	Professional Qualification	14% (7)	11% (3)	16% (4)
Socio-economic	Social Class 1	8% (4)	8% (2)	8% (2)
Status	Social Class 2	45% (23)	46% (12)	44% (11)
	Social Class 3	43% (22)	42% (11)	44% (11)
	Social Class 4	2% (1)	0 (0)	4% (1)
	Social Class 5	0	0 (0)	0 (0)
	Does Not Work	2% (1)	4% (1)	0 (0)

GCSE = General Certificate of Secondary Education; A level = Advanced level.

**Table 2. Perceptions of the infant in pregnancy, postpartum, and the effect of parity on representations of the infant**

Expectations of baby		Evaluation of		Difference between	Difference between	Interaction
		the infant postpartum		expectations and	primiparous and	between parity
Mean (S.D.)		Mean (S.D.)		evaluation	multiparous	and change in
Primiparas	Multiparas	Primiparas	Multiparas	(change in	women (parity)	perceptions
perceptions)						
Infant characteristics						
Fussy	32.62 (5.05)	32.62 (4.90)	28.31 (9.20)	27.45 (6.94)	P<.01	ns
Unadaptable	17.76 (2.89)	19.03 (3.09)	11.82 (4.19)	15.24 (4.68)	P<.01	P<.01
Dull	13.68 (3.34)	12.39 (2.97)	15.13 (3.62)	15.16 (2.68)	P<.05	ns
Unpredictable	18.00 (4.24)	17.96 (4.72)	16.73 (5.26)	17.36 (3.81)	ns	ns
Total	82.00 (11.98)	81.71 (10.28)	72.11 (18.62)	75.10 (14.14)	P<.01	ns

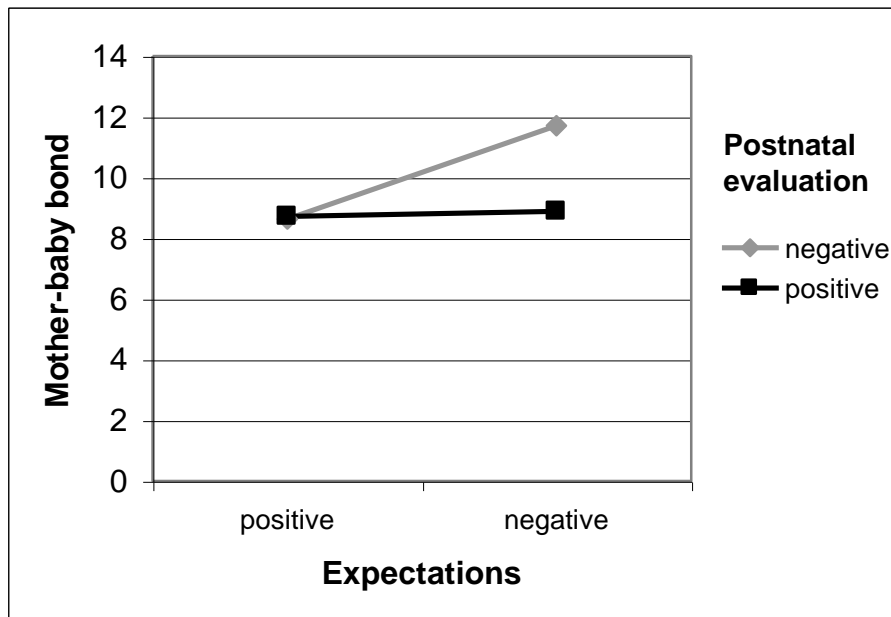
ns = nonsignificant

**Table 3. Correlations between maternal perceptions of the infant and the mother-baby bond.**

	Postnatal ratings of the Mother-baby bond	significance (2-tailed)
<u><i>Prenatal Expectations of the infant</i></u>		
Fussy	0.22	ns
Unadaptable	0.30	P<.05
Dull	0.44	P<.001
Unpredictable	0.27	ns
Total score	0.41	P<.005
<u><i>Postnatal Evaluation of the infant</i></u>		
Fussy	0.71	P<.001
Unadaptable	0.37	P<.01
Dull	0.47	P<.001
Unpredictable	0.62	P<.001
Total score	0.72	P<.001

ns = nonsignificant

**Fig. 1 The effect of expectations and evaluation of the infant on the mother-baby bond**



Note: high scores indicate a poorer mother-baby bond