Factors associated with negative emotional expression: a study of mothers of young infants.

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Abstract

Aim: This interview study of mothers with three-month-old infants sought to determine factors associated with maternal negative emotional expression regarding their infants. **Design**: In a cross-sectional study 179 mothers were given a shortened version of the Five Minute Speech Sample technique, requesting that they speak for only two minutes about their child and their relationship. Negative comments about the infant, maternal health prior to and since the birth, and the impact of the infant on her life were coded. They also completed attitudinal questionnaires and reported on marital relationships and the infant's health and temperament. **Results**: A Caesarean section, infant illness, current maternal depressive symptoms, fussy infant temperament, and lack of enjoyment of feeding were all independently associated with negative remarks. Depression, infant illness and fussy temperament were all independent predictors of negative remarks about the infant, and Caesarean section and time in Special Care Baby Unit were independent predictors of negative remarks about maternal health and well-being. **Conclusions:** This kind of open-ended enquiry could be adapted for use in routine clinical contact with mothers of new infants to identify those who may need support.

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Becoming a parent for the first time, or adding to one's family, may be associated with great joy but also with the potential for stress as the family adjusts. The birth of a first child has been described as the beginning of the ending of the relationship between the mother and father (Mansfield & Collard, 1994). The mother of a first-time infant may have to think about who comes first, partner or child (Leach, 1996) while the new mother with existing children will have yet more conflicting pressures to consider. In addition to pressures surrounding interpersonal relationships within the family, factors associated with parental self-identity may become an issue. Mothers or fathers who had been working full time may have to re-think their work patterns (OECD, 2005). Parents of young infants may decide to use child-care and then have to find something suitable, and this may be associated with feelings of anxiety and guilt (Leach **et al**., forthcoming). There will be many new tasks in the home related to caring for the new baby, and other family members will also be adjusting to the new arrival. If there is any existing discord in the family it may be exacerbated by the introduction of a new child. Those couples who make the best adjustments, with less stress and more satisfaction, after having a baby, are those who had a more successful relationship before the baby was born (Cowan, 1996). If stress is to be alleviated, and suitable support provided, it is important to understand which families may be most vulnerable to difficulties in coping with a new baby.

Stress may be revealed in a number of ways, such as increased mental health problems (Schafer **et al.**, 1998), marital discord (Kahn **et al.**, 1985), becoming isolated and withdrawn, or becoming irritable (Goliszek, 1988). One particular way that it can be indicated is by feelings of criticism and hostility. Some three decades ago "Expressed Emotion" (EE) was conceptualised as a global index of strong (and

usually counterproductive) emotions, attitudes and behaviours expressed by one family member about another (Brown & Rutter, 1966). The specific factors included in the concept are criticism, hostility and emotional over-involvement. Initially developed and used to predict recurrence of schizophrenic symptoms by examining levels of EE within a family, EE has been found to be relevant to a range of psychiatric disorders in adults (Miklowitz **et al**., 1984) and children (Baker **et al.**, 2000; Vostanis **et al.**, 1994).

Mothers of young infants may be especially prone to high levels of critical thinking towards their child since the days, weeks and months before and after giving birth can be a period of psychological and physical stress for both the mother and the father. It has been found that they are likely to be critical about vulnerable infants such as those with low birth weight (St. Jonn-Seed & Weiss, 2002).

A significant number of women experience negative mood and depression during pregnancy, as documented recently in a community sample (Evans **et al.**, 2005). Maternal depression or depressed mood may be associated with negative or critical thoughts about infants since depression is often accompanied by negative thinking (Beck, 1967). However, one recent study found that a general measure of maternal mental health, the Global Assessment of Functioning Scale, was unrelated to critical expressed emotion when infants were 6 months old, although more critical EE was associated with lower levels of family satisfaction and with perceived stress (St. Jonn-Seed & Weiss, 2005). A number of social and psychological factors can contribute to mothers' developing feelings of being vulnerable and inadequate before and after their new infants are born. These include concerns about the responsibility of coping with newborns and their demands as well as other obligations associated with being a mother (Muller & Lemieuz, 2000). Family factors can also contribute

such as the support the mother receives from family, friends and professionals as well as the relationship she has with the child's father (Bernazzani **et al.**, 1997; Murray & Cooper, 1997). Even biological factors may play an important role depending on how traumatic the birth itself was (O'Hara, 1997).

High EE in parents may have an adverse effect on their children's development. High EE is derived from remarks indicating either one or both of criticism and emotional over-involvement (EOI). High levels of criticism have been related to disruptive behaviour and conduct disorder, (Baker **et al.,** 2000) while high EOI has been associated with internalising problems and disorders (Stubbe **et al.,** 1993). A possible mechanism is indicated in the relationship between high parental EE and elevated autonomic nervous system (ANS) activity in children (Valone **et al.**, 1984).

Several methods have been developed for measuring EE, the most detailed being the lengthy Camberwell Family Interview (CFI). However, based on the findings that the majority of EE was identified in the early part of the CFI, the Five Minute Speech Sample (FMSS) was developed (FMSS; Magana et **al**., 1986). The FMSS gives the respondent only a short time to talk, with the expectation that critical, hostile or over-protective feelings will be elicited under this time pressure. Further studies have demonstrated that the FMSS is a reliable and valid technique for inclusion in large-scale studies (Leeb **et al**., 1991) and for parents in the normal population (Barnes-McGuire & Earls, 1995).

Few studies of parental EE, however, have included parents with young infants, when issues surrounding the whole birth experience may still be fresh in mothers' thoughts. One recent study that included young children who were also vulnerable infants, born with low birth weight (St. Jonn-Seed & Weiss, 2002) found

that high levels of criticism at 6 months predicted higher levels of behaviour problems at 2 years. While the maternal stressors related to prolonged separations and hospitalisations were implicated in this study, it is likely that in the normal population of low-risk infants those with less adaptable temperaments may also be likely to elicit criticism. In a subsequent small study of infants with normal birthweight St Jonn-Seed and Weiss (2005) found that less family satisfaction and more perceived distress were associated with more criticisms of 6-month-old infants.

The present study is designed in part to extend these findings by looking at a larger sample of children from a longitudinal community sample of mothers with new babies, which collected a wider range of family information including attitudes to parenting in addition to marital satisfaction, and also collected a range of detailed information about the pregnancy, birth and subsequent child care. The assessment of critical expressed emotion was determined from a modified version of the FMSS, asking mothers of new infants to speak for only two minutes. The coding was also extended to include negative remarks relating to the mother's own well-being and adaptation to life with a new baby.

The aim of this study is to investigate, using a cross sectional design, maternal, family and child characteristics associated with maternal expression of hostility, criticism and other negative emotion in relation to the experience of birth and their infants aged 3 months.

Methods

Participants

The sample for this study was drawn from the Families, Children and Child Care study (FCCC, www.familieschildrenchildcare.org). Sampling centred on antenatal clinics in two hospitals in England (North London and Oxfordshire), each

catering for a demographically diverse population (see Malmberg **et al.,** 2005 for full details). Eligibility criteria for mothers were: aged 16 or over at the time of the child's birth, adequately fluent for interview in English, no specific plan to move in the next 2 years, no plan to have the child adopted and no likelihood that the infant will be placed in the care of social services. Eligibility criteria for children were: singleton, birth weight 2500 grams or more, gestation 37 weeks or more, no significant congenital abnormalities, no more that 48 hours in a Special Care Baby Unit (SCBU).

Researchers approached 1862 mothers at recruitment of whom 217 (11.6%) were found to be ineligible. Of the remaining 1645, 444 (27.0%) chose not to participate, making the final sample 1201. All respondents completed a speech sample at 3 months. However, for the purpose of this study a 33% sub-sample (400) was randomly selected since it was not possible to transcribe and code all the speech samples, due to staffing limitations. The tape recordings were listened to prior to transcription to determine for how long the mother had spoken. To provide sufficient speech to code, if there was less than one minute they were excluded (as described below all mothers were given a full two minutes but some said only a few sentences). Of those with sufficient speech (219), 40 were used for training purposes, leaving a final sample of 179.

The sub-sample was similar to the whole sample in terms of the proportion living with a partner (86.0 vs. 90.3, Chi Square =3.15) and family socioeconomic status on a 3 point scale (2.43 vs. 2.36, $t=1.00$) but differed from the whole sample in that on average mothers in the sub-sample had a higher social class (2.22 vs. 2.01, $t=2.89$, $p<0.01$), were older (32.1 vs. 31.0, $t=2.59$, $p<0.01$) and had more educational qualifications based on a 6 point scale (4.5 vs. 4.2, $t=2.60$, $p<0.01$). There was no

difference in whether they were currently breastfeeding (60.9% vs. 54.8 %, Chi Square =2.35) or in whether the infant had spent time in a SCBU (3.4% vs. 4.3%, Chi Square = 0.37).

Procedure and Measures

All the information reported in this paper was collected at the first stage of the longitudinal study, at 3 months after the child's birth, with a structured maternal interview conducted in the home, and self-report questionnaires completed after the interview.

Interview

i. Negative emotional expression

This was assessed using an adaptation of the Five Minute Speech Sample (FMSS; Magana **et al.**, 1986), asking respondents to speak for two minutes. Pilot work indicated that some mothers found it difficult to talk for five minutes about young infants. At the beginning of the interview the following directions were given: "Before I start asking you all kinds of questions about [baby's name] I would like you to have a chance to tell me about him/her in your own words. Just think about him/her and how you and s/he are getting along and tell me anything you like about your thoughts and feelings." It was explained that her comments would be tape-recorded and that the tape-recorder would be left running for a full two minutes, so that it would be the same for everybody in the study. It was also explained that the interviewer would not make any comments once she had started speaking and mothers were given a chance to ask questions before they began. If necessary (no speech for 30 seconds) one prompt was given during the 2 minutes.

The coding system used is an adaptation of the original expressed emotion system for the FMSS (Magana **et al**., 1986), developed by one of the authors (JB)

who was trained and accredited by the Los Angeles team. Previous researchers have remarked that the 'over-involvement' aspects of expressed emotion are not as useful for young children as critical comments (Wamboldt **et al.,** 2000). Consequently only the critical elements of the EE coding system were used. The initial statement coding was unchanged, and the coding of critical/negative remarks about the infant (health, development, behaviour). A separate coding of the mother child relationship was not made. However, additional negative remarks were coded. Pilot work identified a common occurrence of negative remarks about the mother's health and well-being related to having the new baby (pregnancy, labour and delivery, and since giving birth), and remarks about the effects of the baby's presence on the mother's lifestyle work and finances. Totals for these categories were kept separate so that one could identify mothers who criticised the infant directly, those who remarked only on the impact on her health, well-being or life, and those who remarked on both.

Indications of critical EE were calculated in several ways: as a dichotomous variable (yes = if a mother made any negative remarks or critical initial statement); as a total number of negative remarks; and using subscale totals for remarks about the infant, those pertaining to maternal health, and those pertaining to maternal adaptation and lifestyle. The speech samples were coded by two graduate level raters (LA & BR) after they had had been trained and had achieved at least 80% agreement using pilot speech samples with the team member accredited by the Los Angeles Team (JB) on each of the sub-domains totals (child, maternal health, impact on life) based on 20 trial samples. In addition, a random sample of 10% of the speech samples was coded by both raters and discussed to ensure that they were consistent with each other in their interpretation of the coding system. Inter-rater agreement based on 20 cases was Kappa = 0.69 for child behaviour including the initial statement, 0.66 for

maternal health and 0.61 for adaptation to work, with an overall Kappa of 0.68 for any negative remarks.

Demographic characteristics

Maternal age and partner status (dichotomous) were ascertained during the interview. Based on interview questions, maternal education was categorized on a 6-point scale: 1 = no qualifications/only vocational qualifications at age 16, 2 = General Certificate of Secondary Education (GCSE) at age 16, 3 = 'Advanced level' qualifications at age 18, 4 = vocational qualifications post 18 or Foundation (2 year) degree, 5 = undergraduate (3 year) degree, 6 = higher degree such as MSc or above). Mother's occupational status was based on the Socio-Economic Class index (SEC; Rose & O'Reilly, 1998), and classified into three groups:working class, intermediate occupations; managerial and professional; those mothers who had never worked are included under working class. Maternal employment prior to maternity leave was coded, or her most recent employment.

Birth, feeding and child illness

Interview questions covered whether the delivery had been a normal vaginal delivery, whether assistance had been required (induction, ventouse, forceps, Caesarean section), the kinds of pain relief given (injected, epidural); and if the infant had spent any time in the first 48 hours in a Special Care Baby Unit (SCBU). Mothers were asked whether they had breast-fed, for how many weeks, whether they were currently breasfeeding and whether they enjoyed feeding their infant (on a five point scale from never to always, grouped into three categories (occasionally or sometimes; usually; always: no respondent used the 'never' option).

Questions were asked about infant illness, specifically mothers were asked to recall in the period since birth how many times they had taken the infant to a doctor

(for illness, not for well-baby checks), how many times a doctor had been called out to the house, and how many times the infant had been taken to an Accident and Emergency department. A total of these was calculated to reflect the extent of reported infant illness in the first 3 months of life.

Child care

Details were collected about any non-maternal child care at 3 months, including who cared for the infant and how many hours per week, to identify mothers who were using non-maternal child care for at least 12 hours per week.

Questionnaires

Depression

The Edinburgh Postnatal Depression Scale (EPDS; Cox **et al.**, 1987) includes 10 items, e.g., "in the past 7 days, I have felt sad and miserable" rated on 4-point scales (0, 1, 2, 3). A score of 13 or more is the suggested clinical cut-off point.

Marital relationship

The Dyadic Adjustment Scale (DAS) is a measure of marital satisfaction (Spanier, 1976). Four sub-scales are derived: Dyadic Satisfaction (7 items); Dyadic Consensus (13 items; Dyadic Cohesion (5 items); Affectional Expression (4 items) and a total score, with higher scores indicating more marital adjustment. In addition the mother was asked (on a 10 point scale) to report how critical she was of her partner, and how critical her partner was of her (Hooley &Teasdale, 1989).

Attitudes to parenting

The Parental Modernity Scale examines attitudes toward child rearing (Schaefer & Edgerton, 1985) with two sub-scales "Traditionalism" which has 22 items e.g. "children should always obey their teacher" and "Progressivism" with eight items

e.g. “children learn best by doing things themselves rather than listening to others”. Higher values indicate more agreement with each scale.

A shortened form of the Beliefs about the Consequences of Maternal Employment for Children attitude scale (BACMEC; Greenberger **et al.**, 1988) was used. The reduced scale included 11 statements, each with a six-point response scale (1 = disagree very strongly, 6 = agree very strongly). As with the full scale, two scores were derived: “benefits of maternal employment for children” (5 items; e.g. “children whose mothers work are more independent and able to do things for themselves”) and “cost of maternal employment for children”. (6 items; e.g. children are less likely to form a warm and secure relationship with a mother who is working full time”).

Infant temperament

Two subscales from the 6-month Infant Characteristics Questionnaire were administered (ICQ; Bates **et al.,** 1979). ”Fussy temperament” consisted of six items (e.g., “How much does your baby cry and fuss in general?” with response options 1 = very little; 4 = average amount 7 = a lot; and “non-adaptable temperament” was based on four items (e.g., “How well does your baby adapt to things eventually?” with response options 1 = very well; 4 = ends up liking it about ½ the time; 7 = almost always dislikes it in the end). Higher values on the scales indicate higher levels of fussiness and lack of adaptability respectively.

Analysis

Univariate analyses (Pearson correlations for continuous variables, comparison of means using ANOVA for categorical variables) were conducted to identify which of the demographic and other indicators were associated with the total number of critical remarks, and totals within each sub-domain.

Logistic regression was then used to identify independent predictors of the presence of any critical remarks and multiple regression was used to identify the independent predictors of the total amount, and totals for the sub-domains.

Results

Maternal characteristics, attitudes and behaviour:

Each of the sub-domains of critical remarks was significantly associated with the total, but critical remarks about maternal health were not associated with those about the child, or its impact on her life (see Table 2).

Based on univariate analyses, there were no significant relationships between the extent of negative remarks and mother's age, her educational attainment or her social class, use of child care, maternal attitudes to family life or beliefs about the potential costs or benefits to children of maternal employment. Similarly there was no relationship with the length of time that the infant had been breast fed, whether the mother was breast-feeding currently, or the use of non-maternal child care at 3 months.

Both the extent of maternal depressive symptoms and whether or not depression was above the cut off point of the EPDS were significantly related to more negative remarks in total, to those about the child, and to those mentioning the impact of the child on the mother's life (see Tables 3 and 4). Maternal depression was also positively associated with negative comments about maternal health during pregnancy, birth and subsequently. Reported lack of enjoyment of feeding the infant was significantly related to the total number of critical remarks, with those reporting only "occasionally" or "sometimes" enjoying feeding making more critical remarks in total, and more about the child in particular (see Table 4).

Birth experience:

The use of interventions such as ventouse, forceps or induction, and the nature of pain relief (injected, epidural) were unrelated to the number of critical remarks. However there was a significant effect of having experienced a Caesarean section, related to more critical remarks in total, more about maternal health and more about the impact of the infant on the mother's life (see Table 4). While only a small number of infants had spent up to 48 hours in a Special Care Baby Unit (those who spent longer were excluded from the study) their mothers made significantly more negative comments, both in total and particularly about maternal health from pregnancy and birth through to the current time (see Table 4).

Child characteristics:

Child gender was unrelated to the presence or number of critical comments. More reported child illness over the three months since birth was related to more critical remarks in total and to each of the sub-domains apart from maternal health; maternal report of a fussy temperament was positively associated with the total number of critical remarks about the child (see Table 3).

Family characteristics:

Whether or not the mother had a partner was unrelated to negative comments, but all subscales of the Dyadic Adjustment Scale, and its total score indicated that better marital adjustment was associated with fewer critical remarks, and in particular to fewer remarks about the impact of the infant on the mother's life and work (see Table 3). The extent to which the mother perceived that she was critical of her partner was positively associated with the number or critical remarks, and the extent to which she was critical of her partner or he of her were both positively associated with more critical remarks about the impact of the infant on her life (see Table 3).

Independent predictors:

Logistic regression analyses indicated that independent (statistical) predictors of at least one critical remark were having had a Caesarean section, the mother describing the infant as more fussy, reporting that the infant had more illness in the first 3 months, marked maternal depression at 3 months and reporting that she did not always enjoy feeding her baby (see Table 5). The marital satisfaction scales were not significantly associated with negative comment, nor was criticism between partners.

To guide interpretation, associations between the significant predictors were examined. Total EPDS was positively related to the extent of child illness ($r = 0.22$) but not to fussiness, to having had a Caesarean section, or to the extent of enjoyment of feeding the infant. Infant fussiness was unrelated to whether or not a Caesarean section had been performed, or to child illness. Infant fussiness was marginally related to maternal enjoyment of feeding, the ANOVA indicated a group effect (F 3.57 2 df, $p = 0.03$) but post hoc tests did not reveal any significant comparisons between the groups (enjoy feeding always, usually or occasionally). Having a Caesarean section was unrelated to reported enjoyment of feeding. There was no significant difference in the extent of child illness depending upon whether or not a Caesarean had been performed or whether the infant had spent time in SCBU.

Significant predictors of the total number of critical remarks were the same, with the addition of the categorical indicator documenting that the infant had spent time in the SCBU. The only significant predictors of total negative comments about maternal health and well-being during the pregnancy, birth and subsequently were having a Caesarean and time in SCBU; more child illness, more fussiness and more maternal depression predicted more critical remarks about the child. A fussy temperament and less affection between partners were marginal predictors of more comments about negative impacts on the mother's life (see table 6).

Discussion

This study sought to examine the relationship between stresses faced by families with a new baby and the extent to which mothers expressed criticism about their child or their own well-being. This is important since over the long term parental critical expressed emotion about a child may have a number of consequences for children, such as insecure attachment and behaviour problems (Baker **et al.,** 2000; Marshall **et al.**, 1990; Stubbe **et al.,** 1993). It remains to be seen from further work whether expressed emotions incorporating remarks about the birth experience and maternal well-being have similar implications for child outcomes. This study adapted the traditional measure of critical expressed emotion, the five minute speech sample, using the scoring on a shorter time of two minutes, and incorporated into the coding comments that referred to the mother herself, her well-being in relation the pregnancy and birth and her subsequent coping, in addition to those remarks traditionally included in the EE coding, referring to the infant and the mother-infant relationship. Negative remarks about the child were often accompanied by those about the impact of the child on the mother's life and work while those about herself and her own well-being were less often accompanied by other kinds of criticism. This adaptation acknowledges the fact that in the first weeks after the birth of a child there is sometimes a lack of individuation between mother and infant, inter-dependence being more common at this stage (Ainsworth, 1969).

On a positive note, more than half the mothers interviewed made no negative remarks of any kind about their infant, their own well-being or their current life, indeed initial statements such as "Well, he's the best thing that could happen, I love him to bits" were commonplace. However, nearly 2 in 5 of the mothers whose

responses were coded made some kind of critical remark during the two minutes they were given to talk freely.

Criticism of the child or the mother-child relationship was associated with more current maternal depression (both with the total number of symptoms and with sufficient symptoms to be considered at risk of clinical depression), with the infant having required more medical attention over its first 3 months, and with a maternal rating at 3 months of a fussy temperament. Mothers who made more critical remarks about their infants were also more likely to report that they did not always, or even usually enjoy feeding them – though the method of feeding (breast or bottle) was not related. Maternal depression and reported child illness were positively associated with each other, but in a multiple regression analysis both proved to be independent predictors (statistically) of the presence of critical comment about the infant. This reflected the univariate results indicating that mothers were likely to be negative either about the child or about their own well-being, but not about both. While one might expect that infant fussiness could be related to maternal depression, or to child illness, this was not found in this study although it was marginally related to maternal lack of enjoyment of feeding. Nevertheless each remained as independent predictors of more negative remarks. All these indicators might be related to other aspects of home-life that were mot measured in this study. Marital relationships proved not to be relevant, but more subtle aspects of the mother-child relationship such as responsivity might be relevant.

These results contrast with those of St. Jonn-Seed and Weiss (2005), who reported that at 6 months a general measure of maternal functioning was not related to critical expressed emotion. This suggests that it is not overall maternal mental health that is relevant to predicting a negative view of the infant but specifically depression.

Health professionals working with parents of new infants will not need to be encouraged to focus on depression. However, this is evidence that the mechanism by which there might be long term impacts of maternal depression on children's development, at least in part, may relate to criticism of the child which is known to be associated with subsequent behavioural problems (Baker **et al.,** 2000). This and other longitudinal studies can investigate whether these children demonstrate more adjustment problems during their preschool years.

This study extended the range of comments that were coded in the speech sample because it was notable in the pilot phase that some mothers, when asked to talk about their new infant, spent much or all of the time talking about their own health and well being, during the pregnancy, at the time of labour and delivery, or subsequently as a consequence of those birth experiences. We also coded comments about the way the mother felt that the arrival of the infant had adversely impacted on her capacity to work or carry out other activities. The extent to which mothers remarked on the negative impact on their life and work was positively associated with critical remarks about the infant, and more of these negative remarks were made when the child had more illness. This was the only aspect of criticism that was also positively associated with the mother's feelings about her marital relationship, more negative remarks being made when there was less satisfaction with her relationship. This suggests that a less than supportive partner relationship could lead a mother to have a more negative view of her infant 'holding her back' in her life. We also obtained good measures of the mothers' attitudes, both about parenting in general (traditional or progressive) and also about expectations that maternal employment might have costs or benefits to a child. One might predict that if a mother thought that her employment would be detrimental to her child, she would delay her return to work, which might lead to negative

thoughts about the baby. However none of these measures was in any way related to critical comment.

It must be noted, nevertheless, that the extension of the domains that were considered for inclusion as critical remarks means that this work may not be comparable with previous EE work, using more conventional measures.

Critical comments pertaining to maternal health were greater if the baby had been delivered by Caesarean section, and had spent any time in a special care baby unit. This could perhaps be expected, a major surgical intervention might have long-term implications for a mother's health and capacity to cope with here new infant. However, it suggests that for some women this is still highly relevant after three months, when medical staff and those giving her support may be turning their attention to the infant rather than the mother. The stresses experienced during delivery and the first two days (recall that only infants who had spent less than 48 hours in SCBU were enrolled in the study, not those with more serious need for ongoing medical care) are still uppermost in their minds, possibly having an impact on their feelings for their infant. They responded to questions about their infant with discussion of how they themselves were feeling. This is not to say that they made no positive or other remarks about their child, but to reinforce the idea that there can be long-term emotional trauma (in addition to the physical difficulties that can follow a Caesarean section, sometimes underestimated when the return home is swift) when the birth did not go smoothly or as planned. This could lead to their own health difficulties colouring their thoughts and feelings about their infant. The infants delivered by Caesarean section did not display more fussiness, or have more health problems and neither did the small number who spent time in SCBU. Thus it is possible that maternal experiences during or immediately after the birth are the

relevant factor. Recent research has found in a large UK study that neither elective nor emergency Caesarean delivery were related to an increased risk for postnatal depression (Patel, Murphy & Peters, 2005). However, there may be less easily detectable but nevertheless important ramifications. With the rate of Caesarean births higher than it has been in the past, and thus more 'normal', mothers may not be allowed the opportunity to talk in sufficient detail about the implications for themselves and their relationship with their infant.

The study had limitations and these need to be kept in mind when interpreting the results. First and importantly almost half of the responses screened for coding did not last for a longer than one minute. The majority of the mothers in this sample had educational qualifications at 'Advanced Level' or higher, slightly higher than the whole FCCC sample. Those mothers with few qualifications may have been less comfortable with this method and consequently were not inclined to talk freely. The measure may be a better reflection of maternal thoughts and feelings for women who are more skilled at expressing themselves verbally, and a strategy using prompts (rather than the more formal and artificial research methodology or only one prompt after a pause, then sitting and waiting) may be a more useful way of eliciting feelings from women with fewer formal qualifications. This would need to be taken into account if this research strategy is adapted for clinical work. The finding of this study that maternal education was not significantly associated with critical remarks needs to be considered in the context of the fact that there were relatively few with no qualifications included in the analysis.

The measured reliability was moderate, but this was related to the low level of any critical remarks in any one speech sample in conjunction with a relatively small sample of transcripts used for the inter-rater agreement. While it may seem that the

sample itself was small in relation to the entire FCCC group of mothers, each coded transcript represents a substantial investment of specially trained researcher time, first to accurately transcribe the speech and then to listen several times while reviewing the transcript in order to make a number of codes. While the distinction between positive and negative is usually clear, tone of voice is often relevant to deciding whether a remark is neutral or critical. It was recommended to the first author during training with the Los Angeles team that ongoing discussion between coders concerning any ratings that they were unsure about was the best way to reduce rater 'drift' and ensure ongoing reliability after initial training, and this was the procedure followed.

Another limitation of the study is that no inferences about causality can be made. The measures used to examine birth experiences, child health, maternal depression and critical comments were all concurrent, the speech sample always preceding any of the formal questionnaires. In future work it would be interesting to assess information about the immediate birth experience, child health and maternal depression at one time point and critical comments some months subsequently. Nevertheless, there are some possible implications of this study for services supporting mothers and infants. In the UK,a number of routine contacts are made with mothers of new babies in the first few months after the birth. The research method is a formal process, with structured coding, but the same information could fairly easily be elicited during a sensitive open-ended conversation between a mother and a health professional. Health professionals generally ask about the infant, and if a little more time was available with each family than is often the case in busy well-baby clinics, these kinds of remarks might emerge spontaneously. The speech sample situation is artificial in that it is a one-sided conversation, but this process, mirroring to a certain extent a non-directive counselling session, can be illuminating. Allowing some

silence, and letting mothers talk freely without imposing any comments, giving advice or explanations, may help them to voice thoughts that they have been holding back because they feel that they should always be positive about their new baby and their status as a mother. Those who are overtly negative when asked about their new infant or about their own status or life could be identified by a health professional relatively easily, without a formal assessment procedure, and this could lead to them being introduced to the range of support strategies available that are designed to alleviate subsequent parent-child difficulties.

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Table 1: Sample characteristics

(a) Categorical Variables

Characteristic	**Values**	**N**	**%**
Child gender	Female	104	58.1
Living with partner	Yes	154	86.0
Highest maternal educational qualification	GCSE (age 16)	5	2.8
	Vocational qualification (age 16)	47	26.4
	Advanced level (age 18)	23	12.9
	Post 18 vocational	23	13.0
	Degree	25	14.0
	Higher degree	55	30.9
Social class of maternal occupation	Working	54	30.2
	Intermediate	31	17.3
	Managerial/professional	94	52.5
Birth induced	Yes	47	26.3
Forceps during delivery	Yes	13	7.3
Injected pain relief	Yes	37	20.7
Epidural	Yes	78	43.6
Caesarean section	Yes	36	20.1
Time in Special Care Baby Unit	Yes	6	3.4
Breast feeding at 3 months	Yes	109	60.9
Enjoy feeding baby	Occasionally/sometimes	22	12.3
	Usually	65	36.3

	Always	90	50.3
Non-maternal child care, 3 months.	Yes	10	5.6
Edinburgh Depression Scale	Above cut-off	20	11.1

(b) Continuous variables

Characteristic	**Mean**	**SD**
Mother's age	32.08	4.91
Progressive attitudes, Modernity Scale*	3.90	0.75
Traditional attitudes, Modernity scale*	2.73	0.64
Beliefs about costs to child of maternal employment*	2.78	0.98
Belief about benefits to child of maternal employment*	3.74	0.74
Edinburgh Postnatal Depression Scale (total)	6.69	4.64
ICQ Fussy *	3.18	1.00
ICQ Unadaptable*	2.38	0.86
DAS Consensus	49.06	5.97
DAS Satisfaction	41.04	5.00
DAS Cohesion	15.33	3.48
DAS Affectional expression	8.87	2.23
How critical M of partner	5.21	2.07
How critical partner of M	4.27	2.03
Number of weeks breast fed, in first 12 weeks	9.8	3.9
Child illness	1.44	1.45

* Mean item score

Table 2: Negative content of speech sample

(a) Prevalence and mean scores

	Mean	**SD**	**Range**	**At least one N (%)**
Total number of negative remarks	1.07	2.03	0-12	70 (39.1)
Negative about maternal health during pregnancy, labour, delivery, and subsequently	0.25	0.90	0-9	27 (15.1)
Negative about child and relationship	0.41	1.41	0-7	38 (21.2)
Negative about impact of child on life and work	0.41	1.07	0-6	35 (19.6)

(b) Inter-correlations between sub-scales

	Total	Maternal health	Child
Maternal health	0.52**		
Child	0.75**	0.12 (*)	
Impact on life	0.72**	0.03	0.34**

In all Tables:

(*) Significant at $p<0.10$

* Significant at $p<0.05$

** Significant at $p<0.01$

Table 3: Significant associations between continuous variables, the total number of negative remarks, and totals in each of the three sub-domains

	Total	Child	Maternal Health	Impact on life
DAS[1] Consensus	-.17*			-.18*
DAS Satisfaction	-.22**		-.17*	-.17*
DAS Cohesion	-.24**		-.15 (*)	-.20*
DAS Affection	-.20*			-.26*
DAS total score	-.25**			-.24**
M critical of partner	.24**		.14 (*)	.24**
P critical of mother				.21**
EPDS[2] total	.29**	.32**		.18**
Child ill health	.29**	.27**	.13 (*)	.15*
ICQ[3] Fussy	.23**	.27**		

[1] Dyadic Adjustment Scales

[2] Edinburgh Postnatal Depression Scale

[3] Infant Characteristics Questionnaire

Table 4: Significant differences in mean total number of negative remarks and totals for sub-domains, for categorical characteristics (standard deviations in brackets)

	Total remarks	Child	Maternal health	Impact on life
Depressed (20)	2.35 (3.30)	1.05 (1.82)	0.30 (0.57)	1.0 (1.75)
Not depressed (159)	0.91 (1.76)	0.33 (0.88)	0.25 (0.93)	0.34 (0.94)
F and significance [1,177 df]	9.38 **	8.94**	0.07	6.94**
Caesarean (36)	1.83 (2.64)	0.53 (1.13)	0.56 (1.56)	0.75 (1.52)
Vaginal delivery (143)	0.88 (1.80)	0.38 (1.02)	0.17 (0.62)	0.33 (0.92)
F and significance [1,177 df]	6.56**	0.60	5.29*	4.51*
Time in SCBU (6)	3.50 (4.14)	0.67 (0.52)	2.33 (3.62)	0.50 (0.84)
No SCBU (173)	0.99 (1.88)	0.40 (1.06)	0.18 (0.55)	0.41 (1.08)
F and significance [1,177 df]	9.34**	0.54	40.79**	0.04
Enjoy feeding baby:				
sometimes (22)	1.95 (3.08)	0.77 (1.66)	0.36 (0.58)	0.82 (1.53)
usually (65)	1.29 (1.94)	0.54 (1.16)	0.29 (0.86)	0.46 (0.99)
always (90)	0.71 (1.70)	0.23 (0.69)	0.20 (1.00)	0.28 (1.00)
F and significance [2,174 df]	4.00*	3.17*	0.38	2.36

Table 5: Significant independent predictors of the presence of any critical remarks, based on logistic regression

Predictor	**B**	**Wald**	**sig.**	**Exp (B)**	**95% C.I for Exp (B)**
Caesarean section	.98	3.70	0.06	2.67	0.98 to 7.28
Maternal depression, above EPDS cut-off	1.39	4.32	0.04	4.02	1.08 to 14.97
Enjoy feeding occasionally/sometimes (vs. always)	1.42	5.34	0.02	4.15	1.24 to 13.90
Enjoy feeding usually (vs. always)	.95	4.99	0.03	2.59	1.12 to 5.99
Infant fussy temperament	.45	4.45	0.04	1.57	1.03 to 2.40
Infant illness, first 3 months	.30	4.38	0.04	1.35	1.02 to 1.78

Not significant: In SCBU, DAS total, M Critical of partner

Chi Square 33.19 (9 df), $p<0.0001$, 70.6% correct prediction.

Table 6: Significant independent predictors of the number of negative remarks, based on multiple regressions

	Total		About Child/ relationship		About Maternal health		About Impact on life	
	Beta	t	Beta	t	Beta	t	Beta	t
Caesarean section	.16	2.37*			.15	2.11*		
Time in Special Care Baby Unit	.20	3.02**			.42	6.17**		
Child illness in first 3 months	.21	2.94**	.22	3.14**			.15	1.76 (*)
Fussy temperament (ICQ)	.19	2.79**	.22	3.10**				
DAS Affectional expression							-.18	-1.67 (*)
Maternal depression (EPDS total)	.19	2.81**	.25	3.46**				
Enjoy feeding occasionally (vs. always)	.14	1.97*						

Total: Adjusted R Square .24, F 8.59 [7, 165 df], $p<0.0001$. Pregnancy: Adjusted R Square 0.20, F 7.09 [7, 165 df] $p<0.0001$.

Child: Adjusted R Square 0.20, F 7.04 [7,165 df] $p<0.001$. Impact on life: Adjusted R Square .09, F 3.40 [6,137 df], and $p <0.001$

Appendix: Examples of negative statements

About child:

In the beginning when I had him, in the beginning, I hated him. I didn't like the look of him, I just thought "Errr, he's disgusting", I just looked at him and thought "Errr, move him away from me"; about an hour later she put him on top of me but I didn't want him anywhere near me, so it took a long time for me to get used to him. I didn't think it would be like that.

About maternal health:

I was feeling really awful after the Caesarean and I tried to do too much and as a result got quite poorly, developed an infection, and as a result I was full of antibiotics passing through my breast milk to here and it was just a really rough start for us.

About impact on life:

I would say the first 3 or 4 weeks were really just awful. It was getting to about six o'clock in the evening and I would think "Oh God, now I have got the evening in front of me because he (partner) is not here" so I was doing the whole day and the evening without any help which was difficult.