

**An Empirical Study Investigating the Role of Child-Mother Attachment Security
in Predicting Children's Responses to the Arrival of a Sibling.**

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To my Mum and Dad,

Overview of Volume 1

Volume 1 of the thesis is presented in three parts:

Part 1- The Literature Review comprises of an introduction to and review of the current available literature around the role of child-mother attachment security and interaction in relation to children's reactions to the transition to siblinghood.

Part 2-The Empirical Paper describes the process and results of conducting the current study investigating the role of attachment security in relation to children's responses to arrival of a sibling. Findings are discussed with regard to the original hypotheses, and the wider research and theoretical literature in the area of the role of child-mother attachment in relation to the child's reaction to the arrival of a sibling. Following this, weaknesses in the study's design are explored and alternative explanations for the findings are suggested. Finally ideas for how further research in the area might develop are given, along with a brief discussion of the broader professional and scientific implications of the findings.

As the data collection for the study was carried jointly with Zeyana Ramadhan, who was carrying-out a separate study investigating the role of parenting styles in predicting children's reaction to the birth of a sibling, details of how the studies were related and of how the joint parts of the study were divided and carried out are included.

Part 3-The Critical Review gives an extension of the discussion in part 2, around the limitations of the study and a further section on the researcher's reflections on the process of carrying-out the study, followed by final conclusions.

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Part 1: The Literature Review

**The Role of Child-Mother Attachment Security and Interaction in Relation to
Children's Reactions to the Birth of a Sibling.**

Abstract

This article reviews the current literature concerning the role of child-mother attachment security and parent-child interaction in relation to children's responses to the arrival of a sibling. After an introduction to the area, 9 articles are reviewed in detail in terms of the following criteria: rationale for the research; design and procedure; main findings and relevance to the wider literature. The majority of the studies reviewed found significant increases in behavioural problems in target children in response to the birth of a sibling and several found changes to child-mother attachment security status and interaction over the transition. The overall findings of the review are discussed in terms of their relevance to the wider literature and suggestions for the direction of future research are given.

Introduction

The birth of a sibling is a major event in the life of any family (Rutter, 1981) and brings with it a wide range of changes to the family system. As such, this near-universal transition in the family lifespan creates both opportunities for positive growth and potential sources of difficulty and developmental challenge (Dunn & Kendrick, 1980; Baydar, Hyle & Brooks-Gunn, 1997). For many years the transition to siblinghood has been an area of intense interest among clinicians and writers in the fields of psychology and psychoanalysis (e.g., Levy, 1934; Winnicott, 1977). However, there has been relatively little systematic observational research on the nature of the changes that take place in family relationships or the impacts that these changes might have on children's early development. Furthermore, the studies that have been undertaken have not been reviewed systematically. In light of this, the current review aims to undertake a detailed analysis of existing studies, focusing on theoretical perspectives adopted by developmental researchers, methodological strategies used in studies of early siblinghood and their substantive findings regarding the transition, with respect to change in patterns of child-mother interaction and attachment relationships.

The Transition to Siblinghood

The transition to siblinghood has long been depicted as a stressful event for an older child (Moore, 1969). Indeed, Rutter (1981) argues that the birth of a sibling is one of the major stressors that young children must learn to deal with. Although there does appear to be considerable variation in the kind of reactions children have to a new sibling, what seems universal is that the event is of great emotional importance.

Children can become more demanding and clingy and may temporarily lose some of their more advanced skills like toileting or feeding. Many of the behavioural changes parents describe following the birth of a sibling appear to reflect the typical ways in which young children respond to stress (Campbell, 2002).

The literature reviewed here then, is concerned with the role that child-parent attachment and mother-child interaction plays in this important transitional period in children's lives and in the occurrence of behavioural responses to the birth of a sibling. In order to provide a foundation for the reviewed literature, a brief overview of Attachment theory, the 'Strange Situation' Assessment and the construct of Maternal Sensitivity will be given. Following this, research exploring the interaction effects of Attachment Security and socioemotional contextual risk in relation to children's developmental outcomes and the transition to siblinghood will be discussed, in order to provide a context and framework for interpreting the findings of the studies included in the review.

Attachment Theory

John Bowlby's work on Attachment theory began during his work with maladjusted boys in the 1930s in children's homes. Bowlby began to notice that these boys suffered disruptions in their relationships with their mothers, and through time, came to realise that such disruptions were the precursors for later psychopathology.

Indeed, Bowlby came to believe that not only was the relationship with the mother (or primary caregiver) important for later functioning but it was also of critical immediate importance to the child (Cassidy and Shaver, 1999). Bowlby observed

that when separated from their mothers, children experienced extreme distress, even when their caretaking needs were met by others. Furthermore, such parent-child separations followed a predictable pattern of angry protest followed by despair (Cassidy & Shaver, 1999).

Fundamental to Bowlby's work was the idea that attachment behaviours increased the proximity of the child to its attachment figure (the mother in most cases), with some behaviours, such as smiling and vocalising signalling to the mother the child's interest in interaction, serving to bring her to the child, while other aversive behaviours, such as crying, bring the mother to the child to terminate them. Active behaviours such as approaching and following, also move the child to the mother. Bowlby described children as wanting to maintain a certain proximity to their mothers, with the attachment system becoming activated when a separation becomes too great and being terminated when proximity has been achieved. Within this framework, Bowlby saw attachment as a normal, healthy characteristic of human beings, occurring right across the lifespan (Cassidy & Shaver, 1999).

Key to Bowlby's theory of Attachment is the concept of the internal working model, Bowlby's way of describing the internal world. Bowlby asserted that the securely attached child stored an internal working model of a responsive, loving, reliable, caregiver, and a self that is worthy of love and attention, bringing these assumptions into all other relationships. In converse, according to Bowlby, the insecurely attached child may come to see the world as place where others should be treated with caution, viewing himself as undeserving of love and ineffective. Such assumptions are relatively stable in Bowlby's theory, being particularly persistent

and unlikely to be modified by experience in later life (Holmes, 1993). 'Attachment Security' has been defined by Ainsworth, Blehar, Waters and Wall (1978) as the state of being secure or untroubled about the availability of an attachment figure.

The Strange Situation Test

Being interested in the relationship being exploratory behaviour in infants and attachment, Mary Ainsworth wanted to develop a standardised assessment procedure for mothers and their babies that was naturalistic and could be reliably rated. Ainsworth's 'Strange Situation' for one year old children and their mothers, devised in the 1960's, has been described as a mini-drama in eight parts (Bretherton, 1991).

The 'Strange Situation' is made up of a twenty minute session in which mother and child are taken into a playroom with a researcher. The mother is then asked to leave the room for three minutes and on her return to leave the child with the researcher. After her return and reunion with the child, both mother and researcher leave the room for a further three minutes, while the child is left alone. Mother and child are then once more reunited. The entire procedure is video-taped and rated, with particular attention paid to the child's responses to separation and reunion and with its aim being to elicit different strategies for coping with the stress of separation. Four main patterns in response to the separation have been identified (Holmes, 1993):

1. Secure Attachment ('B') Here, infants are usually (but not always) distressed by the situation. At the point of reunion, these infants greet their parents, receive comfort if needed and return to contented or excited play.

2. Insecure Avoidant ('A') Here, children show little sign of distress at separation, ignoring their mothers on reunion, especially at the second time point when stress is presumed to be greater and remaining watchful and inhibited in their play.
3. Insecure Ambivalent (Insecure-Resistant) ('C') These infants are typically distressed by the situation and are not easily pacified by the reunion. Although they seek contact, they resist by kicking, turning away, squirming or rejecting offered toys. Such infants alternate between clinging and angry responses to their mother, with inhibited exploratory play behaviour.
4. Insecure Disorganised ('D') This strategy for attachment was the last to be added to Ainsworth's original system for rating attachment security. This small group of infants show a mixed range of confused behaviours such as freezing or displaying other stereotyped behaviours upon reunion with their parent.

Some of the studies included in this review use the Strange Situation to measure attachment security in target children in the transition to siblinghood, although in reporting their findings a broader classification of Secure or Insecure Attachment may be employed.

Maternal Sensitivity

Bowlby (1969) suggested that one of the pre-cursors to the development of a secure child-parent attachment may be the attachment figure's sensitivity in responding to the infant's signals. Indeed sensitive mothers have been defined by Ainsworth et al (1978) as those who perceive and evaluate their children's cues appropriately and who respond quickly and contingently.

In Ainsworth's Strange Situation assessment, four rating scales: sensitivity; acceptance; co-operation and accessibility were used to assess dimensions of maternal behaviour towards the child and have been found to be strongly related to attachment security. Ainsworth and her colleagues (1978) asserted that the most important aspect of maternal behaviour associated with attachment security was sensitive responsiveness to the infant's signals and communications (Cassidy & Shaver, 1999).

Although the studies reviewed here do not use the construct of maternal sensitivity as a measure of parent-child interaction in the transition to siblinghood, some of the early studies not focused on the role attachment security, do explore the role of and effects on mother child interaction in the transition to siblinghood. Indeed, some of the variables measured and coming under the umbrella term of mother-child interaction may correspond with the behaviours defined as maternal sensitivity, such as maternal affective involvement and maternal attention. Furthermore, both maternal sensitivity and affective sensitivity have been identified as important mediators in the role of attachment security (see De Wolff & Van IJzendoorn, 1997).

Although the transition to siblinghood is a normative event, many of the coming studies will demonstrate its destabilising effects on attachment security status and mother-child interaction. In low-risk samples, the arrival of a sibling may have little impact on children's long-term developmental outcomes, however in high risk samples the effects of the event may be amplified. Attachment security and its associates may also play a protective role in relation to the effects of the arrival of a sibling. Furthermore, many developmentalists have argued that individual patterns of

attachment have important implications for understanding emotional and social development (for example, Belsky & Nevorski, 1988; Rutter & Sroufe, 2000).

Contemporary studies have explored the interaction effects of attachment security status with high versus low risk environments in relation to predicting children's long term developmental outcomes. Using data from the National Institute of Child Health and Human Development Study of Early Childcare (NICHD), Belsky and Fearon (2002) examined the effects of attachment security status at 15 months in relation to cumulative socioemotional contextual risk and the interaction effects of these factors in predicting children's developmental outcomes at 3 years of age. Using the Strange Situation assessment and system of classification, children were rated as having either 'Avoidant', 'Secure', 'Resistant' or 'Disorganised' patterns of attachment. Socio-economic risk was assessed by calculating income to needs ratios of the families of children in the sample at 1, 6, 15, 24 and 36 months along with measures of maternal depression, parenting stress, father absence, maternal age, education and verbal IQ, observed maternal support for cognitive development, social support, marital quality, psychological adjustment, frequency of single parent status, minority status and child difficult temperament.

Belsky and Fearon (2002) then calculated a cumulative risk score for each of the children in the sample in relation to these variables. Five developmental outcomes were then assessed in target children at 3 years of age: Behaviour problems; Social Competence; Language Comprehension; Expressive Language; and School Readiness. The results showed that on average, Insecure infants were more vulnerable to contextual risk than their Secure counterparts.

In particular, the results of this study showed that Insecure Avoidant and Resistant infants were significantly more vulnerable to cumulative contextual risk than both Secure and Disorganised Infants. For example, the Insecure Avoidant group attained significantly higher levels of behaviour problems at the moderate level of risk, which those in other groups only received at higher levels of risk. However there were no differences between any of the groups in levels of behavioural problems at the high level of risk.

Both Avoidant and Resistant infants showed decreases in Social Competence associated with contextual risk to a greater degree than both the Secure, and Disorganised groups. In addition, this vulnerability to contextual risk occurred at a higher level of risk in the Resistant group compared with the Avoidant group.

In terms of Expressive Language Development, the results of the study showed that Avoidant infants also scored significantly lower than both Secure and Disorganised infants. Thus, whereas children classified as Insecure Resistant and Insecure Avoidant seemed particularly susceptible to the effects of contextual risk on social competence, children with Avoidant attachments 'succumbed' to this risk at lower levels than children with Resistant attachment histories. Furthermore, at a moderate level of risk, the Avoidant group scored lower on Social Competence than Secure, Resistant or Disorganised groups.

Interestingly, in contrast to all the other groups, the Secure group did not show decreases in Expressive Language with increasing social risk, perhaps suggesting a protective effect of a Secure Attachment in this domain. Furthermore, the secure

group scored higher on expressive language than the Avoidant and Resistant groups, but not the disorganised group, at high levels of risk.

Thus the results of this study show that the effects of attachment security appeared to vary as a function of social contextual risk, operating in terms of risk-resilience mechanisms. Furthermore, the results indicated that at moderate levels of contextual risk, Insecure Avoidant attachment was associated with poorer socioemotional outcomes and that in general Insecure Avoidant and perhaps Insecure Resistant styles of attachment should be considered most susceptible to contextual risk.

It is noteworthy that infants classified as 'Disorganised' Insecure appeared to be at no greater risk for poorer developmental outcomes at age three than their Secure agemates. The authors interpret this finding, which to some degree might appear contradictory to the current literature suggesting poorer socioemotional development for disorganised attachments (e.g., Carlson, 1998; Greenberg, 1999; Lyons-Ruth, Alpern & Repacholi, 1993), partly in terms high rates of attrition for this group in their current study. It may also be possible that the poorer developmental outcomes expected for this group may be expressed further along the developmental trajectory and in more severe types of behavioural disturbance.

Finally in thinking about the importance of socioemotional contextual risk in relation to children's developmental outcomes, Belsky and Fearon (2002) point out that in their study, when risk became especially high, not even a history of secure attachment could protect children from the effects of growing up in an adverse environment.

Other evidence to support the findings here on Insecure Avoidant Attachment being associated with poorer developmental outcomes in the presence of high levels contextual risk comes from a study by Aguilar, Sroufe, Byron, Egeland and Carlson (2000), who found that Avoidant Attachment in infancy was most likely to be associated with early onset anti-social behaviour when combined with multiple stressors.

The findings from these studies regarding the interaction effects of attachment style and socioemotional contextual risk in predicting children's developmental outcomes should be considered when interpreting the findings of the studies reviewed here exploring the effects of the arrival of a sibling. It may be worth noting that in the majority of the studies, participants are sampled from low risk backgrounds and with target children who are securely attached to their mothers at the start of the research projects. Thus it may be necessary to hold in mind the likely amplified impact of the transition to siblinghood for children in families experiencing high levels of adversity, in which settings, the arrival of a sibling may act as yet another risk factor, in relation to longer term outcomes. Furthermore, in children exposed to high levels of contextual risk who also have insecure attachments, the impact of the arrival of a sibling may be even greater still.

The Literature Review

The decision was taken only to include articles that were concerned directly with the child-mother relationship in the transition to siblinghood and thus related articles, for example, focussing solely on the development of sibling relationships, were excluded.

A search was conducted using Metalib, a service available to members of UCL, providing access to the databases of EMBASE, MEDLINE, Journals@OVID, PsycINFO, PubMed, Psychlit, and the Web of Science. Any articles that contained the words 'sibling*' and 'birth' and any of the following terms: 'attachment*'; 'relationship'; 'mother'; 'father'; 'parent' and 'child' or 'infant' were included, producing 219 records. (The asterisk symbol represents a truncation command, which allows a search of the stem of a word to be carried-out without specifying the word ending, thus broadening the parameters of the search).

After reading through the titles of all 219 search hits, any articles which were clearly not related to the subject area of the review were excluded (for example, where research had been conducted on primates or where target children were teenagers). Furthermore, articles, chapters or books published before 1980 or that were not available in English were excluded from the review. The abstracts of the remaining 41 articles were then obtained and read through and any not directly concerned with the child-mother relationship in the transition to siblinghood were discarded. In addition, all 20 books identified in the search, were excluded from the review (since they did not report the findings of any empirical studies not already reported in any of the articles located), leaving a total of nine papers to be included in the final review which specifically examined the mother-child relationship in the transition to siblinghood. Given the relatively small number of studies, all of which were intensive observational studies focusing on a relatively large number of domains of family functioning, the review examines each article individually with respect to the following issues:

- ❖ Rationale

- ❖ Design and Procedure
- ❖ Main findings
- ❖ Relevance to the wider literature

The articles are reviewed chronologically, in order to provide a picture of the way in which the field has developed. The review also focuses on a relatively detailed consideration of methodological issues, as the reviewed studies vary substantially in the kinds of observational procedures employed, which may have significant implications for the interpretation of findings and for the direction of future research.

Paper 1- The Arrival of a Sibling: Changes in Patterns of Interaction Between Mother and First-Born Child, Dunn and Kendrick, (1980)

Introduction

The first three papers to be reviewed will be discussed together, since they were published in a series by Judy Dunn and her colleagues, using data from the same study, with the same cohort of participants. Observational, interview and mother's report data obtained in different contexts during the transition to siblinghood was analysed with regard to changes in different aspects of child-mother interaction across the three articles.

In the first paper, Dunn and Kendrick (1980) draw the reader's attention to the tendency for child development research to focus solely on mother and child and not commonly on fathers or in this case siblings. They argue that little attempt has been

made to explain the ways in which a young child's relationship with his or her family changes over time, or how children are affected by transitions or difficulties other than separation. Furthermore, Dunn and Kendrick argue that changes in the families of young children such as in size, structure, social, economic or living circumstances, are common for young children and may be a significant source of stress. Indeed as the authors assert, although researchers have attached much significance to the birth of a sibling, the event's impact has been little studied, with their being little systematic knowledge of the incidences and severity of behavioural disturbances in first-borns during this period. As the arrival of a sibling so commonly brings a constellation of changes for the first-born, the authors attempt to tease apart the causal impact of changes from one another. Thus this study explores the impact of one such change, the birth of a sibling on interaction between mother and first-born.

Design

The study of forty-one predominately working-class families was carried out over the course of two pre-sibling birth and two post-sibling birth home visits with the first-born child and mother and father, lasting for a period of about one hour each, where the researcher observed unstructured parent-child interaction. First-borns included in the study ranged from eight to forty-three months of age at the time of the birth of a sibling. The unstructured observations were carried out by either one of the authors, with the first two sessions occurring one to three months prior to the birth of the sibling and consisting of sample periods when the mother was busy with housework and when she was more relaxed. In the post-sibling birth visits, the researchers included at least one session when the mother was feeding her baby with the first-

born present. The sessions were tape recorded to allow researchers to keep note of verbal exchanges between child and family members and self talk and transcribed directly following the session. In addition, notes were taken so that researchers could record in the narrative form details of the child's play and objects played with, along with control incidents and behaviour towards the new Baby.

The same observers visited the families on both occasions. Inter-observer reliability was assessed by comparing observers' records at each of the two time points with a sample of mothers and infants not included as part of the study. The range of agreement to agreement plus disagreement was .66 to 1.00 with a mean of .84.

Findings

Most of the children included in the study showed a significant decrease in maternal attention following the birth of a sibling and such decreases were evident in the areas that reflect the most subtle aspects of sensitivity to a child's interests. At the same time, Dunn and Kendrick (1980) found a significant increase in maternal restraint and prohibition and confrontation between mothers and firstborns following the arrival of a new Baby. Furthermore, the majority of the children were also reported to show marked increases in disturbance and in negative behaviour after the birth of a sibling.

Paper 2- Caring for a Second Baby: Effects on Interaction Between Mother and Firstborn, Kendrick and Dunn (1980)

Introduction

Following Dunn and Kendrick's (1980) earlier finding that the arrival of a sibling is associated with marked changes in patterns of interaction between mothers and their children, the authors here were interested in the mechanism by which such changes occur and asked for example, to what extent such changes are a direct consequence of the attention and care the mother gives to the new baby. The authors argue that up until this study, little research had been carried out in this area. Thus in this study, Kendrick and Dunn (1980) consider the direct effects of maternal attention given to the new baby on the interaction between the mother and the firstborn child by comparing mother-firstborn interaction in which mother is attending to the baby either by feeding, holding or care giving with situations in which firstborn and mother are interacting when mother is not involved with the new baby. In addition, the authors go on to ask whether such changes in firstborn interaction are present even when the mother is not occupied with the new baby and if so, if they are consistently associated with other factors, such as the age or sex of the firstborn or the nature of the situation involved (for example, if mother is breast or bottle feeding).

Design and Procedure

With the same sample data obtained using the observational methods and following the procedures described above, Kendrick and Dunn (1980) firstly, carried-out matched pairs analyses comparing observer ratings of a range of child-mother behaviours in the following contexts and time points: 'Feeding baby' and 'not feeding baby'; 'holding baby' and 'not holding baby; 'not with baby' (post sibling birth) and 'child-mother only interaction' (pre-sibling birth). In addition, in an attempt to separate out the relative contribution made by mother and child to incidents of confrontation occurring pre and post sibling birth, incidents of deliberate naughtiness observed pre and post the birth of a sibling were compared. Furthermore, levels of change occurring in child-mother interaction across all of these contexts were analysed separately in terms of the age and sex of target children.

Findings

The results of this study showed that patterns of interaction between mother and firstborn changed in a number of ways following the arrival of a sibling, when the mother was occupied with new baby. Interestingly, mother and child were both more positively involved with one another and also engaged in higher levels of negative encounters with one another in the presence of the new infant. Furthermore, the results showed that the times when mothers interacted with their new babies were not times when they ignored or neglected their firstborns. Thus, the general decrease in attention given to firstborns following the birth of a sibling found in Dunn and Kendrick's (1980) study could not then be accounted for by the mother's direct

preoccupation with the new baby. Indeed, it was when mother was not directly involved with the new baby that decreases in mother firstborn interaction were particularly marked (Kendrick and Dunn, 1980).

In contrast, the increased frequency of confrontation and of episodes of control following the arrival of a sibling occurred largely at times when mothers were feeding, interacting with or providing care to newborns. Kendrick and Dunn (1980) assert that on such occasions firstborns were being deliberately naughty or demanding.

An analysis of bottle feeding and breast feeding episodes in Dunn and Kendrick's study found a slightly higher level of firstborn-mother positive interaction in families where mothers breast fed their second child. However, both groups behaved in similar ways when mothers were holding or providing care giving to the new baby.

Furthermore, using the observational data obtained, Kendrick and Dunn (1980) found the age and sex of the first child was associated with particular aspects of the changes in mother-firstborn interaction occurring after the birth of a sibling.

Correlations carried-out between age of child and behaviours observed in the different contexts showed that in younger firstborn children the effects of mothers' interaction with the new baby were particularly pronounced. In the feed context, younger children spent more time in joint attention with mutual positive looking and staying close to mother, than older children. Younger children were also more likely to be prohibited and were in confrontation with their mother for a longer period of time than older children in the sample in the feeding context. In the holding baby

context, younger children also spent more time in joint attention with mutual positive looking and being close to their mothers, than older children. Furthermore, in the not with baby context, younger children were both more often held by their mothers and spent a greater proportion of time in aimless wandering than their older counterparts. In the pre-sibling birth observations, there were no sex differences in any of the measures of mother-firstborn interaction.

In an analysis of all the contexts combined in the post sibling birth observations, girls spent more time sitting without playing, initiated more instances of being close to the mother and spent more time interacting with the new baby than boys. There was also a non significant trend for boys to be deliberately naughty more frequently than girls.

Paper 3-The Reaction of Firstborn Children to the Birth of a Sibling: Mothers' Reports, Dunn, Kendrick and MacNamee (1981)

Introduction

The third paper in this series, looks at sample data from the same cohort of 41 families over the time points and period outlined in the previous papers (one to three months before the birth of sibling, until the second child was fourteen months old) and examines changes in firstborns' behaviour as assessed by interviews with mothers conducted over four pre-and post-sibling birth sessions. The interviews pre and post sibling birth, included questions on feeding, sleeping, toilet habits, attention seeking, independence and dependence, fears, worries and miserable moods, to elicit detailed descriptions of the first child's behaviour in specific situations, which were

then rated on a four point scale. The post-sibling interviews also consisted of questions about the firstborn's behaviour when the new baby was being fed, changed, cuddled or played with. This part of the study was therefore interested in the first child's reaction to events surrounding the birth of a sibling, behaviour towards the new baby and mother's view of these reactions and her own state (Dunn, Kendrick & MacNamee, 1981). In addition, factors such as children's temperament and changes in the mother's state were examined in relation to firstborn-mother interaction.

Findings

The parental report data from this study showed that more problems with toileting, demands for bottles, clinginess and other anxiety displays and increased confrontations and aggression were reported in firstborns following the birth of a sibling. The authors also found that both firstborn characteristics such as temperament and relationship to the mother played an important role in terms of the firstborn's reactions, with children rated as temperamentally 'difficult' (that is to say, negative in mood and intense in expression) being more likely to show increased sleep disturbances after the birth of a sibling (Dunn et al, 1981).

In addition, firstborns whose mothers had reported being both more irritated with their child pre sibling birth and being extremely tired and/or depressed post sibling birth, were more likely to show increases in negative behaviour towards their mother after the birth of a sibling (Dunn et al, 1981).

As Dunn et al (1981) note, some of the patterns of association found here between firstborn characteristics and firstborn's reaction to the birth, could be based on mothers' consistently negative perceptions of the firstborn. However, in arguing against this interpretation Dunn et al point out that in their study, temperamental differences in firstborns were both described by mothers and rated as being present by observers in such cases.

Finally, Dunn et al (1981) assert that such children were also described as interested in the new baby, and to be observed holding the new baby. Thus the authors assert that it would be difficult then to interpret that the assessment of temperament pre sibling birth and post birth descriptions of the child's behaviour were related only in terms of a consistently negative maternal view of the child.

These early studies, by exploring the mechanisms through which the arrival of a sibling affects the firstborn child and with their focus on mother-child interaction, can be seen as precursors to later studies on the role of attachment security in the transition to siblinghood. Furthermore, when interpreting the findings of this series of studies by Dunn, Kendrick and MacNamee (1980a, 1980b & 1981), it may be important to consider the more recent research evidence from Belsky and Fearon (2004) around the relationship between attachment security and cumulative contextual risk with regard to children's developmental outcomes. That is to say, we might expect the changes in mother-child interaction (perhaps the associates of mother-infant attachment security) observed here following the arrival of a sibling in this low-risk sample, to have more serious implications for children in high risk psychosocial contexts.

Furthermore, we might hypothesise that such changes in mother-child interaction, could lead to ruptures in attachment security, which when combined with additional stressors, for example, high demands on mother's time due to poverty and work demands, parental separation or maternal depression, could lead to poor longer term child developmental outcomes.

Study 4: Field and Reite, (1984) Children's Response to Separation from Mother During the Birth of Another Child

Introduction

This study investigates the hypothesis that children's responses to separation from their mother during the birth of a brother or sister are frequently characterised by agitation followed by depressed behaviour (See Robertson & Robertson, 1971 or Trause, Voos, Rudd, Klaus, Kennell & Boslett, 1981). In primates, this sequence of agitation-depression is also accompanied by physiological arousal, such as elevated heart rate (Field & Reite, 1984). Thus such physiological responses to the arrival of a sibling are measured here in firstborns, along with observed and reported reactions to the birth.

Design and Procedure

Researchers visited sixteen firstborn children (seven female, nine male) from middle income families, ranging in age between twenty-two and sixty months, in their own

homes on three occasions throughout the study. Mothers were hospitalised for an average time of 3.6 days. Children were allowed to visit their mothers and an average of 1.7 days of such visits were made, lasting for an average of 67 minutes in total.

Two of the home visits focussed on mother and child and occurred once 10 days prior to the birth of the baby and again 10 days after the baby was born and the third focused on father and child and was carried out 2 days following the birth, while the mother was still hospitalised. All three home visits consisted of at least 20 minutes of semi-structured play, constructed so as to standardise the process as far as possible and were video-taped. All of the videotapes were coded by researchers in terms of the following parameters: visual orientation; smiling; animation (exaggerated facial or gestural expressions); play (constructive, fantasy and co-operative) and talking (social, constructive, fantasy content and imperative statements). In addition, active responses to one another's suggestions for play, fussing and physically aggressive behaviour and the general hedonic tone of the sessions were recorded.

As well as behavioural observations, parents were also asked to complete two 34 item questionnaires (containing questions about eating, sleeping, toilet habits, play behaviour and illnesses). One questionnaire was concerned with their child's behaviour prior to the birth of their sibling and the other with perceived changes in their child's behaviour since the birth of the baby (with additional items on jealousy and hostility towards the new baby, attention seeking behaviours towards mother, offering help with the baby, affection towards mother and regression in eating behaviours and sleep problems). Researchers also recorded sleep via a camera

mounted in children's bedrooms and periods of active and deep sleep, drowsiness, quiet alertness, fussiness and crying were rated.

Findings

Fantasy play and talk increased significantly for all children over the three sessions from pre sibling birth to follow-up. Indeed, a separate analysis of fantasy play themes showed that a greater proportion of fantasy time play focussed on aggression towards their new sibling as compared with their mother. Children's constructive play remained the same across all three sessions, although there was an increase in maternal constructive play across the three sessions. In addition, there was also a decrease in co-operative play for both parents and children, accompanied by a reduction in visual orientation to one another and fewer responses to each other's suggestions for play themes. Affective behaviours also changed across the three sessions for children and their parents, with smiling and animation occurring less frequently after the mother's return compared with baseline ratings. The ratings of affect reflected positive affect for both children and parents prior to the birth of the new baby, negative affect for the child and neutral for the mother during hospitalisation and flat or depressed affect for both parent and child after the return from hospital. Furthermore, activity levels and heart rates increased in firstborns during mothers' hospitalisation as compared with levels at baseline and post hospitalisation. In an analysis of video-taped sleep states and behaviour of firstborns, Field and Reite (1984), also found an overall increase in the amount of time children spent sleeping across the three sessions and sleep disturbances were high during both hospital and post-hospital phases, including reluctance to sleep alone, crying out for

'Mummy' and nightmares. The parental report data showed increases in toilet problems, with an increase in 'accidents' across the sessions. In terms of children's general behaviour ratings, there were increases in clinging and aggressive behaviour in the hospitalisation and post-hospitalisation sessions respectively. Thus the results can be seen to be consistent with the earlier findings for example, Dunn and Kendrick (1980), Kendrick and Dunn (1980) and Dunn et al (1981), with increases in clinging and physically aggressive behaviour and changes in sleeping, illness and eating occurring in firstborns, during the period of mothers' hospitalisation and after the birth.

The self report data used to assess behavioural changes in firstborns in this study can be seen to be problematic to some degree, since it is possible that mothers reported behaviour changes in firstborns in line with what they expected to occur following the birth of a sibling. Indeed, in most of the studies reviewed here assessments of change in firstborns following the arrival of a sibling rely on mothers' self reports of behaviour changes in their children. However, in addressing this potential shortcoming Field and Reite (1984) point out that although participants were aware of the rationale for their study and held certain expectations regarding changes they foresaw in firstborns, the results of the analysis provide a different set of findings than those expected by parents. For example, although parents expected firstborns' distress to be alleviated by a visit to their mothers in hospital, the results of the study did not show this to be the case (Field & Reite, 1984).

A further potential limitation in the design of this study is that different measures were used to assess change in firstborns pre and post the birth of a sibling, which

allowed the authors only to rate whether a behaviour had or had not occurred across the two points and thus not to be able to assess subtle changes in the level of given behaviours over time (Field & Reite, 1984).

The findings in this study around physiological changes occurring in firstborns during the transition to siblinghood can be seen to add a considerable contribution to the literature since they provide a further source of evidence in support of findings obtained through observational and maternal report methods, regarding firstborns' reactions to the birth of a sibling.

It may be interesting to note that one of the main foci of this study is on the effects of mother-child separation during the transition to siblinghood during mothers' hospitalisation. In interpreting the findings of this study and thinking about the mechanism by which such separation impacts on children, it may be useful to consider the effects of such separations on attachment security. That is, it may be possible that mother-child separations, at this stressful juncture in children's development could exert a destabilising effect on attachment security.

Although the effect of this separation and the changes to mother-child interaction are assessed here in relation to a low-risk sample of children experiencing few psychosocial risk factors, again it might be useful to consider the amplified consequences of such separations and the possible destabilising effect on attachment security, in children where other risk factors, such as a lack of adequate respite childcare due to poverty, maternal depression or marital disharmony were present.

*Study 5-Stewart, Mobley, Van Tuyl and Salvador (1987) –The Firstborn's
Adjustment to the Birth of a Sibling: A Longitudinal Assessment*

Introduction

Stewart, Mobley, Van Tuyl and Salvador's 1987 study is the first of those being reviewed which assessed firstborns' reaction and adjustment to the birth of a sibling over time. In introducing the study, the authors draw parallels between the findings of earlier studies, for example, Dunn and Kendrick (1980), who reported that over 60% of mothers in the sample indicated that their children showed signs of being more grown up following the birth of a sibling and the observations of Anna Freud, who found that children showed rapid increases in developmental maturity during periods of stress (Stewart et al, 1987). Furthermore, they note Field and Reite's (1984) assertion that increases in fantasy play in pre-schoolers following the birth of a sibling represent active ways of coping with the new situation, suggesting that the transition to siblinghood can be a complex period of adjustment for firstborns (Stewart et al, 1987).

Design and Procedure

41 middle class families were interviewed at 1 month prior to the birth of a sibling and again at 1, 4, 8 and 12 months after the birth of the new baby to obtain information about the reaction and adjustment of firstborns' to the birth of a sibling. In addition, family members were observed in semi-structured play sessions to assess changes in family patterns of interaction. All of the mothers were pregnant with their

second child and married to the fathers of their firstborns. The firstborn children were made up of 25 girls and 16 boys whose ages ranged from 2 to 4 years at the time of the birth of the sibling. Mothers were interviewed in an open-ended style regarding their child's adjustment to firstly, the forthcoming birth at the pre-partum interview, the introduction of the new baby into the family at one month post-partum and the presence of a sibling in the remaining three post-partum sessions. In addition, mothers were asked to rate their first child's adjustment to the birth at each of the time points using a 10 point scale in terms of whether the adjustment was far less than expected, as expected or far better than expected. Following each of the interviews, mothers were also shown a list of 14 commonly occurring behavioural problems, derived from the analysis of parental interviews focussing on sibling relationships (see Stewart, Van Tuyl & Vala-Rossi, 1983) and asked to indicate which, if any, had become problems for their firstborns since the birth of their siblings, along with any other unlisted behavioural problems. Thus the principal reports in this study came from mothers' reports of adjustment problems during this transitional period (Stewart et al, 1987).

Findings

The results in this study are broken down into three domains relating to maternal reports of behavioural problems, the relationship between the age of the firstborn child and the type of behavioural problems reported and the observations obtained from mother-child and father-child play sessions in the family.

In terms of the parental report data, the results of the study can be seen to be consistent with those of earlier studies, where problems with toilet habits, demands

for bottles, clinginess and other displays of anxiety, as well as increases in confrontations and aggression, were more frequent following the birth of a sibling. Furthermore, according to Stewart et al, (1987), the results indicate that the reaction of the firstborn to the birth varies in terms of both the gender of the child and the gender of the sibling, but that the age of the child at the time of the sibling's arrival does not appear to play as important a role in the transition.

Indeed, in analyses of mother's reports of regressive behavioural problems in firstborns at 1 month, 4 months, and 12 months post partum, a significant interaction was found between time point, child gender and infant gender. In analyses conducted on all four sibling dyad composition groups: male-female, female-male, male-male and female-female, significant time effects (indicating the behavioural problems were highest at 1 month post-partum and lowest at the 4 and 12 months interviews, with the 8th month falling in between these), were found for all sibling dyad groups except those composed of older sisters and younger brothers (female-male).

Stewart et al, (1987) also found a significant correlation between the age of child and the type of behavioural regressive problems reported by mother at follow-up. At 1 month post-partum follow-up, older children were significantly more likely to engage in baby talk than younger firstborns. There was also a non-significant trend for younger firstborns to be more likely to display problems associated with using a security object, demanding a bottle at night and toilet training.

However, the authors argue that the absence of a control group of children who have no sibling, means that the results might need to be interpreted with caution. Indeed,

Stewart et al (1987), point to personal communication with Nadelman in December 1985, who found that some of the behavioural problems attributed to the effects of the transition to siblinghood, were also found in matched control children who had no sibling.

Indeed Dunn and Kendrick (1980) discuss the possibility that changes in patterns of interaction pre and post the birth of a sibling may reflect developmental changes rather than changes associated with the arrival of a sibling. Without a control group of participants who are not pregnant it is impossible to conclude that such changes are causally related to the birth of a sibling. However, Dunn and Kendrick (1980) did analyse the data of a subgroup of 20 infants where there had been a very short period (approximately 2 months) between the first assessment prior to the birth of a sibling and the second assessment after the birth. The authors found that without exception, changes in interaction followed the same pattern as their earlier findings and reached statistical significance, suggesting that changes were unlikely to be causally associated with developmental changes in firstborns.

The findings in this study can be seen to support those of Dunn and Kendrick (1980) and Stewart et al (1987), argue that the apparently regressive behaviour frequently seen in firstborns following the arrival of a sibling can be viewed as a form of imitation or mimicry, rather than a return to a less advanced stage of development. Indeed, Stewart et al purport that the shift in children's modes of behaviour from the 1 month to 12 month sessions, suggests that they are employing such strategies to re-establish or maintain parental involvement following the birth.

The authors made the decision not to show mothers lists of behavioural problems during the pre-partum period due to concerns about sensitizing mothers to look for particular types of adjustment problems in their firstborns. This can be seen to make pre-partum and post-partum comparisons of rates of behavioural problems in firstborns problematic, since it does not allow for the assessment of changes occurring over time. In addressing this weakness in the study's design, the authors decided to question each maternal report of a behavioural problem at the 1 and 12 months time points to establish that the difficulty did not exist prior to the birth of a sibling and had arisen since the birth. Despite taking such measures, one might argue that the choice only to show mothers lists of behaviour problems in the post-partum period, may have made them more, rather than less, likely to perceive the occurrence of behavioural changes in firstborns. Such perceptions could be based perhaps, on a biased incorrect memory of the pre-birth period as being less problematic and an expectation of the occurrence of behavioural problems after the birth. Furthermore, it is conceivable that the post-partum interviews designed to establish the presence of a reported behaviour problem may well have made mothers more committed in their conviction that the behaviour had occurred, due to a wish to remain consistent in their assertions.

A limitation in this and in the series of studies conducted by Dunn, Kendrick and MacNamee (1980, 1980 & 1981) is the relatively small sample size employed and non-randomised design, making generalisations regarding the findings difficult. Although it is clearly impossible to randomise mothers to pregnant or non pregnant groups of participants in order to employ controls, the later study conducted by Baydar et al, (1997) can be seen to address these weaknesses by a employing

longitudinal prospective design with a large cohort of participants, where comparisons between pregnant women and non-pregnant controls are possible.

Study 6- Teti and Ablard (1989) Security of Attachment and Infant Sibling Relationships: A Laboratory Study

Introduction

Teti and Ablard (1989) investigated the relationship between infant parent attachment and how first-born children responded to the birth of their sibling. The authors argue that sibling relationships relate to and in large measure derive from qualitative aspects of the parent-child relationship, suggesting that markers such as age, birth order and birth spacing, may be secondary to the role of parents in shaping sibling relationships. Indeed, according to the authors, studies of the effects of sibling status variables on early sibling behaviour have shown a great deal of inconsistency which may in part be due to sampling and methodological differences across studies, but may also relate to the idea that sibling status variables tell us little about the family contexts in which sibling relationships develop (Teti & Ablard, 1989). Thus in this study, sibling relationships were examined in terms of their relationship to children's security of attachment to the mother. Few studies up until this point had examined the relationship between security of attachment and early sibling relationships (Teti & Ablard, 1989), indeed at the time of this study's publication, the measurement of attachment had been restricted to infancy using Ainsworth's Strange Situation. However, observations by Ainsworth, Blehar, Waters, and Wall (1978) that preschoolers were less likely than infants to be distressed by brief separations

from mothers in the Strange Situation, led Waters and Dean (1985) to develop the Attachment Q Set, to operationally define and assess quality of attachment beyond infancy (Teti & Ablard, 1989). Indeed, according to the authors, both Waters (1987) and Vaughn (1985) have shown close correspondence between the Strange Situation categories and Q sort data. Thus this study is concerned with the role that child-mother attachment plays in the development of sibling relationships. Although it is not directly concerned with the transition to siblinghood, this study has been included here since it was the first study to use the AQS to rate target child-mother attachment security and to explore its role in influencing early sibling relationships and thus can be seen to play pivotal role in shaping developments in research on the transition to siblinghood.

Design and Procedure

Participants were 53 mothers, 43 with two children and 10 with three children. All families had a healthy toddler with at least one older child between the ages of 2 and 7 years and with the exception of one family, all the children came from two parent families. The toddlers ranged in age between 1.08 years and 2.16 years and older siblings ranged in age between 2.17 and 7.83 years of age. Mothers were asked to make two visits, occurring within two to four weeks of another, to a university playroom, one with their younger child and the other with both children.

On the first visit, the first child's attachment to the mother was assessed using the Strange Situation. Mothers then completed the attachment Q Set with regard to their older child. Two weeks prior to the first assessment, mothers were sent a list of the Attachment Q set items and were asked to consider how representative of their older

child's behaviour each item was. The AQS assessment was then completed in a separate room, with a trained research assistant, with mothers being asked to judge how 'like' or 'unlike' each of the 90 items was in terms of their child's behaviour over the last two weeks.

Sibling interaction was assessed on the second visit during a 31 minute, eight episode, videotaped period of interaction, where mothers and both children were present, designed to assess the affective quality of infant-sibling relationships and the children's behaviour towards the mother. All episodes were 3 minutes in length, except the first and last episodes which were 5 minutes. The session began with a 3 minute warm up session, followed by the first episode in which mothers were asked to play with their infants in any way they chose. In the second and third episodes, mothers were asked only to play with one child (determined through counterbalancing) while directing the other (target) child to play alone. Thus Mothers who were asked to play with their infant in the second episode were asked to play with their older child in the third and vice versa. In the fourth episode, mothers were told to leave the room and infant-sibling behaviour was observed in her absence. In the fifth episode, a female stranger entered the room, responded to the children's social advances, but did not initiate interaction. Following this, in the sixth episode, the stranger left the room with the older child and then in the seventh episode the infant was reunited with older child. Finally, in the eighth episode, the children were reunited with their mothers and were asked to play in any way the mother chose.

All sibling behaviour was coded by the second author who was blind to the Q-Set rating of older children and to infants' Strange Situation classifications. Inter-rater

reliability on infant-sibling behavioural coding was established between the first and second authors as ranging between .77 to 1.0 (M=89) in the second and third episodes and between .71 to 1.0 in the fourth and seventh episodes.

Strange Situation assessments were conducted prior to assessing sibling behaviour, in order that security of infant attachment ratings would not be confounded by participants' earlier exposure to the laboratory. Videotapes of Strange Situation interactions were scored using Ainsworth's et al's (1978) tripartite attachment classification system, which classifies infants as secure (type B, with four sub-classifications), avoidant (type A, with two sub-classifications) and resistant (type C, with two sub-classifications). Strange Situation coding was carried-out by the first author and inter-rater reliability was established with a graduate student who had no affiliation with the study.

Findings

The results show that of the 47 infants in the final sample, 33 (97%) were classified as secure, 8 (17%) were classified as avoidant and 6 (13%) as resistant, corresponding closely with those found in most US samples. For example, Lamb, Thompson, Gardner, and Charnov (1985), found rates of 66% secure, 20% avoidant and 15% resistant attachment classifications in their sample. Analyses of variance revealed there to be no group differences in security of infant attachment in terms of infant or sibling age. Furthermore, there was no correspondence between Attachment Q set scores and the age or sex of the older child or between infant sex and infant attachment security. (Teti & Ablard, 1989).

The results showed that infants with a secure attachment were less likely to behave aggressively when their mother played with the new baby and less likely to compete for mother's attention, crying and protesting less than insecure infants, when mothers turned their attention to the older child. This finding only held for infants and not for older children. According to the authors, such findings suggest that parental behaviour is probably important in offsetting the impact of sibling birth (Teti & Ablard, 1989).

Sibling Interaction

Analysis of the fourth episode of sibling interaction showed that more secure older siblings were significantly more likely to respond to infant distress with attempts to comfort and soothe, than were less secure older siblings. Furthermore, infants showed little hostility to the older siblings in the fourth episode. In dyads with insecure older children and insecure infants, the number of older children who aggressed towards their sibling was significantly higher than in dyads with secure older children and secure infants. Finally, in terms of infant distress, findings indicated that secure infants with more secure older siblings cried significantly less than secure infants with less secure older siblings. In addition, secure infants with secure older siblings cried significantly less often than insecure infants with insecure siblings (Teti & Ablard, 1989).

The same analyses of behaviours performed in the fourth episode yielded no significant effects in the seventh episode. Infants in this episode were typically very distressed following a protracted period of separation from their mother during the fourth, fifth and sixth episodes, and from their older siblings in the seventh episode.

ANOVAs carried out on behaviours coded as present in the fourth and seventh episodes revealed significant increases in care giving responses of older children in response to their infant siblings' distress. Furthermore, separate analyses on secure and less secure older children revealed significant increases in care giving responses to infant distress from the fourth to the seventh episode only in less secure older children. The authors assert that while more secure older children showed nurturant behaviour regardless of the level of infant distress, insecure older children only did when infant distress was particularly high (Teti and Ablard, 1989).

Sibling Status Variables

In terms of the analysis of sibling status variables, there were no significant associations between the sex of infant and the sex of the older sibling and no significant differences between the behaviour of children from two or three children families. In terms of older siblings (in each dyad), children of at least 45 months and older were significantly more likely to show care giving in response to infant distress in the fourth episode and seventh episodes than did older siblings who were less than 45 months old. However, it may also be important to note that more secure older siblings who were at least 45 months old showed significantly higher levels of care giving in response to infant distress in the fourth episode than their less secure counterparts.

Study 7-Touris, Kromelow and Harding (1995) Mother-Firstborn Attachment and the Birth of a Sibling.

Introduction

Following on from Teti and Ablard's (1989) study using the Attachment Q sort method to measure the role of firstborn and older child attachment security, this study uses the Strange Situation to assess the stability of infant-parent attachment from the last trimester of the second pregnancy to the early post-partum period. Although the Strange Situation had been established as a reliable and valid measure of infant-parent attachment in previous research (Ainsworth, Blehar, Waters & Wall, 1978; Bretherton & Waters, 1985; & Belsky & Neuworski, 1988) and had been shown to be sensitive to environmental stressors (Vaughn, Egeland, Sroufe & Waters, 1979), this was the first study to use the Strange Situation to investigate the stability of infant-parent attachment during this period.

Design and Procedure

In this study, the sample consisted of 40 white, middle class, mothers, and their infants, recruited from Lamaz groups, prenatal classes and mother and toddler groups. All of the mothers were selected from 'intact' families where they were the primary caregiver and did not work outside the family home for more than ten hours per week (Touris, Kromelow & Harding, 1995). The experimental group was made up of 20 children whose mother was pregnant with a second child and the control group consisted of 20 only children, matched with infants in the experimental group in

terms of age and sex, and their non-pregnant mothers. There were nine females and eleven males in both groups, with the average age of 16.3 months in the experimental group and 17.6 in the control group at the first point of observation and 21 months and 21.5 months respectively at the second observation (which was later in the experimental group than in the control group) (Touris et al. 1995). The first assessment of attachment took place in the experimental group, two to three months before the birth of a sibling, with post-birth assessments of attachment occurring six to ten weeks after the birth of the new baby, using the Strange Situation in video taped sessions. The videotapes were rated by both of the authors of this study.

The first and second authors' inter-rater reliability was 88% for global classifications and 82% for subgroup classifications, with all disagreements in ratings resolved by discussion. Here children were categorised into either 'securely attached' or 'insecurely attached' to their mother, using Ainsworth's original classification system. The Secure group of infants were classified as group B and the insecure infants were classified as either Group A-avoidant or group C-resistant, depending on their ability to use their mother as a secure base from which to explore in a laboratory environment. The results were analysed using chi squared statistics to assess differences in the control and experimental group in terms of attachment security over time.

Findings

In the experimental group, 12 out of the 20 infants changed in global classifications of attachment from secure to insecure (B to A) and a further seven changed in

subgroup classification (for example from B3 to B2), a total of 19 changes (95%) in the pre-natal to postnatal period, as compared with only seven changes (35%) in total in the control group (made up of four global changes and three sub-group changes). Thus there were significantly more changes in both global and subgroup attachment classifications in the experimental group, that is to say, those whose mothers were pregnant as compared with controls group participants (Touris et al, 1995), suggesting that the transition to siblinghood has a destabilising effect on infant-mother attachment.

These findings can be seen to give support to the findings in Teti et al's (1996) study, where the AQS was used to assess attachment security, although it is difficult to compare results across studies because of different methods used to measure attachment security in firstborns. However, several studies have explored the relationship between AQS and Strange Situation assessments of attachment security in infants. Indeed, many researchers have found that the AQS could differentiate between insecure and secure ratings of attachment in the Strange Situation in 12-18 month olds (for example, see Belsky & Rovine, 1990; Bretherton, Ridgeway & Cassidy, 1990; Magelsdorf et al., 1996; Sagi et al., 1995; Van Dam & Van Ijzendoorn, 1988; & Vaughn & Waters, 1990). Furthermore, several studies have demonstrated a moderately strong association between AQS scores and secure and insecure attachment in the strange situation, with average security scores of about .50 for the secure group and .25 for the insecure group (Cassidy & Shaver, 1999).

These findings demonstrate the destabilising effects of the transition to siblinghood on attachment security status in a low-risk, middle class sample. It may be that in this

case these changes to attachment security status are temporary in nature and that attachment security would return to baseline soon after the arrival of a sibling. Indeed, Bowlby (1969) saw attachment security as being stable across the developmental lifespan. However, in research on continuity of attachment and internal working models (in which attachment security classifications assessed using the Strange Situation are used to predict adult attachment status), evidence of what Belsky, Fish and Isabella (1991), have labelled label 'lawful discontinuity' has been found. That is, although researchers such as Hamilton (2000) have found that continuity of attachment status from infancy to adulthood is characteristic of development under conditions of low-risk, early attachment fails to predict later internal working models under conditions of high contextual risk (Weinfield, Sroufe and Egeland, 2000). Again in applying such thinking to the findings in the current study, it may well be possible that in a high risk sample experiencing a heavy load of contextual stressors, decreases in attachment security status occurring in response to the arrival of a sibling, could be less transient and perhaps have further reaching effects.

Study 8-Teti, Sakin, Kuchera and Corns (1996) And Baby Makes Four: Predictors of Attachment Security Among Firstborns During the Transition to Siblinghood

Introduction

Following on from the findings of Touris et al (1995) who showed that the arrival of a sibling could precipitate changes in firstborns' attachment security status, Teti, Sakin, Kuchera and Corns (1996) go on to explore the factors that predict the

firstborn's adjustment to the transition to siblinghood, as indexed by firstborns' security of attachment to their mothers in relation to selected structural variables such as firstborn age and sex and familial factors (maternal psychiatric functioning and marital harmony and behaviour). The authors predicted firstly, that firstborns would show decreases in the quality of attachment to their mother in the transition to siblinghood and that such decreases would be predicted by the firstborn's age. Based on the earlier findings of Thomas, Birch, Chess and Robbins (1961) and on theory citing the under developed socio-cognitive skills of children under the age of 2, the authors predicted that firstborns under the age of 24 months, would show lesser decreases in attachment security in response to the birth of a sibling than firstborns between 2 and 5 years of age. Furthermore, it was expected that security of firstborn-mother attachment could be predicted by marital harmony, maternal psychiatric functioning and the quality of the mother's behaviour towards her children. In particular, Teti et al, were interested in whether knowledge of maternal psychiatric functioning in these domains could predict firstborn-mother attachment security after the birth.

Design and Procedure

194 mothers in the third trimester of pregnancy with their second child, with pre-school aged firstborn children, between 12 to 63 months old (made up of 92 boys and 102 girls), were recruited into this longitudinal study. The majority of participants were middle class and were married or living with a partner.

All of the mothers were visited on two occasions in their own home by research assistants. The first visit took place in third trimester of pregnancy and the second 4-8 weeks after the birth of a sibling. Approximately, two weeks after the birth of the new baby, mothers were sent a battery of questionnaires to complete including the Locke and Wallace marital adjustment scale (1959) and the Brief Symptom Inventory devised by Derogatis and Melisaratos (1983), designed to tap into their own marital harmony and psychiatric functioning.

Firstborn-mother attachment security was measured using the Attachment Q-Sort (AQS) (Waters & Dean, 1985). Prior to the first home visit, mothers were sent 90 items from the Attachment Q Set and asked to think about how each item was representative of their first child's behaviour over the next two weeks. Mothers then completed the AQS at the start of each home visit under the supervision of a researcher to ensure that the sorting procedure was properly adhered to (Teti et al, 1996). An attachment security score was then derived from the AQS at time points 1 and 2, using the method described by Waters and Dean (1985).

Findings

Teti et al (1996) demonstrated that decreases in the security of attachment of firstborn children occurred following the arrival of a younger sibling, using the Q-Sort attachment security measure. Furthermore, Teti et al found that the most dramatic decreases in attachment were found in those whose mothers had significantly higher scores in terms of depression and anxiety.

As predicted, school age firstborns showed a significant decrease in attachment security following the birth of a sibling. Furthermore, in line with the authors' expectations, the size of this decrease was predicted by firstborn age. These findings can be seen to be consistent with those of earlier studies, for example, Thomas et al (1961) who found that very young firstborns tended to show little distress in response to a sibling's birth as compared with older preschoolers. Teti et al (1996) argue that these findings give support to idea that the ability of any child to experience displacement and feel threatened by the arrival of another child requires a more advanced set of socio-cognitive skills than those possessed by preschoolers under the age of 24 months for example, see (Kagan, 1981; Lewis, 1991). Furthermore, according to Teti et al, social cognitive theorists have proposed the development of conscious cognitive representations of behaviour and the conception of causality by 24 months of age and evidence for the emergence of a more sophisticated sense of self in 2 year olds comes from their ability to describe their own mental states and those of others (see Bretherton & Beeghly, 1982; Bretherton, McNew & Beeghly-Smith, 1981).

In contrast to earlier findings (for example, Dunn et al, 1981; Nadelman & Begun, 1982; & Stewart, 1990), sex of firstborns did not relate to firstborn adjustment. Teti et al (1996) explain this discrepancy in terms of the fact that these studies have investigated rather specific firstborn behaviours, such as clinginess, withdrawal and aggression, whereas in the present study, firstborn adjustment is more broadly defined by attachment security, of which specific behaviours are only a small part.

Although both in the earlier study by Stewart et al (1987) and in this study by Teti et al (1996) boys were found to be at no increased risk of behavioural problems in response to the transition to siblinghood, more recent research by Belsky and Fearon (2004), exploring the relationship between attachment security, gender and cumulative social contextual risk in relation to attentional performance outcome measures, found that infant boys with insecure attachments experienced significantly more attentional problems in the presence of high contextual risk than their more secure counterparts. These findings from Belsky and Fearon's (2004) study, demonstrating an interaction effect for insecure attachment security, gender and high contextual risk in relation to developmental outcomes, suggest that boys with insecure attachments might only be susceptible to poorer developmental outcomes in the presence of high psychosocial risk. Furthermore, applying such findings to the current study, we might expect a different profile of results than those found had it been conducted with a high risk sample, for example, with boys with insecure attachments showing greater increases in behavioural responses in the transition siblinghood than both girls and than their more secure male counterparts.

As well as firstborns' age, mothers' marital harmony was predictive of firstborns' adjustment to the transition to siblinghood, with marital harmony at time point 1 being significantly and positively related to firstborn security at time point 2. Interestingly, mothers psychiatric functioning at time point 1 was not related to firstborns' security at time point 1 but psychiatric symptoms at time point 2 were significantly related to attachment security at time point 2. According to Teti et al (1996) these findings may be interpreted, in part, in terms of the increased variability of maternal psychiatric functioning at time point 2 relative to Time point 1, which

may have contributed artefactually to stronger relations between maternal psychiatric functioning and attachment security. However, the authors argue that during the period shortly following the birth of a sibling, firstborns may be particularly attuned and reactive to perturbations in mothers' emotional functioning, as they attempt to adjust to their new role as siblings (Teti et al, 1996).

In addition, Teti et al's (1996) finding that familial factors, such as mothers' affective involvement and mothers' reported marital harmony at time point 1, predicted firstborn-mother attachment security at time point 2, can be seen to be consistent with those of earlier studies. (for example, Dunn & Kendrick, 1980 & Kendrick & Dunn, 1980) in which reports that confrontations between firstborn girls and their mothers before the birth of a sibling predicted firstborns' negative reactions after the birth (Teti et al, 1996).

Analyses of AQS change score subgroups, that is to say, stable-secure, secure-insecure and stable-insecure groups, revealed that among firstborns with high security scores before the birth of a sibling, substantial decreases in firstborn security following the birth could be predicted by knowledge of mothers' psychiatric symptom levels before the birth. Furthermore, there were no time 1 differences in children's AQS scores in the stable secure or secure insecure groups, although maternal psychiatric symptomology in the secure insecure group prior to the birth of a sibling was significantly higher than in the stable secure group, but not significantly different from that in the stable-insecure group. Teti et al (1996) assert that although causality cannot be established in the current study, the findings

suggest that firstborn attachment security to mother is indeed related to variations in maternal well-being and behaviour.

Teti et al (1996) point to several design weaknesses in their study. Firstly, although maternal variables are taken as predictors, the correlational nature of the data obtained in study, means that it is impossible to determine with certainty the direction of causation. However, the authors make the theoretical assumption that in the early years, mothers have the lion's share of influence over their children's functioning rather than vice versa. A second limitation is that initial assessments took place when mothers were in the third trimester of pregnancy with their secondborns and thus we cannot be certain whether children's attachments or maternal functioning was in some way related to the presence or course of mothers' pregnancies.

Study 9-Baydar, Brooks-Gunn and Hyle (1997)-A Longitudinal Study of the Effects of the Birth of a Sibling During the Preschool Years

Introduction

In introducing this study, the authors assert that a longitudinal approach in studying the effects of the arrival of a sibling is preferable to a cross-sectional approach, since pre-existing differences between children experiencing a birth can be controlled for. In this longitudinal study, the authors apply a conceptual framework focussing on the changes in the environment that may mediate the effects of the birth of a sibling. Here, the authors focus on the association between the birth of the new baby, the

parenting behaviours of the mother and the developmental trajectory of the older child.

Design and Procedure

The study uses data from the National Longitudinal Survey of Youth (NLSY) taken from 433 children aged between 3-5 years at the time of first assessment. The study was carried-out over a four year period from 1986 to 1990 and all of those children selected to participate in the study had lived with their mothers continuously. Various measures were used in this project to assess child outcomes and developmental resources and other covariates of child development and to obtain information about the timing and occurrence of the birth of a sibling. The Behaviour Problems Index (Petersen & Zill, 1986) was utilised to obtain mothers' ratings of problem behaviours occurring after the birth of a sibling. In addition, birth dates of all siblings were included in the data base. Two sets of assessment were carried-out, the first between 1986-1988 and the second between 1988-1990. The authors compared the children in the sample who had experienced the birth of at least one sibling over the course of the study with those who had not. Data about compositional differences such as age of child, sex of child, whether the child was firstborn, number of children between 0-11 years old in the household and maternal ability, in those experiencing the birth of a sibling and those not, was compared.

Findings

Between the 1986-1988 assessments of the children, 24% (n=12) experienced the birth of at least one sibling and 2% experienced the birth of two siblings. Between the 1988-1990 assessments, 16% (n=68) experienced the birth of a sibling and only one child experienced the birth of two siblings. Thus only 4% (n=15) of children experienced the birth of a sibling during both of the assessment periods. The results show few significant differences between the groups (those who experienced the birth of a sibling or not) in terms of maternal ability, marital status, level of employment and poverty. As expected, more of those who experienced the birth of a sibling were firstborns than were children who had not experienced the arrival of a sibling in either of the two time periods.

Mothers of those who experienced the birth of a sibling decreased their work hours both in the short and longer term. An associated decrease in maternal income together with the increased number of dependants resulted in a decline in the income to poverty ratio in families who had a new baby. An analysis of the change in developmental resources available to children in the study showed that the only resource to be affected by the birth of a sibling was maternal parenting style, with parenting towards girls becoming increasingly punitive following the new birth, in line with the earlier findings of Dunn and Kendrick (1981). The authors suggest that mothers become more punitive with daughters following the arrival of a newborn because here their expectations increase more than do their expectations with sons (Baydar et al, 1997).

The birth of a sibling was also associated with a significant increase in levels of behavioural problems, however, an analysis of the changes in behaviour scores occurring over the 4 year time span indicated that such changes were not permanent, with the authors predicting that levels of behavioural problems should return to 'normal' within 9 months of the birth. A significant decrease in reading ability was found in economically disadvantaged children after the birth of a sibling, although among those children who were not disadvantaged, the birth had a positive effect on reading ability. The authors argue that the effect on reading ability in economically disadvantaged children may be due to the stress on unmeasured resources after the birth and the positive effects on reading ability in those who were not disadvantaged may result from the increased time available from mother following the event (Baydar et al, 1997).

The most significant effect on children following the birth of a sibling over the longer time span was in terms of global self worth, with those from disadvantaged families being most affected. Furthermore, this effect was independent of the indirect effects of the changes in income to poverty ratio occurring after the arrival of a new baby. Indeed, the authors assert that it is possible that the presence of a younger sibling who competes for the family's resources may have a lasting negative effect on self esteem (Baydar et al, 1997).

Although the findings in this study appear to be consistent with earlier findings, since infant-mother attachment was not assessed, direct comparisons to other studies become difficult. The evidence cited here by Baydar et al (1987) around children from disadvantaged backgrounds being most affected by the arrival of a sibling can

be seen to be in line the more recent findings of Belsky and Fearon (2002) showing the interaction effects of high social contextual risk and insecure attachments in predicting poor longer term developmental outcomes, again giving support to the idea that psychosocial contextual adversity may play an important role in mediating children's reactions to the arrival of a sibling.

Conclusion

Thus the transition to siblinghood can be seen to be a difficult period of adjustment for firstborns and older children, where complex compositional variables, familial, maternal and socioeconomic factors interact to influence the developmental trajectory of the child. Although, studies in the area appear to consistently demonstrate decreased attachment security (e.g., Teti et al, 1996) and increases in levels of behavioural problems following the birth of a sibling (e.g., Stewart et al, 1987; Dunn & Kendrick, 1980), design limitations, including a lack of control groups, small sample sizes and wide variations in the measures used to assess change, mean that it is difficult to imply causality. Furthermore, although some researchers in the area of child development and attachment, for example, Dunn and Kendrick (1980) have attempted to address the process by which such change occurs, there would still appear to be a great deal to learn about the precise mechanism of change involved.

In translating the findings from these studies to the clinical arena and considering the effects of the transition to siblinghood in clinical samples, it might be important to consider the evidence accrued from attachment research regarding the interaction between attachment security status and high socioemotional contextual risk

environments and their amplified effects in predicting children's developmental outcomes. That is to say, although we may not consider the transition to siblinghood alone to be a major contextual risk factor in children's lives, in the case of children with insecure attachments in families already experiencing high levels of adversity, the arrival of a sibling could play a key role in determining their developmental trajectory.

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Part 2: Empirical Paper

An Empirical Study Investigating the Role of Child-Mother Attachment Security in
Predicting Children's Responses to the Arrival of a Sibling.
Victoria Hamilton

Abstract

The current study investigates the role of mother-child attachment security in predicting increases in problem behaviours in 31 children between the ages of 18 and 36 months, during the transition to siblinghood. Attachment security was measured in target children during a home observation prior to the birth of a sibling using the Attachment Q Sort method (Waters & Dean, 1985) to give a continuous attachment security score. Behaviour problems were measured using the Child Behaviour Checklist (Achenbach & Rescorla, 2000) both prior to and following the birth of a sibling. In addition, various demographic factors and child and mother status variables were measured prior to the birth so that they could be controlled for in the final analyses. The birth of a sibling was associated with significant increases in four CBCL symptom groups in target children: Aggressive Behaviour, Anxious Depressed, Withdrawn and Emotionally Reactive. These changes were not however associated with child-mother attachment security, except in a sub-group of target children under 22 months (N=14) where it was associated with significant increases in 'Anxious Depressed' behaviour during the transition. Several of the background variables were associated with significant increases in problem behaviours after the birth of a sibling. The findings are interpreted in relation to the literature around the role of attachment security, child parent interaction and socioemotional contextual risk factors in relation to the transition to siblinghood and increases in problem behaviours.

Introduction

The area of attachment has long been of interest to those concerned with human development. There is some evidence that a secure attachment to a primary care giver serves the function of providing the necessary security for a child to be able to explore his or her environment and forms the basis for interpersonal relationships in later life (Cassidy & Shaver, 1999). Indeed Bowlby (1973) hypothesised that the failure to form a secure attachment to a primary person in the early years of life is related to a later inability to develop close relationships.

In addition, theorists such as Maccoby (1983, 1984) see the mutually responsive relationship occurring in a secure attachment, where the parent is sensitive to the child's interest and the child in turn is committed to the relationship with the parent, as likely to promote many positive factors in terms of the psychological growth of the individual.

Furthermore, researchers interested in the social representational features of attachment, have explored the way in which a secure or insecure attachment history influences a child's developing representations of the self, other people and relational processes. This research can be seen to be important since it provides theoretical linkages between attachment and other developing skills in the child; such as a theory of mind, event representation, autobiographical memory, conscience and emotional understanding (Kochanska & Thompson, 1997).

Applying the idea of attachment to the clinical area, some attachment theorists have argued that infants with insecure attachments should be more prone to develop behaviour problems in later years. Indeed Bowlby (1969, 1973) proposed that disturbances in infant-mother attachment security may have long terms implications for self understanding, later relationships and even psychopathology.

Attachment security and the transition to siblinghood

Various factors may affect the security of attachment in the early years of life, for example, life transitions and family crises (Thompson, 1998). One such event can be the birth of a sibling. Indeed, Rutter (1981) argues that the birth of a sibling is one of the major stressors that young children must learn to deal with.

Family systems theory (Minuchin, 1985), holds that the addition of a new family member will produce major perturbations in the family unit along with an increase in stress for all family members. Indeed, according to Teti (2002), all studies examining the transition to siblinghood in preschool children have reported increases in the areas of dependency and anxiety (for example, clinginess, whininess, following the mother around the home and sleep disturbances), regression (for example, demanding a bottle or pacifier before bedtime or developing toileting problems after toilet training had been achieved) and aggressiveness (verbal or physical aggression, or both, directed towards mothers or new infants) (Dunn & Kendrick, 1980; Dunn, Kendrick & MacNamee, 1981; Field & Reite, 1984; Kendrick & Dunn, 1980; Legg, Sherick & Wadland, 1974; Nadelman & Begum, 1982; Stewart, Mobely, Van Tuyl & Salvador, 1987; Taylor & Kogan, 1973; Thomas, Birch, Chess & Robbins, 1961;

Trause, Voos, Rudd, Klaus, Kennell & Boslett, 1981; & see Vandell, 1987. for a review).

According to Teti (2002), Dunn's work in particular was key in showing the importance of the mother-infant relationship shortly before and after the birth of a second-born, in shaping sibling relationships in the early years. Indeed in a series of studies by Dunn, Kendrick & MacNamee (1980, 1980 & 1981) the birth of a sibling was associated with concomitant decreases in the amounts of maternal attention given to first-born children, to general decreases in prosocial interaction before and after the birth and increases in controlling and negative interactions between mothers and firstborns, particularly when mothers were involved with their new babies. In a study following on this, Field and Reite (1984), found that such decreases in positive firstborn-mother interactions coincided with increases in firstborns' activity, heart rates, fantasy play, talk and general agitation.

Teti (2002) cites the findings of Dunn et al, 1981; Legg et al, 1974; Nadelman and Begun, 1982 and Thomas et al, 1961 and argues that there may be much variability in the response of preschoolers in relation to the birth of a sibling, ranging from strongly negative to more nurturing and positive. Indeed, Dunn and Kendrick (1980) found that when mothers involved their firstborns in caring for infants and in understanding the infants' intentions and feelings, this led to the development of the affective quality of the infant-firstborn relationship.

In the study by Teti, Sakin, Kuchera, Corns and Eiden (1996), changes to attachment security in firstborn children were assessed using the Attachment Q Set, a measure

yielding a continuous score of attachment quality developed by Waters and Dean (1985) which was administered both prior to and after the birth of a sibling. A significant decrease in firstborns' attachment security was found following the birth of a sibling, with this drop being more pronounced in firstborns between two and five years of age as compared to those under twenty-four months old.

The findings of Teti et al (1996) are supported by those of Thomas et al (1961) who found that very young preschool children find the transition to siblinghood less difficult than older pre-school children.

Teti (2002) argues that this variation in dealing with the transition, may reflect social-cognitive differences between the two age groups, with older children being able to experience feelings of displacement in response to the arrival of a younger sibling and thus to perceive their new sibling as a threat to and rival with regard to their relationship with their mother. Indeed, older firstborns may possess the cognitive capacity to identify their sibling as the reason they are spending less time with their mothers.

Teti et al (1996) also found that higher levels of maternal psychiatric symptoms before the new baby's birth were associated with substantial decreases in attachment security in firstborns post-natally, with a drop from high levels before the birth to decreases of at least a standard deviation after the birth. Thus, according to Teti et al, decreases in firstborn attachment security in the transition to siblinghood, were predicted not only by the age of firstborns but also by maternal psychiatric

functioning, in terms of levels of depression, anxiety and hostility prior to the new birth.

Further support for Teti et al's (1996) finding of decreases in attachment security following the birth of a sibling comes from a study carried out by Touris, Kromelow and Harding (1995). Touris et al used the Strange Situation Test to assess changes to the stability of firstborns' attachment in a five month period from the last trimester of the second pregnancy to the early post-partum months. The study had a quasi-experimental design, with twenty infant participants whose mothers were pregnant assigned to the experimental condition and twenty participants matched for age and sex to those in the first group and whose mothers were not pregnant, assigned to the control group. All participants were only children and the mean age at the first point of observation prior to the birth of a sibling was 16.3 and 17.6 months respectively in the experimental and control groups. At the time of the second observation, after the birth, the mean age in the experimental group was 21 months and 21 month in the control group. Based on Bowlby's (1969) attachment theory, the Strange Situation Test developed by Ainsworth et al, (1978) is a semi-structured laboratory based procedure designed to assess individual differences in infant-mother attachment. The procedure allows a categorisation of the infant as either securely or insecurely attached to their mother. Designation to the categories is based on the infant's ability to use their mother as a secure base from which to explore the laboratory during pre-separation episodes. Using this method, the researchers found that infants' attachment security changed following the birth of a sibling. Significant changes in attachment security status were found in both directions, with some infants changing

from insecure to secure and some changing from secure to insecure. The greatest changes to attachment security were found in the experimental group.

These studies investigating the effects of the arrival of a sibling tell us a great deal about the mechanism through which the arrival of a sibling exerts its negative effects on children's developmental outcomes. We might further hypothesise that decreases to child-mother attachment security occurring after the arrival of a sibling, come about to a large degree as a result of changes to mother-child interaction occurring throughout the transition. In addition, it may be that such decreases in child-mother attachment security impact on children's sense of self worth. Indeed Baydar, Brooks-Gunn and Hyle (1997) found that significant and lasting reductions in children's global self worth occurred following the arrival of a sibling. Furthermore, if, as Cassidy and Shaver (1999) argue, attachment security brings about the development of a sense of self in early life, we might in turn expect decreases in attachment security to negatively affect children's sense of self worth.

It may be important to note that the majority of studies investigating the effects of the arrival of a sibling have been carried out using middle class samples experiencing low levels of psychosocial risk. In such environments the arrival of a sibling has been shown to exert significant effects on levels of behavioural problems, child mother interaction and child mother attachment security. It follows that we might expect these effects to be more severe and perhaps longer lasting in more aversive, high risk environments. Thus, although the transition to siblinghood may be seen as an important but normative event for children in low risk environments, in high risk environments, with its destabilising effects on attachment security status, the arrival

of a sibling may act as another risk factor, increasing children's likelihood of achieving poor developmental outcomes.

A large scale study by Belsky and Fearon (2002) demonstrated the interaction effects of the attachment security status and socioemotional contextual risk in predicting children's longer term developmental outcomes. This research using data from the National Institute of Child Health and Human Development Study of Early Childcare (NICHD), showed that in high risk environments, children with insecure attachment histories were significantly more likely to 'succumb' to poorer developmental than their more secure counterparts. Based on these findings we might expect the effects of the arrival of a sibling to be more pronounced in children with insecure attachment histories already experiencing high levels of contextual risk. In the case of these children, the arrival of sibling might act as a particularly salient event in terms of developmental outcomes, perhaps both through its direct negative effects on child-mother interaction and attachment security status and also via its less direct negative effects, for example, on family income to poverty ratio. It might be important therefore when interpreting the findings of the current study to consider how the effects of the arrival of a sibling might be amplified in children experiencing high levels of socioemotional contextual adversity.

The current study follows on from Teti et al's (1996) work and asks whether security of attachment prior to the birth of a sibling predicts behaviour changes in target children after the sibling is born. Rather surprisingly, this area seems to have been neglected in the research literature. Although there have been various studies demonstrating changes in first-born's behaviour in many areas (for example,

dependence and anxiety, regression, and aggression) following the birth of a sibling (Dunn & Kendrick, 1980; Dunn et al,1981; & Nadelman & Begun, 1982), there appear to be none investigating these changes in relation to prior security of attachment.

The research aims to investigate this hypothesis in relation to preschoolers aged between 18-24 months at the time of the arrival of their sibling, since children of this age group have been identified in terms of the current literature as those who are most affected by the birth of a sibling (Teti et al, 1996). Since decreases in firstborns' attachment security were associated with higher rates of maternal psychiatric symptoms prior to and post the birth of a sibling in Teti et al's (1996) study, such factors, as well demographic variables, were measured in the current study in order that their effects could be controlled for.

Method

Participants

Participants were 31 pregnant women who had at least one child between the ages of 18 months to 36 months at the time of recruitment. The majority of the sample were from middle class backgrounds and were working or on maternity leave at the time of the home visit. Only two of the participants were from economically disadvantaged backgrounds and were not in employment during the study period. All of the women were living with their husband or partner (who was also the father of their children) at the time of the study.

Design

A pre–post design was employed, using a community sample of mothers in their third trimester of pregnancy and their pre-school age children. A sample of ‘naturalistic’ child-parent interaction was videotaped at time point 1 (before the birth of the sibling) and following this, the Attachment Q-sort (AQS) (Waters & Dean, 1985), an assessment tool used to rate the security of infant-parent attachment, was applied to the material gathered by researchers when video taping parent-child interaction. In addition, a battery of measures were given at time point 1 and one of these measures, the Child Behaviour Checklist (Achenbach & Rescorla, 2000), was given again at time point 2, one month after the birth of the new Baby, so that behavioural changes in target children could be compared across the two time points, allowing the role of child-mother attachment security in relation to children’s responses to the birth of a sibling to be measured.

Procedure

Time Point 1

Recruitment

Participants were recruited by the researchers from a midwifery clinic within a large general hospital. If women were interested in hearing about the study, the aims of the project were explained and potential participants were informed about what they would be asked to do should they give their consent to take part. The researchers made it clear that the women were under no obligation to take part and that whether

they chose to take part or not, the care or treatment that they received via their midwives would not be affected in any way, emphasising that participants could withdraw from the study at any time, again with no adverse consequences. Those who fulfilled the study criteria and who expressed an interest in taking part in the study were handed an ethics committee approved information sheet giving details of the study in lay terms (See Appendix A). Participants were also given the opportunity to have any questions answered in full. The researcher and participant then exchanged details and it was agreed that potential participants would be contacted after they had had a couple of days to consider whether they wished to take part.

The Researchers offered to personally administer questionnaires if participants preferred, to ensure that those whose first language was not English or who had difficulties with reading and/or writing were not excluded.

Data Collection

Appointments for a home visit were made over the telephone with those women who agreed to take part at a time when they would be at home with their toddlers engaged in everyday activity, such as playing, tidying and eating, so that a representative piece of mother-child interaction could be filmed.

Setting

The research was conducted in participants' homes. Firstly, this was intended to make the process more convenient for participants who were in the last stages of

pregnancy; and secondly, in order that the interaction being recorded was as representative as possible a sample of typical behaviour.

Home Visits

Pregnant women and their toddlers were visited before the birth of their new Baby, in most cases during the last trimester of pregnancy. This kept the period between first interview and the birth of their new Baby as short as possible, so that it was possible to carry-out follow-ups within the time frame available and also to reduce the likelihood of other life events or large developmental changes occurring in target children, which may have served to confound the findings.

Researchers asked to visit at a time when other family members were not around where possible, so that one-to-one child-mother interaction could be observed, although on some occasions, older siblings, fathers, grandparents or others were around during home visits. In the majority of cases, the same researchers who recruited each participant also carried-out the data collection during the time point 1 home visit and in all cases the same researchers visited the participant at time point 1 and carried-out the follow-up. The home visit lasted for one and a half to two hours, during which time the researcher video-taped child-mother interaction and also asked participants to complete a battery of questionnaires. In some cases, where participants preferred, researchers completed the questionnaire with the participant. Participants were also asked to sign two copies of a consent form (whose format had been agreed at the earlier COREC committee meeting) (See Appendix B).

The researcher acted mainly as a passive observer, following mother-infant dyads around with the camera in as relaxed a manner as possible. However, in line with the instructions given for completing the AQS (Waters & Dean,1985), any interaction between the researcher and child-mother dyad was used as information to rate the AQS, for example, in areas of child behaviour pertaining to their willingness to share things with adults or how keen they were to play with strangers who came into the home.

Researchers continued to video-tape mother-child interaction while participants were completing questionnaires and throughout the entirety of the visit. Since the AQS gives the most valid ratings when a wide range of areas of interaction are available to rate, researchers wished to obtain the maximum period of video-taped footage, so that as accurate as possible a rating of mother-child attachment could be made using the measure. Furthermore, this also provided researchers with information regarding the infant's reaction to not receiving their mother's full attention and about whether they were able to occupy themselves easily or went to their mother for help, again providing salient information for rating the AQS.

Following the observation, the Attachment Q-sort (Waters & Dean, 1985), an assessment tool being used to rate the security of infant-parent attachment, was applied to the video taped infant parent interaction. This was carried-out outside of the participants' homes.

The recruitment, data collection and rating of video tapes for this research was carried out jointly between Zeyana Ramadhan and the author, who were

investigating parenting and attachment style respectively and how they impacted upon behavioural changes in the first-born child after the birth of the sibling.

Since both studies were investigating children's reactions to the birth of a sibling, and were interested in increases in problems behaviours occurring over the transition, it made sense that the two studies should be conducted in unison so that some of the data collected could be combined and used in both projects. The video-taped sessions of mother-child interaction obtained prior to the birth of the sibling in both studies were used to rate attachment security in the current study and observed parenting style in the other. Information collected from participants via questionnaires administered in the studies, regarding demographic status variables, behaviour changes occurring in target children over the transition to siblinghood and maternal psychiatric symptoms, was also applied in both studies.

In addition, several questionnaires on parenting style were administered, although the information obtained from them was only used in the study investigating parenting styles and not in the current study.

Measures

In the current study, the following measures were administered at Time Point 1:

The Help and Support Questionnaire (SSQ6) (Sarason, Sarason, Shearin & Pierce, 1987): A six item measure of social support. The SSQ6 is based on and psychometrically highly correlated with the 27 item SSQ originally devised by

Sarason, Levine, Basham and Sarason, (1983). The items on the SSQ were factor analytically derived from a large number of items intended to measure the functions served by social networks. Furthermore, Sarason et al (1987) report that the internal reliability co-efficients for the SSQ6 items are high and that good test-retest reliability for the SSQ6 has been obtained.

The Brief Symptom Inventory (Derogatis & Melisaratos, 1993): A fifty-three item self report measure intended to assess maternal psychiatric symptoms. The data from participants' responses to each of the items on the questionnaire is analysed in relation to nine symptom dimensions which have been derived through a combination of clinical, rational and empirical procedures (Derogatis, 1993). The validity of the BSI has been tested on samples of 1,002 psychiatric outpatients, 719 'normal' participants and 313 psychiatric inpatients, and has been shown to reliably distinguish between psychiatric groups and 'normal' controls. Furthermore, according to Derogatis and Melisaratos (1983) the nine syndrome dimensions of the BSI have also shown high convergent validity with the clinical and Wiggins scales of the MMPI (Dalstrom, 1969; Wiggins, 1966).

Reliability of the BSI tested on a group of 60 non patients over a two week interval, showed good stability co-efficients of .80, .90. and .87 respectively, in terms of positive symptom total, global symptom severity and positive symptom distress indexes, showing strong evidence that the BSI gives consistent measurement over the short term (Derogatis & Melisaratos, 1993).

Maternal psychopathology and social support were measured so that they could be controlled for as they have been previously found to be associated with children's reactions to the birth of a sibling.

The Child Behaviour Checklist (CBCL) (Achenbach & Rescorla, 2000): The CBCL is a parental self report measure of their child's behaviour problems. This measure was used to assess the behaviour of the firstborn child prior to and then following the birth of their sibling. It was administered at time point 1 by the researchers and then re-administered at time point 2 by post.

According to Achenbach and Rescorla (2000), the 100 CBCL items have been generated, selected and revised through consultation and research with practitioners, researchers and parents of preschoolers and on the basis of earlier epidemiological research and practical experience. The 100 items of behaviour making up the CBCL are then categorised into seven syndrome scales of problem behaviours which have been found to occur together in the analyses of large numbers of CBCL forms for children between the ages of one and a half to five and a half years (Achenbach & Rescorla, 2000). These syndrome scales are labelled 'Aggressive Behaviour', 'Anxious Depressed', 'Somatic Complaints', 'Withdrawn', 'Sleep Problems', 'Emotionally Reactive' and 'Other Problems' and change in these syndrome groups was assessed individually for each of the target children across the two time points in the study.

A sample of 563 referred children consistently showed higher scores on all problem scales of the CBCL compared with a group of non-referred children closely matched

in terms of age, gender, socio-economic status and ethnicity, suggesting that the CBCL has high content validity (Achenbach & Rescorla, 2000).

The ability of the CBCL to measure problem behaviours over time has been assessed by computing test-retest Pearson's Correlations and t tests to obtained through mothers' ratings of the CBCL on two occasions (with a mean interval of 8 days) in a sample of 68 non referred children. Reliability was shown to be high with a mean test-retest correlation co-efficient across all scales of .85 (Achenbach & Rescorla, 2000).

The Attachment Q Sort (AQS) (Waters & Dean, 1985). The attachment Q sort (AQS) measures attachment quality and was developed by Waters and Dean (1985) as a practical alternative to Ainsworth's Strange Situation, to yield a rating of attachment security based on a continuum of insecure to secure attachment.

The AQS consists of 90 individual statements that describe the behaviour of infants and young children observed during periods of interaction with primary care-givers. According to Waters (1995), the items were selected to give a comprehensive categorization of the secure base behaviour of the infant in respect to the care-giver over a 2 to 6 hour period of time, ideally occurring over multiple settings and occasions. Such circumstances make up the conditions for the most reliable and valid assessments of individual differences along the continuum of optimum to maladapted secure base behaviour. In its original conception, the AQS was designed to be completed by observers who were trained in the meaning of items with respect to the Bowlby/Ainsworth theory of attachment. Unlike the structured lab setting of the

Strange Situation, the AQS is carried out in a naturalistic home setting. The content over areas and individual items of the AQS were suggested by researchers with expertise in the area of child-parent attachment and were designed to tap into a range of dimensions believed to reflect either secure base phenomena itself or behaviour associated with it in children aged between one and five years. An initial pool of items was refined to one hundred by Waters and Dean (1995). However the current AQS contains ninety items, representing a subset and extension of the one hundred item pool, developed by Waters and Dean (Waters, 1995).

Child-parent attachment security was rated using the AQS by assigning its 90 items into categories using a fixed distribution in line with the procedure described by Waters (1995). The researcher sorted the items into nine categories in terms of their salience or relevance to the child whose behaviour was being rated. Items that were more characteristic of the child were given high placement (that is to say, categories seven to nine) and less characteristic items were placed in the low categories (categories one to three). Items that were neither characteristic nor uncharacteristic or items that were not observed were sorted into the centre of the distribution (that is to say, categories four to six). The researcher then divided the items into three broad categories (descriptive of the child, not descriptive of the child and neither/cannot judge). Following this initial division, the researcher further sub-divided each of the three categories into three. After checking and adjusting the number of items in each category, a final distribution of ten items in each of the nine categories (that is to say, for a rectangular distribution) was produced. According to Waters (1995), the 'Q' sort description that results should provide a broad picture of the child's secure base

behaviour and personality attributes as determined in the context of child-care-giver interaction.

According to Cassidy and Shaver (1999), the strength of the AQS is that it permits the salience of a behaviour in the child's repertoire to be distinguished from the frequency with which it occurs. Furthermore, the AQS helps to prevent observer biases and lends itself to a variety of qualitative and quantitative analyses. The AQS data can be analysed in terms of individual items or summary scales or a comparison of the child's Q sort profile to a criterion sort can be given. Waters (1995) has developed a criterion for the construct of attachment security by collecting and analysing the Q sorts of experts in the field. The child's security score is a correlation coefficient between the observed sort and the criterion sort and represents the child's position on a linear continuum with respect to security (Cassidy & Shaver, 1999).

According to Cassidy and Shaver (1999), reliability on the AQS does not require training, with studies of inter-observer reliability yielding results ranging from .72 to .95. AQS security scores have been found to differentiate twelve to eighteen month old infants classified as secure or insecure in the Strange Situation in several but not all published studies (Belsky & Rovine, 1990; Bosso, Corter & Abramovich, in press; Bretherton, Ridgeway & Cassidy, 1990; Mangelsdorf et al., 1996; Sagi et al., 1988; Van Dam & Van Ijzendoorn, 1988; & Vaughn & Waters, 1990).

The researchers using the Attachment Q sort were fully trained in the use of this tool at UCL.

Time Point 2

Participants were contacted by telephone shortly following their expected due date of delivery (permission to do so having been previously obtained at time point 1) to check that there had been no complications during the latter stages of pregnancy or during or following the birth, that mother and baby were healthy and that participants were willing to complete the final stage of the study. In all cases since there were no complications and all participants reported being happy to complete the follow-up stage, the women were sent the Child Behaviour Checklist to complete for a second time in a stamped addressed envelope with a covering letter (see Appendix D), by post.

Power Calculation

Since there were no other studies investigating the relationship between attachment security in children and changes in their behaviour following the birth of a sibling, the study was designed originally to have 80% power to detect correlations in the range .30 - .40 at $\alpha = .05$. Power calculations indicated that a sample of 40-80 participants would be required for this level of power.

Exclusion Criteria and Ethics

Participants were excluded if they were having a troubled pregnancy (as determined by their medical consultant) and were deemed high risk by staff at the hospital at the recruitment stage. This exclusion criterion was intended to ensure that mothers who had been identified as being at risk did not endure any further distress than they may have already encountered during a difficult pregnancy, by taking part in the study.

Participants also were excluded if they had very limited English language skills, which were not sufficient to allow them to comprehend the questions contained in the measures being used. Although every effort was made by the researchers to allow participants whose first language was not English but could complete the questionnaires with help, to take part in the study, in practice, it was not possible to recruit many such participants since they spoke languages other than English with their children, which would have made rating the AQS problematic. The researchers made every attempt to recruit an ethnically, socio-economically and culturally diverse sample of participants, in order that the findings of the research could be generated to as wide as population of individuals as possible.

Results

The data analysis for this study was conducted in three phases. In the first stage, participants' demographic information was analysed to produce descriptive statistics for the sample. In the second phase, in order to measure children's behavioural reactions to the birth of a sibling, CBCL data obtained at time points 1 and 2 was analysed firstly to provide descriptive statistics for target children in the sample. T-tests were then carried out to compare participants' mean CBCL scores at time points 1 and 2, producing mean CBCL change scores. Correlations were then carried out between these CBCL change scores and the background variables analysed in section 1, in order that the effects of these factors could be measured and partialled out in later analyses. The final section examined the role of attachment security in predicting CBCL change in target children across the transition to siblinghood (Time Points 1 and 2). Correlations measuring the association between AQS Attachment scores and CBCL behaviour change across the study were carried-out. In addition, based on earlier findings indicating that there might be differential reactions from older and younger in response to the birth of a sibling, correlations were carried-out measuring associations between AQS Security scores and CBCL change scores for sub sets of older and younger children.

Section 1 Descriptive statistics

Descriptive statistics for the main study variables are displayed in the following tables.

Table 1

Means and standard deviations of participants' ages

Sample Statistics				
	Mean	Standard Deviation	Range	N
Mother's Age (Years)	33.6129	3.42225	17	31
Child's Age (Months)	23.5484	5.45795	20	31

The mean Mother's age and the mean target Child's age at the time of the first assessment are displayed in Table 1, along with ranges and standard deviations.

Participants' ethnicity information was obtained in order to determine the future applicability of the findings to different populations and is expressed in table 2 in percentage terms in relation to the total sample.

Table 2

Participants' Ethnicity Information expressed in percentage terms

Mothers' Ethnicity	Sample Statistics	
	N	Percentage of sample
UK European	24	74
UK/ASIAN	4	12
Irish	1	3
South African	1	3
Mixed Black Caribbean/White UK	1	3
Total	31	100

The ethnicity labels assigned to participants here were based on the terms individuals used to define themselves by. The majority of the mothers in the sample defined themselves as 'White UK', indeed only 5 of the participants in the sample were from non-white backgrounds. All of the four participants defined as 'UK Asians', described themselves as being born in the UK but having families who were born in India, Pakistan or Sri Lanka and defined themselves in terms of being of dual ethnic status. The participant who called herself 'Mixed Race Caribbean White UK' was born in the UK, having a 'Black Caribbean' mother and a 'White UK' father. All of

the participants were living in the UK permanently at the time that the study took place.

Information regarding participants' social support status, psychiatric symptomology and target child age was measured and analysed so that the effects of such factors could be controlled for in later analysis.

Table 3

Percentages of male to female target children in the study

Sample Statistics		
	N	Percentage of Sample
Boys	18	58.1
Girls	13	41.9
Total	31	100

Participants' responses to the Brief Symptom Inventory (Derogatis & Melisaratos, 1983) administered at time point 1 to assess maternal psychiatric symptomology are displayed below in Table 4. The means of participants' BSI scores in each of nine BSI symptom dimensions (derived through a combination of clinical, rational and empirical procedures) are given. The 'BSI norm' is the normed mean of the total BSI scores for a non-clinical, age and sex matched sample.

Table 4

Means and standard deviations of participants' and matched sample scores in each of the nine BSI symptom dimensions

	Sample Statistics					
	Mean	Standard Deviation	N	Matched Sample (M)	Standard Deviation	N
Somatization	2.5806	3.48113	31	.35	.46	358
Obsessive Compulsive	4.3548	3.69277	31	1.60	1.01	358
Interpersonal Sensitivity	1.5161	2.37867	31	1.66	1.04	358
Depression	.837	1.73391	31	.36	.56	358
Anxiety	1.5161	2.50161	31	1.82	1.02	358
Hostility	1.9032	1.51338	31	1.23	.95	358
Phobic Anxiety	.9355	2.06455	31	.91	.91	358
Paranoid Ideation	1.2581	1.65263	31	1.21	.97	358
Psychoticism	.4516	2.15776	31	1.24	.89	358

The mean scores for the majority of the BSI symptom dimensions were substantially larger for participants in the current sample, than those of non patient age, sex matched controls. The difference in the scores between these two groups may be related in part to participants in the current study being pregnant when the questionnaire data was obtained. It may be possible for example, that symptoms associated with pregnancy such as aches and pains and physical health concerns contributed to the high means for somatic complaints seen in the current sample. Similarly, the high means for obsessive compulsive symptoms, may be associated with participants perhaps being more hygiene conscious during pregnancy.

Data obtained using the Help and Support Questionnaire (Sarason et al, 1987) regarding participants' social support status is given in table 3 below. The mean given for total number of support figures refers to the mean of participants' mean number of support figures available across a range of aspects of social support. The mean given for satisfaction refers to the mean of all participants' total mean satisfaction ratings in relation to the support provided across these different aspects of social support.

Table 5

Means and standard deviations for participants' ratings of social support figures available and overall satisfaction with such support

	Sample Statistics			
	Mean	Standard Deviation	Range	N
Total no. of support figures	4.0045	1.91373	8	31
Satisfaction	5.4194	.80723	3	31

Section 2 Changes in behavioural problems following the birth

In the Second stage of the analysis, Child Behaviour Checklist (Achenbach & Rescorla, 2000) data at obtained at Time Points 1 and 2 to measure mothers' ratings of levels of target child behaviour during the transition to siblinghood was analysed to produce to Child Behaviour Checklist Scores for each participant (mother-infant dyad).

Target Children's mean total CBCL scores for each of the 7 syndrome groups at time point 1 is given in Table 6 below, along with age matched mean norms from a non-clinical sample of 563 children.

Table 6

*CBCL group means and standard deviations at time point 1 with matched sample
CBCL group means and standard deviations*

CBCL Group	Sample Statistics			
	Time Point 1 (M)	Standard Deviation	Matched Sample Mean	Standard Deviation
Aggressive Behaviour	8.4839	4.85023	10.5	6.4
Anxious Depressed	1.6452	1.56095	3.0	2.3
Somatic Complaints	1.1290	1.49982	1.9	1.9
Withdrawal	.6774	1.10716	1.7	1.7
Emotionally Reactive	1.4839	1.58894	2.4	2.2
Sleep Problems	2.2903	3.13256	2.9	2.4
Attention Problems	2.2903	1.73577	2.6	1.9
Other Problems	7.3871	3.54662	unavailable	unavailable

Examination of the means suggested that participants' mean time point 1 scores were lower than matched controls for all of the CBCL syndrome groups (where such information was available). Paired sample T-tests were carried out to measure changes in target children's mean scores across time points 1 and 2 for each of the 7

symptom groups of behaviour. The results of these analyses are displayed below in Table 7.

Table 7

The results of t tests comparing participants' mean CBCL group scores at time points 1 and 2, giving means, standard deviations, T scores and P values

CBCL Group	Sample Statistics							
	Time Point 1 (M)	Standard Deviation	Time Point 2 (M)	Standard Deviation	CBCL Difference (M)	Standard Deviation	T Score	P Value
Aggressive Behaviour	8.4839	4.85023	10.4516	6.37097	-1.9677	4.33193	-2.529	.017*
Anxious Depressed	1.6452	1.56095	2.4194	1.78464	-.7742	1.70704	-2.525	.017*
Somatic	1.1290	1.49982	1.5484	1.65002	-.4194	1.40888	-1.657	.108
Withdrawal	.6774	1.10716	1.3548	1.72334	-.6774	1.16582	-3.235	.003**
Emotionally Reactive	1.4839	1.58894	2.000	1.54919	-.5161	1.28766	-2.232	.033*
Sleep Problems	2.2903	3.13256	2.8387	2.88787	-.3448	2.04677	-.970	.340
Attention Problems	2.2903	1.73577	2.5806	2.26236	-.2903	1.81096	-.893	.379
Other Problems	7.3871	3.54662	7.6452	5.48056	-.2581	4.11475	-.349	.729

The results show that there were significant differences in CBCL scores across four of the categories of behaviour (Aggressive Behaviour, Withdrawal, Emotionally Reactive, and Anxious Depressed) between Time Point 1 and Time Point 2 of the study (pre and post the birth of a sibling).

So that the effects of social support, maternal psychiatric symptomology, target child age, child sex and mother's age in relation to increases in behaviour problems in

target children occurring over the transition could be controlled for, correlations were conducted between participants' Total BSI scores, Total Support Figure scores, Total Social Support Satisfaction scores, mother and child age and child sex, and their change scores (Time Point 2 minus Time Point 1) for each of 7 CBCL syndrome categories of behaviour. The results are displayed below in Table 8.

Table 8

Correlations measuring associations between background variables and Participants' CBCL change scores for each of the seven CBCL syndrome groups

CBCL Groups	Background factors and demographic variables											
	BSI Total Scores		Total Number of Social Supports		Total Overall Satisfaction with Support		Child Age		Child Sex		Mother's Age	
	r	Sig.	R	Sig.	R	Sig.	R	Sig.	r	Sig.	R	Sig.
Aggressive Behaviour Change	.249	.177	.181	.329	-.311	.089	-.291	.112	-.254	.167	-.136	.466
Anxious Depressed Change	.124	.507	.413	.021 [*]	-.002	.993	-.333	.067	-.197	.288	-.192	.300
Somatic Complaints Change	.466	.008 ^{**}	.212	.252	-.130	.484	-.339	.062	-.257	.163	-.110	.554
Withdrawal Change	.169	.362	.114	.541	-.206	.267	-.118	.527	-.274	.136	-.007	.969
Emotionally Reactive Change	.286	.118	.094	.614	-.215	.245	-.160	.389	-.037	.845	.024	.897
Attention Problem Change	.246	.182	.196	.290	-.337	.064	-.030	.872	-.138	.457	-.229	.216
Other Problems	.325	.075	.019	.919	-.495	.005 ^{**}	-.118	.528	-.119	.525	.045	.809

None of the target child variables (listed in Table 8) were found to be significantly associated with increases in any of the seven categories of CBCL behaviours. However, there were non significant correlational trends between target child age and increases in and 'Somatic Complaints' and Anxious Depressed behaviour . In terms of the mother variables, 'Total Number of Supports' and 'BSI Total Score'

were significantly and positively associated with increased problem child behaviour across the two time points in the study, with increases occurring in the 'Anxious Depressed' and 'Somatic Complaints' CBCL groups respectively. 'Total Overall Satisfaction with Social Support' was negatively and significantly associated with increases in 'Other Problems', so as that mothers' satisfaction with social support decreased, behaviours in the 'Other Problems' CBCL group increased in target children over the transition to siblinghood. Furthermore, 'Total Number of Social Supports' was positively and significantly associated with increases in the 'Anxious Depressed' category of CBCL behaviour.

Section 3 Attachment security and changes in children's behaviour problems

Having established that significant levels of behaviour change had occurred across 4 categories of Child Behaviour during the transition to siblinghood and having identified the effects of background factors, in the next stage of the analysis, target children's AQS attachment security ratings were obtained in order that the relationship between attachment security and the development of behaviour problems in the transition to siblinghood could be examined.

Although the AQS is used to give ratings of attachment on a continuum, and a strength of the AQS is its ability to capture meaningful differences in infants' behaviour, rather than just classifying them in terms of being secure or insecure, it may be useful here however to employ a dichotomous rating of attachment security in order to show how the current sample sits in relation to the wider population in terms of attachment security. Using the Strange Situation measure with middle class

samples, the proportion of secure and insecure home reared infants is typically 70 secure and 30 insecure (Waters, 1995). In such samples, an AQS cut off (correlational) score of .30 is used to designate the same proportion of secure to insecure children. Table 9 gives the proportion of secure to insecure children in the current sample as determined by the .3 AQS security rating cut off.

Table 9

Percentages of secure to insecure target children in the sample

Sample Statistics		
Security Status	Proportion of the sample (%)	N
Secure	77.7	24
Insecure	22.6	7

It is apparent from the information given in Table 9 that there were slightly higher proportions of secure to insecure children in the current sample (77.7%-22.6%) as compared with those found those typically found in middle class samples.

In the third and final stage of the analysis, in order to examine the role of attachment security in the areas of development of behaviour problems in target children over time points 1 and 2, correlations between AQS Security Scores and CBCL score changes in the 8 CBCL Syndrome Groups were carried out. The results of these analyses are displayed in Table 10.

Table 10

Correlations between attachment security ratings and CBCL syndrome group difference scores

CBCL Scale Change	Attachment Security	
	Pearson's r	Significance (2 tailed)
Aggressive Behaviour	.178	.338
Anxious Depressed	.217	.242
Somatic Complaints	.089	.633
Withdrawal	-.289	.115
Emotionally Reactive	-.131	.484
Attention Problems	.198	.285
Other Problems	-.007	.919

The findings show that there were no significant associations between mother-child attachment security ratings and levels of change occurring in the each of the CBCL groups of behaviour in target children over the transition to siblinghood.

Since the age of the target children had been identified in previous studies as a mediating factor in relation to children's response to the birth of a sibling (Teti et al, 1996) in this final stage of the analysis, the current sample of 31 children were divided at the median point into two sub-groups of 15 younger children (15-22 months) and 16 older (22-36 month) children, so that the effects of age in relation to

the role of attachment security in children's responses to the arrival of sibling could be measured independently.

Correlational analyses were then carried-out between participants' attachment security scores and participants' change scores in the 7 CBCL syndrome groups independently for each of the two newly created age groups of children.

Table 11

CBCL group change scores and attachment security rating correlations for younger and older children

	Target Children in Sample			
	Younger Children (n=14)		Older Children (n=17)	
CBCL Scale	Pearson's r	Significance	Pearson's r	Significance
Aggressive Behaviour	.161	.582	.199	.443
Anxious Depressed	.549*	.042	-.199	.440
Somatic	.246	.396	-.165	.526
Withdrawal	.177	.564	.077	.770
Emotionally Reactive	-.275	.342	.020	.941
Attention Problems	.293	.309	.077	.770
Sleep Problems	.334	.243	.236	.362
Other Problems	-.230	.429	.372	.142

The results of these correlational analyses by age group showed that attachment security status was associated with significant levels of behaviour change in younger children and not older children during the transition to siblinghood and this was only in the area of anxious depressed behaviour. None of other correlations carried-out

between attachment security status and the remaining 7 groups of CBCL behaviour change produced statistically significant associations for either of the two age groups of children.

Discussion

The findings of the present study will be discussed here in relation to literature around the role of attachment security in the development of behavioural problems in firstborns in the transition to siblinghood. The implications of sampling participants from a low risk middle class sample will also be considered, along with an estimation of how the findings in the current study may have differed if a high-risk sample in terms of socioemotional contextual factors was studied. Following this, ideas on how the present study could be improved upon along with suggestions for the direction of future research will be given.

In the current study, target children were reported to show significant increases in several groups of problem behaviours (anxious depressed, withdrawn, emotionally reactive and aggressive), following the birth of a sibling. These findings can be seen to be consistent with existing literature on firstborns' experience of the transition to siblinghood. Indeed, various studies have found increases in target child behavioural problems following the transition to siblinghood in the areas of increased clinginess, demanding for bottles and toileting problems (Field & Reite 1984), confrontational behaviour (Dunn & Kendrick, 1980; Field & Reite, 1984), physically aggressive behaviour (Field & Reite (1984) and negative behaviour (Dunn & Kendrick (1980), in common with the findings here. The findings in the current study then, give further support to the assertion that the transition to siblinghood is stressful time for young children.

Furthermore, in line with the findings in Teti et al's (1996) study where the BSI was also employed and maternal psychiatric symptoms were found to be predictive of changes to attachment security status in firstborns, in the current study, maternal psychiatric symptoms were also found to be predictive of levels of behavioural problems in target children in the category of 'somatic complaints' in the transition to siblinghood.

Increases in sleep problems found in Field and Reite's (1984) study in the areas of crying out for Mummy and nightmares, were not found in target children in the current study during the transition to siblinghood. However, the data regarding increases in sleep disturbances in firstborns in Field and Reite's study were obtained via observational methods and not from mother's reports, as was the case in the current study, which may explain the discrepancy in findings. The main findings around the role of attachment security in the development of behavioural problems in target children in the current study did not reach significance, perhaps suggesting that attachment security does not play a predictive role in terms of levels of behavioural problems during the transition to siblinghood. However, sub-analyses of the sample in terms of younger and older children showed significant associations between attachment security and increases in anxious depressed behaviour over the transition to siblinghood in younger children (< 2 years), suggesting that as attachment security increased so did anxious depressed behaviour problems, again contrary to expected results.

The decision was taken to sub-divide target children in terms of age, since earlier studies (e.g. Teti et al, 1996) had found that children over 2 years of age were more

likely to be affected by the transition to siblinghood than their younger counterparts. However the finding that attachment security and behaviour problems were associated in younger children under 22 months of age, would appear to some degree to be contrary to those found in Teti's et al's study, where children over 2 years were found to be most affected by the transition.

Although earlier researchers had found decreases in attachment security status in firstborns during the transition to siblinghood (Teti et al, 1996; Touris et al, 1995), there had been no previous studies investigating the role of attachment security as a predictor of behavioural problems over the transition. This may account for the findings regarding younger children and attachment security in the current study. That is, it may perhaps be possible that although older children might appear to be more affected by the arrival of a sibling, in their younger counter-parts, attachment security might play a greater mediating role in this transition.

The finding concerning the significant association between the total number of social supports available to mothers in the study and increases in the Anxious Depressed category of CBCL behaviour change would appear to be contrary to expectations, since it suggests that as the total number of social support figures available to mothers increased, so did anxious depressed behaviour in target children. It may be interesting to note that the ratings of 'Total Support Figures' were based on participants' perception of the numbers of helpful support figures available across a range of aspects of social support and thus it seems counterintuitive that support perceived as helpful by mothers should be associated with increases in anxiety and depressive behaviours in their children during the transition to siblinghood.

Participants' satisfaction with social support was rated separately from the number of supports and was found to be negatively and significantly associated with increases in the 'Other Problems' group of child behaviours, so that as maternal satisfaction with support decreased, other problems increased in target children across the transition to siblinghood. This finding can be seen to be more in line with the expected direction of results.

The relatively small sample size in the current study may have precluded the possibility of the main findings here reaching statistical significance. For example, Teti et al's (1996) study was based a sample size of 194 target children, making a significant effect much more likely to be detected. However, the findings here may point to the less central role of attachment security in affecting the development of behavioural problems following the arrival of a sibling, at least in terms of effect size.

As well as the relatively small sample size, the results may have been affected by the relative homogeneity of the sample, which consisted predominantly of participants from white middle-class backgrounds who were experiencing little socio-economic deprivation or disadvantages.

Indeed, in a study by Baydar, Hyle and Brooks (1997) investigating changes in socio-emotional development, achievement and self concept in firstborns following the birth of a sibling, those from economically deprived backgrounds showed greater and more negative changes to self perception and lower reading recognition scores, after the birth. Thus a more varied sample in terms of socio-economic status may have made a significant finding more likely.

Furthermore, a lack of variability in terms of the attachment security status of children in the current study may also have limited the possibility of detecting a significant effect regarding the role of attachment security in relation to behavioural problems in the transition to siblinghood. Since the majority of children in the current sample were rated as being securely attached (77%) in line with the method set out by Waters (1995), there may simply have not been a high enough proportion of insecure children in the study to produce a significant effect regarding attachment security.

Indeed, a study carried out by Belsky and Fearon (2002) exploring the interactional effects of attachment security and high levels of socioemotional contextual risk showed that children with insecure attachments who were exposed to high risk environments were more likely to experience poorer longer-term developmental outcomes than their secure counterparts. Such findings would support the proposition that a more varied sample in the current study in terms of attachment security and socio-economic status may have produced a significant finding regarding the predictive power of attachment security.

Further support for this line of thinking comes from the Minnesota Parent-Child Project (Egeland & Sroufe, 1981; Erikson, Sroufe & Egeland, 1985; Sroufe, 1983) where a high social risk sample of 174 children of young, single mothers was followed through infancy to adolescence. Follow-up assessments in pre-school and elementary years showed that children in high social risk environments with insecure attachments were significantly more likely to show poor peer relations, moodiness

and symptoms of depression and aggression, than children who had been classified as secure at earlier assessments (Cassidy & Shaver, 1999). Given these findings, we might expect that if children in the current sample had been insecurely attached and were from high risk samples, the arrival of a sibling may have had similar effects on developmental outcomes, perhaps acting as another risk factor.

Furthermore, in the study carried out by Belsky and Fearon (2002), where attachment security status was found to interact with socioemotional contextual risk in predicting children's developmental outcomes, particular types of attachment style were found to relate to particular outcomes in response to levels of risk. For example, children with Insecure Avoidant attachment were more likely to 'succumb' to poorer outcomes in the presence of socioemotional risk than both their Secure and Insecure Disorganised agemates. Such classifications used in Belsky and Fearon's study which differentiate between different types of Insecure Attachments correspond to the Strange Situation Assessment (Ainsworth et al, 1978). In the current study, instead a broader categorisation of Secure or Insecure classification of attachment was employed, in line with the AQS method of assessing attachment status. It may be possible that the more general categorisation of security used in the current study may also have contributed to a lack of findings regarding attachment security as a predictor. That is, if, for example, there were differences within the group categorised as Insecure in the current study in terms of attachment status and such differences related to different behavioural outcomes in response to the arrival of a sibling, this dichotomous method of rating would not have allowed them to have been detected. Furthermore, the relatively small sample size employed in the current study would also have precluded the possibility of making meaningful comparisons

between different groups of insecurely attached children. In addition, in this middle class low risk sample, even if comparisons had been possible between attachment security groups, it may have been that no significant differences would have emerged. However, again, in a larger, high risk sample, differences within the insecurely attached group may have emerged in terms of behavioural responses to the transition to siblinghood.

A further explanation for the lack of findings could perhaps be that the CBCL was not a sensitive enough measure to be able to capture changes in levels of behavioural problems occurring in firstborns during the transition to siblinghood. Indeed, some of the researchers' experiences in collecting follow-up data from mothers in the study suggested that this was the case. For example, at the follow-up phone call, before the time point 2 CBCL questionnaire had been administered, several mothers reported increases in sleep problems that they felt they were not able to represent on the questionnaire, as they had already endorsed an item at its highest level ('2') at time point 1 and because of the CBCL three point '0, 1, 2' point responding scale, were unable to rate any further increase. Furthermore, other parents verbally reported large increases in problem behaviours in firstborns which were also not reflected in their responses to the follow-up questionnaire.

An improvement therefore on the design of the current study then might be to include supplementary observational data in line with Field and Reite's (1984) study, regarding children's behavioural reactions to the birth of a sibling, thus again perhaps increasing the likelihood of finding a significant effect in relation to the original hypothesis.

It is of course possible that the AQS ratings of attachment security were not able to accurately represent each target child's attachment security profile and that this precluded the possibility of uncovering any meaningful effects. Indeed, the period of naturalistic mother-child interaction may not have been long enough to allow the researchers to form a true picture of each child's typical attachment behaviour as is necessary when rating the AQS. As the AQS is rated by placing items describing the child's behaviour into a hierarchy of piles depending on their likeness to the child's behaviour, an accurate rating depends strongly on whether the majority of the items described have been observed, since unobserved items have to be placed in the middle of the hierarchy, affecting the distribution of the items and thus the overall attachment security rating. Observations of mother-child interaction in the current study typically lasted from 1-2 hours, however in earlier studies, for example, Teti et al (1996), AQS assessments were carried out over longer time periods and over several home visits. Indeed Waters and Dean (1985) who developed the AQS recommend that AQS observations are carried out over two home visits each lasting for up to 2 hours. The decision was taken to use a shorter period of footage to rate mother-child interaction, since the researchers felt it would be unfair to ask the participants, who were heavily pregnant, to agree to be videotaped for longer periods of time over several visits.

Conclusions

The findings in the current study add support to the assertion that the transition to siblinghood is a stressful time for young children, with target children showing significant increases in problem behaviours across the study period. The findings on increases in behavioural problems occurring in target children during this transition may be transient and further research extending on the follow-up period would be needed in order to explore this. However, it may be that in children with insecure attachment histories experiencing high levels of contextual socioemotional risk, the effects of the arrival of a sibling would be more severe and sustained over longer periods. Thus, although the findings regarding the role of attachment security did not reach statistical significance, it is possible that with a larger, more varied sample (in terms of attachment status, socio-economic risk status and ethnicity) and perhaps longer periods of observational data around mother-child interaction, it may be possible to detect significant and meaningful effects regarding the role of attachment security in the transition to siblinghood in future research.

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Part 3: Critical Appraisal

Introduction

In the following Critical Appraisal, the process of carrying-out a piece of research will be discussed, giving suggestions on how the study's design could be improved upon and considering ethical issues that arose in conducting the study. In addition, reflections on the author's personal and professional experiences throughout the course of the study will be included.

Limitations of the study and areas of potential improvement

One limitation of the current study was the narrow sampling which can be seen to make generalisability of the findings difficult. Although this could be seen as a weakness in the study's design, despite having the intention of having a varied sample in terms socio-economic status and ethnicity, the researchers found it very difficult in practice to recruit mothers who were of diverse ethnicities or from less affluent backgrounds. One of researchers who carried half of the recruitment, home visits and rating is black and from a middle-class background and the other from a white working-class background. It was hoped that this mix of class and ethnicity in the research team may have made it more likely to recruit a varied sample. However, in practice, often such potential participants were not available to recruit in the population being sampled from.

Contributing to the difficulties of recruiting a varied sample of participants was the unavailability of different sites from which to carry-out recruitment. Indeed, all of the participants came from one midwifery clinic, based in part of a large general

hospital with specialist women's health and pregnancy services, in a relatively wealthy area. Although the researchers attempted to gain consent to recruit women from a wide range of settings early on in the conception of project, the process of obtaining such permission was so complicated and took so long, that clearance was only given from research and development departments of the most of the sites approached towards the end of the study. Although Corec consent to carry-out the research across various NHS settings had been obtained, the individual research and development departments of each trust involved were required to give their own consent, making the whole process very time consuming and frustrating. Thus, in practice, participants came from a single setting. Such difficulties might be useful to bear in mind when carrying-out future research, where it would be useful to incorporate extra time to allow consent to be obtained in advance of the study, in order to address these shortcomings.

It may well be that mothers from less affluent backgrounds may have been put off from taking part in the research because of concerns about negative evaluations from researchers in terms of parenting abilities or living situations. Since a requirement of the Attachment Q Sort (AQS) (Waters & Dean, 1985), is that it is conducted in a naturalistic home environment, the researchers were not able to offer participants the opportunity to be videotaped other than in their own homes. Furthermore, despite trying to reassure mothers that they were not being assessed during the study, we suspect that some potential participants may have been deterred from taking part because of such concerns, which can be seen in the demographic makeup of the sample. For example, the majority of mothers in the sample were from middle-class backgrounds. The sampling of participants from these on the whole, limited, socio-

economic backgrounds may also have contributed to the relative variability of the sample in terms of AQS security ratings and thus the overall significance of the findings in relation to the predictive power of attachment security in terms of increases in behaviour problems during the transition to siblinghood. As a group, the target children in the study may have been more likely to have been securely attached to their mothers and less affected by the transition to siblinghood than their more socio-economically deprived counterparts. For example, in a study by Baydar, Hyle and Brooks (1997) children from economically disadvantaged backgrounds experienced significant greater reductions in ratings of global self worth following the birth of a sibling, than their counterparts from more affluent backgrounds. Mothers in the study typically decreased their hours of work both in the short and long term following the birth of a sibling, and the associated decline in income, and increase in dependants resulted in a significant decline in the income-to-poverty ratio for participants in the study (Baydar et al, 1997).

Furthermore, those who were from economically disadvantaged backgrounds experienced a significant decline in available developmental resources following the birth of a sibling and furthermore the only developmental resource to be directly affected by the birth of a sibling was maternal parenting style. Baydar et al (1997) argue that in disadvantaged families, a need to relocate limited time and financial resources to the new baby, and an inability to afford respite care for the new baby, could lead to reductions in maternal availability and involvement with the target child, along with fewer learning opportunities.

Since maternal attention and maternal affective involvement have been identified in earlier studies as an important mediator in the role of attachment security (See De Wolff & Van IJzendoorn 1997, for a meta-analysis of the parental antecedents of infant attachment) and the smooth transition to siblinghood (Teti Sakin, Kucera, Corns & Das Eiden, 1996), it follows that children from more socio-economically disadvantaged backgrounds experiencing greater reduction in maternal attention would have been more likely to be insecurely attached and thus perhaps to have increased behaviour problems after the birth of a sibling. This may have affected the results of the study here then, in terms of the variability of AQS security ratings, in that the majority of children tended to be from more affluent backgrounds and were at the more securely attached end of AQS spectrum. A more varied sample in terms of socio-economic status and attachment security may have been more likely to produce a very different set of findings, with those who were less securely attached and from socio-economically disadvantaged backgrounds perhaps being more likely to show greater increases in behaviour problems following the birth of a sibling.

Further support for this assertion comes from several studies examining the interaction effects of attachment security and high risk psychosocial environments in relation to children's developmental outcomes. Firstly, in a study by Belsky and Fearon (2002), children with insecure attachment status were found to be significantly more likely to show poorer developmental outcomes in the presence of high socioemotional contextual risk than children with more secure attachment histories. Furthermore, Aguilar, Sroufe, Egeland and Carlson (2000) found that when combined with multiple stressors, Avoidant Attachment was most likely to be associated with early onset anti-social behaviour. In addition, in a high-risk sample

of children followed through from infancy to adolescence as part of the Minnesota Parent-Child Project (Egeland & Sroufe, 1981; Erikson, Sroufe & Egeland, 1985; Sroufe, 1983), those with insecure attachment relations were consistently found to show poor peer relations, moodiness, and symptoms of depression and aggression in the early elementary school and preadolescent periods (Cassidy and Shaver, 1999).

These findings, again showing the combined effects of high psychosocial risk environments and insecure attachment histories in determining children's developmental trajectories, indicate that a high risk sample of children with insecure attachment status in the current study may well have produced a significant finding regarding the predictive role of attachment security.

The small sample size here may also have precluded the possibility of detecting a significant effect in relation to attachment security as a predictor of behavioural problems in the transition to siblinghood. The power calculations for this study, based on the effect sizes in Teti, et al's (1996) study, estimated that a sample of 40 to 80 participants would be needed in order to be able to detect a significant effect in the current study. Indeed, in practice, 43 participants were seen in total and it was only possible to analyse the data from 31 of these cases within the available time frame, as follow-up questionnaires for the remaining participants had not yet been returned.

It may be interesting to note however, that this estimated sample size was based around the effect size found in Teti's et al's (1996) study since it was the closest available study to the present in terms of its design that explored child-mother attachment in the transition to siblinghood. However, firstborns' reactions to the birth

in Teti et al's study were measured by changes to attachment security ratings, unlike in the current study where behaviour changes were measured as the dependant variable. We might expect levels of problem child behaviour to be more sensitive to change than attachment security. This considered, the sample size required to detect a significant effect in the current study might actually be less in theory, than the estimate given here.

In practice it was particularly difficult to recruit to participants into the study because of the very specific recruitment criteria, that is to say, being roughly in third trimester of pregnancy and having at least one child between the ages of 18 and 36 months at the time of first assessment. Furthermore, all time point 1 assessments had to be carried-out prior to the birth of the new baby, allowing sufficient time for the follow-up questionnaire to be completed and returned within the available time frame of the project. A delay in receiving many of the follow-up questionnaires from mothers in the study, who were understandably very busy, tired and over-whelmed, also contributed to the reduced sample size here. Such issues might need to be taken into consideration when conducting further research in this area. The study was designed so that the most time consuming part of the data collection was carried-out prior to the birth of the new baby in order to place as little burden on mothers following the new arrival. However, concerns had arisen part way through the project in terms the likelihood of mothers returning questionnaires. One solution to this difficulty might be to ask mothers to agree to fill in the questionnaires over the telephone. This was done in several cases in the present study where mothers requested it and appeared to work successfully. Since mothers in the current study who were delayed in returning the questionnaire, were interested at the telephone contact after the birth of the new

baby in talking about the target child's reactions to the birth over the phone, it may have been more useful to obtain follow-up information in this way. Indeed, perhaps the delays in returning the questionnaires in the current study were caused by mothers having good intentions but putting off returning or not getting time to post the follow-up questionnaires due to increased demands upon their time.

Concerns about not over burdening the participants in the study may also have affected the validity of AQS security ratings. The validity of AQS security ratings is based on observing sufficient and varied amounts of mother child interaction. However, in the current study, mothers were asked to complete a battery of time point 1 questionnaires during the video-taped parent-child interaction sessions so that researchers would visit on one occasion only. However, since the home visits usually lasted one and a half to two hours and mothers were not keen to be seen for longer or further visits before the birth, a large portion of the video-taped footage consisted of time when mothers were occupied filling in questionnaires and thus not interacting in the usual way with their toddlers. This may have contributed to less variability in the sample in terms of attachment security, since inadequate time was available to observe a full range of behaviours and perhaps thus produced less accurate AQS ratings.

The overall significance of the findings in this study may also have been influenced by the use of the CBCL as the dependant variable measure. As discussed earlier, while some participants had indicated at follow-up phone call that specific behavioural problems had increased in their firstborns following the birth of the new baby, this was not reflected in their responses to the CBCL questionnaire.

When asked about this discrepancy, the participants explained that they could not recall what endorsement they had given to the items on the CBCL at time point 1 and although they were sure that the behaviour had increased and they believed that they were reflecting this in their responses, they had in fact given the same responses to the questionnaires at both time points.

Participants' inability to accurately recall their earlier responses to the questionnaire may have affected the overall findings here. Furthermore, although good test-retest reliability for the CBCL had been obtained (Achenbach & Rescorla, 2000), in the short term, the measure may not have been sensitive enough to capture changes occurring in behaviours over time in the current study.

Personal and professional reflections on conducting the study

One area of the study which raised professional issues was around the collection of information regarding mother's psychological symptoms of distress. In line with the professional codes of practice for trainee clinical psychologists, participants were informed that any information that they disclosed to the researcher would be confidential unless the information given made the researcher concerned about the safety or well-being of the participant or another. This may have prevented participants from being completely open about symptoms of distress they were experiencing, for fear of the consequences for themselves and their children, which may in turn have affected the overall findings.

The Researchers felt an obligation to check-in with mothers at follow-up with regard to their psychological health, once they had obtained information about symptoms at first contact and had knowledge of some participants' high levels of symptoms. In practice, none of the mothers indicated needing acute psychological or psychiatric intervention and/or accepted offers of psychological help following the study. Many of the mothers did report appreciating being asked about their well-being. One mother in the study requested and was provided with information around support with breast feeding at the follow-up contact.

I felt that I was conflicted in my role as a trainee clinical psychologist and a researcher on several occasions throughout the course of the study. For example, I was often asked for parenting advice from mothers in the study and advice on how best to deal with the transition and with behavioural problems in their children in general. As I had actually successfully completed parenting interventions in my role as a trainee, I had such information available to me although I was obviously unable to provide participants with this for several reasons. Firstly, I was not visiting participants in my capacity as a therapist, but as a researcher. Secondly, such interventions may have influenced the final findings.

An issue that affected me personally was the economic deprivation and lack of social support experienced by a small number of participants in the study. For example one participant was living in cramped, damp accommodation, was economically disadvantaged and had few dependable and helpful social supports. Another participant (whose follow-up data has not yet been received and is therefore not included in the sample here) had become separated from her partner prior to the birth

and again had a low income, cramped accommodation and a poor network of social supports. Again such participants were offered support at the end of the study. However, in the meantime, I found I was preoccupied by the experiences of these women and their children and how difficult things were for them.

Conclusion

Reflecting on the process as a whole, the project was a large undertaking for two researchers investigating separate areas (parenting and attachment) and process of obtaining ethical approval for the study, conducting the home visits, watching and rating video tapes, obtaining participants' follow-up questionnaires and analysing data was extremely difficult to complete within the time frame available. I feel have learned a great deal about the necessity of planning for realistic achievable goals within a limited timeframe when designing a project and about the ways of carrying-out good research in a team context and reporting on the process.

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Volume 1-Appendices

Appendix A: Ethical Approval Obtained for the Study



Charing Cross Research Ethics Committee

Room 4W/12, 4th Floor
Charing Cross Hospital
Fulham Palace Road
London W6 8RF

Telephone: 020 8846 7283

Facsimile: 020 8846 7280

Miss Zeyana Ramadhan
Trainee Clinical Psychologist
University College London
Sub-Department of Clinical Psychology
Gower Street
London WC1E 6BT

09 October 2006

Dear Miss Ramadhan

Full title of study: Do parenting and attachment styles prior to the birth of a sibling predict behavioural changes of the first-born child following the birth of a sibling.

REC reference number:

Thank you for your letter of 09 September 2006, responding to the Committee's request for further information on the above research.

The further information has been considered on behalf of the Committee by the Chairman.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation.

Ethical review of research sites

The Committee has designated this study as exempt from site-specific assessment (SSA). There is no requirement for Local Research Ethics Committees to be informed or for site-specific assessment to be carried out at each site.

Conditions of approval

The favourable opinion is given provided that you comply with the conditions set out in the attached document. You are advised to study the conditions carefully.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

<i>Document</i>	<i>Version</i>	<i>Date</i>
Application Investigator CV Protocol		20 July 2006

Covering Letter		19 July 2006
Letter from Sponsor		07 July 2006
Questionnaire: Brief Symptom Inventory		
Questionnaire: Child Behaviour Checklist		
Participant Information Sheet	1.0	06 July 2006
Participant Consent Form	1.0	06 July 2006
Response to Request for Further Information		09 September 2006
Supervisor CV		
Research proposal review form - V.Hamilton		
Research proposal review form -Z.Ramadhan		

Research governance approval

You should arrange for the R&D department at all relevant NHS care organisations to be notified that the research will be taking place, and provide a copy of the REC application, the protocol and this letter.

All researchers and research collaborators who will be participating in the research must obtain final research governance approval before commencing any research procedures. Where a substantive contract is not held with the care organisation, it may be necessary for an honorary contract to be issued before approval for the research can be given.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

Dr Charles Mackworth-Young
Chairman

Email: TSchiotz@hhnt.org

Enclosures: Standard approval conditions

Copy to: Oke Avwenagha
UCL Biomedicine Unit
Room G652, Medical Admin Corridor
Royal Free and University College Medical School
Hampstead Campus
Rowland Hill Street
London NW3 2PF

Covering Letter		19 July 2006
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Statement of compliance

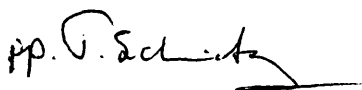
The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

06/Q0411/119

Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely



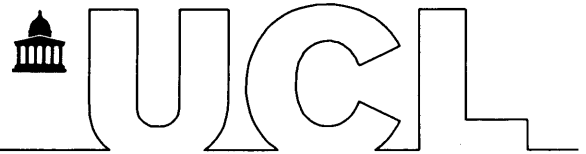
Dr Charles Mackworth-Young
Chairman

Email: TSchiotz@hhnt.org

Enclosures: Standard approval conditions

Copy to: Oke Avwenagha
UCL Biomedicine Unit
Room G652, Medical Admin Corridor
Royal Free and University College Medical School
Hampstead Campus
Rowland Hill Street
London NW3 2PF

Appendix B: Ethics Committee Approved Participant Information Sheet



**INVESTIGATION INTO THE EFFECTS OF THE ARRIVAL OF
A NEW BABY ON FIRST BORN CHILDREN**

FORM VERSION: 1.0 6TH JULY 2006.

INFORMATION SHEET

This information sheet outlines a study that researchers at University College London are carrying out, which you might be able to take part in.

What is the study about?

The birth of a baby is an important event in family life. We are interested in how older siblings respond to the arrival of a new child in the family. We are carrying out this study to help us understand how parents help children adapt to having a new sibling. We are interested in how different styles of parenting might contribute to children's responses to the birth of a child. We are also interested in how different styles of relationship between parent and child might contribute to this as well. Finally, we are interested in hearing about what parents think about how their child will adapt to the new baby and what things parents might be doing to get a child ready for the birth.

Why is this study being conducted?

We hope that this study will provide important information for both parents and professionals working with children and families. In particular, we hope the study will improve our understanding of the kinds of things that might help children adapt to the changes that take place when a new baby is born.

Why am I being asked to take part?

We are approaching all mothers in this service who have a child between 18 months and 2 and a half years old who are pregnant with another child.

What does the study involve?

The study will involve one visit at your home in the last three months of your pregnancy and one telephone call one month after your baby is born. During the visit to your home researchers will video-tape interactions between you and your child as you go about your everyday routines. All video tape information will remain strictly confidential. During this visit you will also be asked to fill out some brief questionnaires and answer some questions about what you think about how your child will adapt to the birth of his/her sibling. This visit will take about an hour and will be organised at a time to suit you. When your new baby is around a month old, we would contact you by telephone to complete a questionnaire to see how your child's behaviour has changed since we last saw you. This telephone call would take about 15 to 20 minutes.

If I want to take part, what needs to happen?

If you agree to take part, one of the researchers whose details appear below will contact you and arrange to see you at a time that is convenient to you. Alternatively, you may contact the researcher yourself directly (our details are given below).

What if I want to drop out of the study?

If at any time you decide you do not want to take part in the study you are free to do so, and you do not have to give a reason. Leaving the study will not affect your treatment by any service in any way whatsoever.

What happens to the information I provide?

All the information you give us, including videotapes and questionnaires, will be stored anonymously and securely. The information will be treated in the strictest confidence and will not be passed on to anyone outside our research team.

Your midwife will ask you if you would like to volunteer to take part in the study and if you agree they will then pass your details to one of the researchers. Alternatively, you can contact one of them directly (for either more details or to volunteer).

If you are interested in taking part in this study or you have any questions about it please contact:

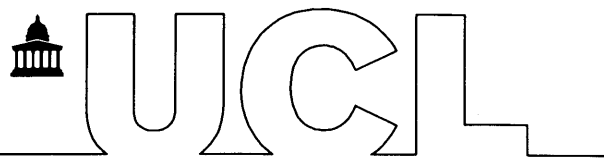
Zeyana Ramadhan on *****or email: *****

Victoria Hamilton on ***** or email: *****

You do not have to take part in this study if you do not want to. If you decide to take part you may withdraw at any time without having to give a reason.

All proposals for research using human subjects are reviewed by an ethics committee before they can proceed. This proposal was reviewed by the Charing Cross NHS Ethics Committee.

Appendix C: Participant Consent Form



Centre Number:
Patient Identification Number for this study:

UCLH Project ID number:
Form version: 1.0 6th July 2006.

CONSENT FORM

Title of project: INVESTIGATION INTO EFFECTS OF THE ARRIVAL OF A NEW BABY ON FIRST BORN CHILDREN

Name of Principal investigators : Zeyana Ramadhan & Victoria Hamilton

Please initial box

- 1. I confirm that I have read and understood the information sheet (version 1.0 6th July 2006) for the above study and have had the opportunity to ask questions.

- 2. I confirm that I have had sufficient time to consider whether or not want to be included in the study

- 3. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my medical care or legal rights being affected.

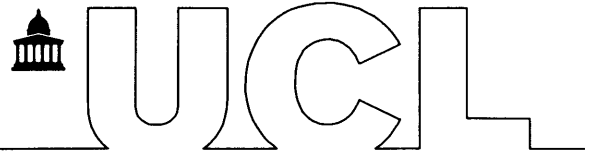
- 4. I understand that sections of any of my medical notes may be looked at by responsible individuals from (company name) or from regulatory authorities where it is relevant to my taking part in research. I give permission for these individuals to have access to my records.

- 5. I agree for the parent-child interaction session to be video-taped. I understand that the video will be strictly confidential and my identity will not be revealed to other parties.

- 6. I agree to take part in the above study.

Continued on next page/
1 form for Patient;
1 to be kept as part of the study documentation,

Appendix D: Letter Sent to Participants at Follow-up



Address Deleted

01/01/01

Dear

Congratulations on the birth of your little one! Hope you're all doing well and that things are not too stressful. I really enjoyed meeting you and it was very kind of you to make me so welcome in your home. As we discussed, I've enclosed a questionnaire, the Child Behaviour Checklist, for you to fill in about *****'s behaviour since the birth of *****. I'd be very grateful if you could complete this and return it to me in the stamped addressed envelope. Ideally the questionnaire should be filled in when your **Baby is roughly one month old and you only need to complete the first two pages.**

I really appreciate all your help with research so far and know that you probably don't have much free time on your hands at the moment to do this. You've given a great deal of your time already, but without this questionnaire everything we've done so far would be wasted, so I would be really grateful if you'd return it to me as soon as possible after completion. Even if you don't manage to complete it one month after the birth of your Baby, please do it when ever you can.

If you have any questions or would like to talk me, please feel free to ring me on ***** or e-mail me at *****. I hope to complete the research at the end of June 2007 and will be compiling a summary of the findings to send to you following this.

Thanks again for your help!

Yours sincerely,

Victoria Hamilton
Trainee Clinical Psychologist