FAMILIES WITH A CHILD CONCEIVED BY EMBRYO DONATION: PARENTING AND CHILD DEVELOPMENT

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DECLARATION

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Fiona MacCallum

ABSTRACT

Embryo donation is the process whereby surplus embryos resulting from IVF procedures are donated to infertile couples. Children conceived using donated embryos are thus raised by two parents with whom they share no genetic relationship, as are adopted children. However, embryo donation families differ from adoptive families in that the parents experience the mother's pregnancy and the birth of the child, and the children themselves are not relinquished by their birth parents. The aim of the current study was to assess the quality of family relationships, and the psychological development of children, in families with a child conceived by embryo donation. This is the first study worldwide of families created as a result of this process.

A sample of 21 families with a child conceived by embryo donation was compared with 28 families with a child adopted in infancy and 30 families with a child conceived through IVF using the parents' own gametes. This second comparison group of IVF families was included to control for the experience of infertility and high-tech reproductive procedures. All parents were seen when the child was aged between 2 and 5 years. Standardized interviews and questionnaires were administered to mothers and fathers to assess parent-child relationships and the child's socioemotional development. In addition, data were obtained on parents' experiences of the assisted reproduction or adoption procedure, and their attitudes towards disclosure of the child's origins.

No group differences were found for the quality of parenting variables, including parental warmth, sensitivity, and control. Embryo donation mothers and fathers obtained significantly higher scores on measures of emotional over-involvement and defensive responding than did the adoptive or IVF parents. Furthermore, embryo donation parents were less likely to disclose the method of family creation than adoptive or IVF parents. With respect to the children, no group differences were found for socioemotional functioning.

The results indicate that embryo donation parents' experience of the pregnancy and the birth of the child does not appear to result in more positive parenting as compared to adoptive parents. Neither does the lack of genetic links lead to less positive parenting as compared to IVF parents. The greater secrecy of embryo donation parents does not seem to have adversely affected the children at this age, with no evidence of raised levels of emotional or behavioural problems. The findings are discussed in terms of the implications for understanding the role of genetic and gestational links between parents and children.

INTRODUCTION

In 1978, a new era of human reproduction was introduced when Louise Brown, the first baby conceived through *in vitro fertilisation* (IVF), was born (Steptoe & Edwards, 1978). Initially, IVF treatment used the couple's own gametes to create an embryo in the laboratory which could then be implanted into the intended mother's uterus. To avoid multiple births, the number of embryos transplanted was limited, often to three, with the result that surplus oocytes or embryos were by-products of most IVF cycles. In the case of some couples seeking IVF, neither partner was able to produce viable gametes, although the woman did have the uterine capacity to carry a foetus through pregnancy to childbirth. This fact, combined with the existence of "spare" embryos, led to the development of the technique of "embryo donation", whereby embryos created by gametes from another man and woman are implanted into a woman, with the intention that she and her male partner will raise any resulting child as their own.

Conceiving a child using donated embryos thus results in a family structure where the child is not genetically related to either parent. For this reason, parallels have been drawn between embryo donation and adoption (Bernstein et al., 1996), and it has been proposed that embryo donation families will face the same psychological challenges as adoptive families. However, others have argued that conceiving a child through embryo donation more closely resembles conceiving a child through other forms of assisted reproduction, with respect to the consequences for parenting and child development (Robertson, 1995). In particular, the fact that embryo donation parents experience the pregnancy and the birth of the child has been hypothesised to facilitate the formation of positive parent-child relationships.

Despite these opposing arguments, there has as yet been no research investigating the experiences of families created through embryo donation. The purpose

of this thesis is to report on the first study of these families from a psychological perspective, comparing a group of embryo donation families with a group of families with a child adopted in infancy, and a group of families with a genetically related child conceived through IVF. In order to place the study in context, the thesis begins by exploring the features of family life that are considered to be important for promoting healthy child psychological development, including parent-child relationships, parental psychological state, and the quality of the parents' marital relationship (Chapter 1). The consequences of different methods of family creation for these factors are examined, looking first at adoption (Chapter 2), and then at assisted reproduction (Chapter 3). The process of embryo donation is assessed in Chapter 4, looking at the psychological, social, and legal perspectives, and comparing embryo donation to adoption. In Chapter 5, the materials and methods employed in the research are described, and the results are laid out in Chapters 6 and 7. Finally, in Chapter 8, conclusions are drawn from the results and the implications are discussed.

CHAPTER 1

WHAT MATTERS FOR PARENTING?

In order to examine the effects of different methods of family creation on children's psychological development, we need to first consider the aspects of family life that are most likely to influence child development. The nature and quality of the relationships that are formed between children and their parents is generally considered to be important, as is the parents' own psychological health and the state of their marital relationship.

PARENT-CHILD RELATIONSHIPS

Attachment

Attachment denotes the process whereby children form an affective bond to their parents in infancy, whilst parents reciprocally bond emotionally to their children (Cummings & Cummings, 2002). The significance of attachment for children's development was first given prominence by John Bowlby, who argued that a child's future mental health development would benefit greatly if the 'infant and young child should experience a warm, intimate and continuous relationship with his mother (or permanent mother substitute) in which both find satisfaction and enjoyment' (Bowlby, 1951). In Bowlby's initial formulation, attachment theory incorporated the notion of 'monotropy', i.e. a biological need to develop a selective attachment to just one person (generally the mother) and for this relationship to be qualitatively different from all others (Bowlby, 1969). It is now widely accepted that children can become attached to a few select individuals who are closely involved in their care, including particularly their fathers (Bowlby, 1988).

The formation of selective attachments occurs from the age of about 6 months, the stage at which infants begin to exhibit signs of distress when separated from their mothers. Bowlby proposed that there was a 'sensitive period' for attachment formation, from 6 months to 3 years old, such that children not given the opportunity to form attachments at this age would be unable to form attachments later, even if provided with very good quality parenting after 3 years. This view has been questioned, with evidence showing that children raised in extreme conditions in institutions for the first years of life, and then adopted into responsive and loving family environments, can form attachments to their adoptive parents (Chisholm, 1998). However, these later attachments may be more likely to be classified as insecure than those formed in infancy. The current thinking is that there is a sensitive period in the early years that is the optimal time for attachments to form, but that failure to form attachments at this age is not irreversible (Rutter, 1995).

Despite these modifications, the basic idea of attachment theory, that the quality of a child's relationship with his or her parents in the early years is crucial for the child's subsequent emotional and social development, remains highly influential. Although the great majority of infants will form an attachment to their primary caregiver(s), they can differ in the security of that attachment, i.e. in their level of confidence that the caregiver will consistently be available to them as a secure base from which to explore, and as a source of support in times of stress. Attachment theory claims that children form 'internal working models', or mental representations, of attachment relationships from their early experiences, which differ according to the security of these attachments (Bowlby, 1969). It is argued that these models represent not only the child's relationship with the attachment figure, but also relationships in general, and importantly, the child's view of his or herself, and are used to predict and

interpret the behaviour of others in future life (Bretherton, Ridgeway, & Cassidy, 1990). Thus a securely attached individual will have an internal model of their caregiver as consistently responsive and available, and of themself as loveable and worthwhile. This confidence will ensure that in future life they will expect relationships with others to be warm and fulfilling. On the other hand, an insecurely attached child will form a representation of their caregiver as inconsistent and/or insensitive, and of themself as not worthy of love, so will not expect future relationships to be fulfilling or supportive. Attachment is therefore seen as a normal process of development, and it is argued that a history of insecure attachments will increase children's risk for adjustment problems (Bowlby, 1969).

In order to examine the individual patterns of attachment of children, Ainsworth and colleagues devised the Strange Situation Test for assessing the attachment of 12-18 month old infants (Ainsworth, Bleher, Waters, & Wall, 1978; Ainsworth & Wittig, 1969). This consists of a sequence of brief episodes (3 minutes each) that take place in an environment unfamiliar to the infants, usually an observation laboratory, and are videotaped. The sequence of events for the infant includes playing in the room in the mother's presence, separation from and reunion with the mother, and being left alone with a stranger. The analysis of the infant's behaviour focuses particularly on the reaction to separation and reunion, but also on other aspects, such as the willingness of the infant to explore the room when the mother is present, and the infant's response to the stranger.

In her initial study, Ainsworth identified three distinct patterns of behaviour (Ainsworth et al., 1978). The large majority of infants (70%) were classified as 'securely attached'. These infants were confident in exploring the room in the presence of their mother, were not perturbed by the stranger's entrance when the mother was

there, sought contact or affection with the mother at reunion and, if they had been distressed by the mother's absence, were quickly soothed by her. Thus, they seemed to have a coherent strategy in place for the use of their mother as a secure base and as support when needed (Cummings & Cummings, 2002; Steele & Steele, 1994).

The remaining infants, deemed to be insecurely attached, showed one of two behaviour patterns. 'Insecure-avoidant' infants were very quick to explore the unfamiliar surroundings, rarely showed distress on separation from the mother, and did not seek proximity to the mother at reunion. This indicates that these children are not comfortable relying on their mother as a source of security (Steele & Steele, 1994). In contrast, 'insecure-resistant' infants were anxious and clingy to their mother prior to separation. During separation from their mother, they became intensely distressed, but showed ambivalent behaviour on her return, seeking comfort and then resisting it, and were difficult to soothe. This reflects a strategy of extreme dependence on the mother, coupled with an ineffective use of her as support in times of stress (Cummings & Cummings, 2002). From more recent studies, a fourth category of attachment behaviour, 'insecure-disorganised', has been identified (Main & Solomon, 1990). Infants in this category exhibit unusual and disoriented behaviours, and may appear very frightened or depressed in the presence of the mother. Unlike the other three attachment patterns, insecure-disorganised children seem to have no coherent strategy for responding to stress or relying on the attachment figure (Hesse & Main, 2000).

In addition to studying the differing attachment behaviours of infants, Ainsworth and colleagues observed the mother-infant dyads in the home to examine the quality of mother-infant interactions. One of the central tenets of attachment theory has always been that there is an association between the security of attachment relationships and the quality of parenting provided by the attachment figures (Rutter, 1995). In particular,

there has been an emphasis on the ability of the attachment figure to respond sensitively to the infant's signals, and to be emotionally available to the infant (Bowlby, 1969). Ainsworth's study and those of other researchers have found that mothers of securely attached infants tend to show greater responsivity and warmth to their child, and are more sensitive to their child's needs, than are mothers of insecurely attached infants (Ainsworth et al., 1978; Egeland & Farber, 1984). Mothers of 'insecure-avoidant' infants are more rejecting, angry, tense and irritable, and less willing to engage in close physical contact with their infants than are mothers in the other groups. Thus, the avoidant behaviour of these infants at reunion may stem from their inability to rely on their mothers for comfort. On the other hand, mothers of 'insecure-resistant' infants show inconsistent and ineffective patterns of parenting. On occasion they may respond sensitively to the infant, but at other times they are unresponsive or respond inappropriately to the infant's signals. Therefore, the ambivalent behaviour of these infants at reunion may be due to their inability to predict how their mothers will respond (Steele & Steele, 1994). The final classification of 'insecure-disorganised' attachments has been found to be associated with severely impaired parenting, where the infant has been neglected or abused, or where the mother is clinically depressed (Carlson, Cicchetti, Barnett, & Braunwald, 1989; Radke-Yarrow, Cummings, Kuczynski, & Chapman, 1985). These infants' disorientation in the Strange Situation Test may thus result from their experience of unpredictable or frightening behaviour from their mothers (Lyons-Ruth & Jacobitz, 1999). From her results, Ainsworth concluded that "the most important aspect of maternal behaviour commonly associated with the security-anxiety dimension of infant attachment... emerges as sensitive responsiveness to infant signals and communication" (Ainsworth et al., 1978).

Although it is generally accepted that maternal behaviours influence the security of attachment formed, there has been some debate about the importance of maternal sensitivity, as opposed to other dimensions of parenting. A meta-analysis of 66 studies of maternal behaviour and infant attachment found that maternal sensitivity was a significant predictor of infant attachment, with infants whose mothers respond promptly and appropriately to their signals being nearly twice as likely to form secure attachments than those infants whose mothers are less sensitive (De Wolff & van IJzendoorn, 1997). However, other aspects of maternal interactive behaviour including the mother's expression of positive affect to the baby, her stimulation of the baby, and the extent to which she appeared to be emotionally available to the baby, also had significant associations with attachment security. It was concluded that sensitivity, whilst important, is not the exclusive factor in the development of secure attachment relationships.

In so far as maternal sensitivity matters for attachment formation, the question arises of why some mothers are more sensitive than others. The wider context of the family including the marital relationship, and the socio-economic status of the family, may influence the mother's behaviour. For example, marital conflict has been shown to have negative effects on behaviours such as sensitivity that promote secure attachment, as well as on children's emotional security (Davies & Cummings, 1994; Owen & Cox, 1997). It has also been argued that a mother's relationship with her child is related to her own early childhood experiences and, in particular, her relationship with her own mother. Using a technique called the Adult Attachment Interview (George, Kaplan, & Main, 1985), studies have consistently found that mothers who are rated as securely attached to their own parents are most likely to have securely attached children (van IJzendoorn, 1995). The mechanism for this inter-generational transmission of

attachment patterns is not yet clear, although one possible explanation is that securely attached mothers have coherent and generally positive representations of their attachment relationships, allowing them to respond sensitively to their child (Steele & Steele, 1994).

Critics of attachment theory have suggested that maternal sensitivity and the infant's behaviour in the Strange Situation test could both stem from another source; the temperament of the infant (Belsky & Rovine, 1987). From early infancy, children show individual differences in temperamental characteristics including emotional expressiveness, activity level, and sociability (Goldsmith et al., 1987). For example, an irritable infant may become very distressed and be difficult to soothe after separation from its mother, and thus be classified as insecurely attached. Mothers of irritable or fussy infants may find it difficult to know how to respond, since most responses do not produce the soothing effect desired, and thus may be rated as less sensitive. From this perspective, the mechanism connecting a mother's attachment classification and that of her child could be the genetic transmission of temperamental characteristics. Thus, securely attached mothers are more likely to have securely attached children due to the children possessing the same characteristics as their mothers, rather than to increased maternal sensitivity (van Ijzendoorn, 1995).

Attachment theorists dispute the temperament hypothesis on several grounds. Firstly, a temperament explanation would predict that an irritable, difficult temperament would inevitably lead to insecure infant-mother attachments. However, it is possible for mothers to help irritable infants to form secure infant-mother attachments, provided the mother herself has a high level of social support (Crockenberg, 1981). In addition, therapeutic interventions aimed at increasing and facilitating mothers' responsiveness to

their infants' signals have been shown to produce a corresponding rise in the security of attachments in irritable infants (van den Boom, 1994, 1995).

Furthermore, if it were true that an infant's response to the Strange Situation Test was due to the infant's temperament, one would expect that their behaviour, and therefore their attachment classification, would be the same regardless of the attachment figure taking part in the assessment. It has been demonstrated that this is not always the case, for example, by a meta-analysis of studies that assessed infants' attachment to their mothers and fathers separately (van IJzendoorn & De Wolff, 1997). Although 62 percent of infants obtained the same classification with both mother and father, 38 per cent did not. One would also expect, if attachment were determined by temperament, and by extension by genetics, that identical twins, who share identical genetic make-up, would be more similar in their security of infant-mother attachment, than non-identical twins. This claim was tested in a twin study looking at the child-mother attachments of identical and non-identical twin pairs of pre-school age children (O'Connor & Croft, 2001). There was no significant difference in the concordance in security of attachments between the identical and non-identical pairs, suggesting that there is not a major genetic influence on the quality of child-mother attachment. It may be that an infant's temperament has some small influence on attachment patterns, but from the current literature it seems to be accepted that "infant-parent attachment patterns are largely acquired, rather than determined by one's genetic or biological make-up" (Steele, 2002).

Overall then, sensitive, warm and responsive parenting appears to play a major role in promoting the formation of secure attachments. However, an important question to be addressed is whether security of attachment actually matters for children's psychological adjustment. Many studies have employed the Strange Situation Test to explore the issue of whether insecurely attached children do have an increased

vulnerability for problems in social and emotional development (for reviews, see Belsky & Cassidy, 1994; Cassidy & Shaver, 1999). In these studies, children are classified by their attachment behaviour in infancy and then followed up later in childhood to determine whether differences exist between the securely attached group and the insecurely attached group. For example, one follow-up study assessed four-year-old children and found that those classified as insecurely attached in infancy were less popular and less socially competent, and had lower self-esteem, than those who were securely attached as infants (Elicker, Englund, & Sroufe, 1992). Having poor social competence has been shown to have negative outcomes, with rejected children more likely to become aggressive or disruptive, and disliked children more likely to show adjustment difficulties, than those children regarded as popular. Similarly, Cohn (1990) studied the social competence of 6-year-old children at school, i.e., whether children were popular, disliked or rejected by their classmates. The association between social competence and attachment classification was significant for boys, with insecurely attached boys less popular and more likely to be rejected by peers, although the relationship between attachment and social competence was not significant for girls.

With regard to other aspects of child adjustment, one prospective study, which looked at over 1,000 children, found that security of attachment, assessed at 2 years old, was negatively related to levels of both internalising and externalising behaviour problems at 3 years old (McCartney, Tresch Owen, Booth, Clarke-Stewart, & Lowe Vandell, 2004). Other researchers have shown securely attached children to exhibit higher levels of self-esteem, peer competence, independence, persistence in problem-solving, and lower levels of behavioural problems, than insecurely attached children (Erickson, Sroufe, & Egeland, 1985; Lewis, Feiring, McGuffog, & Jaskir, 1984; Sroufe, 1986; Suess, Grossman, & Sroufe, 1992; Youngblade & Belsky, 1992).

In conclusion, there is some evidence that the quality of early attachment between an infant and its mother has an effect on later social development. However, not all securely attached infants will become psychologically healthy children, nor will all insecurely attached infants go on to show problems in psychological adjustment (Greenberg, 1999). Also, although some researchers have found that the test-retest reliability of the Strange Situation Test is high (Antonucci & Levitt, 1984; Waters, 1978), others have found less stability of attachment relationships over time (e.g., Ainsworth et al., 1978). Both of these observations can be explained by the idea that attachment relationships are not necessarily 'set' but may change in quality due to external circumstances such as family upheaval or stress on the family unit (Lewis et al., 1984; Vaughn, Egeland, Sroufe, & Waters, 1979). Despite this, the fact remains that secure attachments are more likely to promote healthy psychological development than insecure attachments. Thus, secure attachments, and their antecedents of parental sensitivity, responsiveness and emotional availability, are desirable characteristics of well-functioning families.

Parenting style

One of the major tasks of parenting is that of socialization, including teaching children morals, encouraging them to develop socially appropriate and mature behaviours, and disciplining them when necessary. According to how parents deal with these issues, they can be categorised as adopting one of four different styles of parenting: authoritarian, authoritative, permissive or rejecting-neglecting (Baumrind, 1989). In Baumrind's classification, parenting can vary along two dimensions, responsiveness and demandingness. Responsiveness refers to behaviours designed to meet the child's needs and demands, whilst demandingness refers to behaviours designed to ensure the parents' own demands are met.

Authoritarian parents are highly demanding but low on responsiveness. They have high expectations of their children and are not willing to negotiate these, even when the standards expected are unreasonable. Children are expected to obey parental rules without question. A longitudinal study of parental behaviour found that authoritarian parents were likely to be confronting and coercive in disciplinary interactions, often employing fairly severe punishments (Baumrind, 1967, 1971, 1989). At pre-school age, children of authoritarian parents showed relatively little independence, and boys of these parents showed high rates of anger and defiance. At follow-up, when the children were aged nine, those raised by authoritarian parents were more likely than other children to be socially incompetent. It has also been shown that adolescents with authoritarian parents have lower levels of school adjustment than those with authoritative parents (Steinberg, Lamborn, Dornbusch, & Darling, 1992).

Authoritative parents are high on both dimensions of responsiveness and demandingness. They are openly affectionate to their children and prepared to listen to their children's viewpoints. Like authoritarian parents, they have high standards for their children, but their demands are reasonable and can be explained and negotiated. This style has also been described as 'reciprocal' since children are required to respond to parental demands, whilst parents reciprocally respond to the demands of their children when appropriate (Maccoby & Martin, 1983). Disciplinary tactics of authoritative parents can be confronting, in that they express anger when the situation requires, but tend towards the use of firm control rather than coercion. Empirical research shows that children of authoritative parents are more socially competent than children of authoritarian, permissive or rejecting-neglecting parents (Baumrind, 1989). At adolescence, these children attain higher levels of educational achievement and obtain higher scores on measures of psychosocial competence, than adolescents from

other family types (Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Steinberg et al., 1992).

Parents who are highly responsive but undemanding are classified as permissive. These parents are highly affectionate and nurturing, but place very few demands on their children and avoid asserting authority or imposing controls over their children's behaviour. This parenting style may result from an ideological stance of the parents that it is not 'right' to impose their will on their child, or from the parents simply not possessing the necessary parenting skills (Maccoby & Martin, 1983). Children of permissive parents tend to lack social responsibility, be low in independence, and to be somewhat immature in their levels of self-reliance and impulse control (Baumrind, 1967, 1971). They may also exhibit aggressive behaviour when demands are made of them. When children of permissive parents reach adolescence, they have high levels of self-confidence but are less engaged in school and more likely to become involved in substance abuse than other adolescents (Lamborn et al., 1991).

The fourth parenting style is that of uninvolved or rejecting-neglecting parents who score low on both responsiveness and demandingness. These parents show little interest in their children, rarely offering them support or encouragement. They do not monitor their children's activities, and are highly coercive in their interactions (Baumrind, 1989). At the extreme, uninvolved parents may neglect their children to the point of child abuse. Children of rejecting-neglecting parents tend to be low in social competence and low in compliance. They are significantly more likely than children of authoritative parents to develop emotional or behavioural problems, and to engage in drug abuse or delinquency at adolescence (Lamborn et al., 1991). Comparing child outcomes across the four parenting styles, the optimal parenting style seems to be that of the authoritative parent, who is physically affectionate and openly communicative,

and responds to the child's behaviour with a firm and rational use of control. Baumrind argues that this is the style most likely to produce socially competent, co-operative, independent and responsible children (Baumrind, 1989). However, the importance of the role of firm parental control has been questioned (Lewis, 1981). From Baumrind's data on pre-school children, Lewis identified a group of parents who exhibited a parenting style that was the same as the authoritative parenting pattern, except that there was an absence of firm control. These 'harmonious' parents are highly responsive and do use discipline, but do not place the same importance as authoritative parents on child obedience. Children from harmonious homes were as socially competent as children of authoritative parents at the pre-school phase. However, when the children were followed up at age nine, those from harmonious families were less socially assertive than those from authoritative families (Baumrind, 1989). Thus, it seems firm parental control does have a part to play in promoting social competence, particularly social assertiveness.

Another perspective on parenting styles is offered by the research of Patterson and colleagues (Patterson, 1982). The aim of this work was to identify disparities in parenting between families with extremely aggressive children, identified as being 'out of control', and a normal comparison group. The parents of the aggressive group were found in some respects to resemble authoritarian parents, in that their disciplinary interactions involved coercion, and they were low on positive responsiveness. On the other hand, they were also lacking in exercising control or the ability to maintain consistent standards of discipline and behaviour, and on occasions behaved in the same way as rejecting-neglecting parents. In these families, when a child shows aggression, parents may initially react punitively but if this does not achieve the desired response, they may submit to the child's demands in order to end the aggressive encounter. This

negatively reinforces the aversive behaviour, and so increases the probability that the child will show marked aggression in the future when they wish their demands to be met. The parents may begin to avoid interactions with the child in order to avoid such unpleasant encounters, and thus their parenting style becomes more uninvolved which may cause the child to show more severe conduct problems in an attempt to attract their parents' attention.

Overall, it seems that a consistent disciplinary strategy, coupled with a high level of warmth and affection, will best promote positive child psychological adjustment. However, parents' ability to provide this can vary according to their own psychological state. For example, if parents are depressed, or are involved in frequent marital conflict, they may be less inclined to properly monitor or discipline their children (Cummings & Davies, 1994). The next section addresses this in more detail, examining the effects of parents' psychological well-being and marital satisfaction on parenting and on child development.

PARENTAL PSYCHOLOGICAL AND MARITAL STATE

Parental depression

Depression is one of the most prevalent forms of adult mental illness, particularly among women of child-bearing age (Weismann, 1987). Perhaps for this reason, the effects of parental depression on children have been researched to a greater extent than those of other forms of parental psychological disorder. A large body of literature has shown that children of depressed parents are at an increased risk of developing a range of problems relating to psychological adjustment (see reviews by Cummings & Davies, 1994; Downey & Coyne, 1990). For example, studies of one sample of 200 families found that children of depressed parents were three times more likely to develop a

psychiatric disorder than children of non-depressed parents, and were twice as likely to be diagnosed with depression themselves (Weissman et al., 1987; Weissman et al., 1984). These effects were long-lasting; when the sample was followed up ten years later, the children of depressed parents still showed significantly higher rates of psychological disorders, including depression, phobias and alcohol dependency, than children of non-depressed parents (Weissman, Warner, Wickramaratne, Moreau, & Olfson, 1997). Similarly, another study found that children with a depressed parent were between two and three times more likely than those with parents who were not depressed to have at least one form of psychiatric disorder (Orvaschel, Walsh-Allis, & Ye, 1988). In a longitudinal assessment of children of depressed mothers, the lifetime risk of depression for these children was estimated at 45% (Hammen, Burge, Burney, & Adrian, 1990). Although depression in both parents has been associated with negative child outcomes, research has focused mainly on mothers with depression.

The early research into why children of depressed parents exhibit elevated rates of dysfunctional adjustment mainly focussed on genetic and biological causes. Adoption studies and twin studies have found evidence of a genetic contribution to the transmission of depression (Allen, 1976; Cadoret, 1978; Mendlewicz & Rainer, 1977). However, other studies have found little evidence of a genetic influence (Cadoret, O'Gorman, Heywood, & Troughten, 1985), and in studies of identical twins, only about half of those with a depressed twin were suffering from depression themselves (McGuffin, Katz, Watkins, & Rutherford, 1996). It may be that having a parent with depression increases a child's genetic vulnerability to psychiatric disorder. However, many children raised in at-risk environments will grow up to become psychologically competent individuals (Garmezy & Masten, 1991). Therefore, explanations other than a

simple model of biological transmission are needed to account for the association between parental depression and child maladjustment.

Behavioural and emotional symptoms of parental depression such as emotional withdrawal, negativity, cognitive impairments and low self-efficacy, may have negative effects on the ability to parent effectively. Studies have shown that depressed parents are deficient in warmth and availability, and have been reported to be more negative and unsupportive with their children from early infancy (Field, Healy, Goldstein, & Guthertz, 1990). For example, depressed mothers of 2-year-olds showed less warmth and responsiveness, and more withdrawal and criticism, towards their children as compared to non-depressed mothers (Cox, Puckering, Pound, & Mills, 1987). Similarly, in observations of mothers playing with their one and two-year-old children, depressed mothers were less sensitive to their children's focus of attention. Whereas well mothers were swift to adjust their own behaviour to co-ordinate with that of their children, depressed mothers and infants were more likely to withdraw into separate activities (Jameson, Gelfand, Kulcsar, & Teti, 1997).

As has been discussed earlier, parental emotional availability and sensitivity are among the strongest predictors of the formation of secure attachments (Ainsworth et al., 1978; Bowlby, 1973; Egeland & Sroufe, 1981). Therefore, one might expect children of depressed parents to be less able to form secure attachments. Research has found that this is the case, with children of depressed mothers being almost twice as likely to be classified as insecurely attached in the Strange Situation Test as children of non-depressed mothers (Murray, 1992; Radke-Yarrow et al., 1985).This may explain why these children are more prone to developing depression themselves, since the internal working models hypothesised to characterise those with insecure attachments are very similar in cognitive and emotional components to patterns present in depression, e.g.,

feelings of unworthiness and low-esteem (Beck, 1976; Bretherton et al., 1990; Main, Kaplan, & Cassidy, 1985).

Parenting style may also be affected by depression, particularly with respect to effective use of disciplinary tactics. Depressed parents tend to show inconsistency in their use of child management techniques, often alternating between an extremely authoritarian style and a lax or uninvolved style. On the one hand, depressed parents are more lenient than non-depressed parents in their disciplining and monitoring of the child (Cummingham, Benness, & Siegel, 1988; Zahn-Waxler, Iannotti, Cummings, & Denham, 1990), and on the other hand, they are more likely to use force to obtain child compliance (Fendrich, Warner, & Weismann, 1990). In a comparison of depressed and non-depressed mothers of pre-school children, those with depression were more likely to submit to the child's demands in order to avoid a conflict. However, when they did not submit to the child, they were less likely than the other mothers to negotiate with their child and use compromise to end the disagreement (Kochanska, Kuczynski, Radke-Yarrow, & Welsh, 1987). The pattern of control strategies employed by depressed parents thus resembles that identified by Patterson (1982) in the parents of aggressive children. Due to the depressed parent's feelings of lethargy and negativity, they adopt strategies requiring little cognitive effort, responding to their child's negative behaviour by submission as a means of escaping the situation, and not attempting to agree a compromise. As a result the child becomes more predisposed to exhibiting such aversive behaviour, which may partly explain why children of depressed parents are at elevated risk of developing conduct disorders.

One of the features of depression is the cognitive pattern of attributing negative events to internal stable causes, whereby depressed parents may have negative perceptions and interpretations of both themselves and their children. In line with this,

depressed mothers' ratings of the behaviour of their own infants were found to be more negative than ratings of objective observers (Field, 1992). Similarly, in a comparison of pre-school children, depressed mothers were more likely than non-depressed mothers to attribute child problem behaviours to a problem inherent in their child, rather than to being universal to children at that age (White & Barrowclough, 1998). This tendency of depressed mothers to hold negative views of their children may exacerbate the mother's feelings of depression, whilst the children's attributional style will often reflect that of their mother (Zahn-Waxler, Duggal, & Gruber, 2002). Thus, the cognitive impairments of depression can be transmitted to offspring, increasing the chance that these children will themselves become depressed.

Further symptoms of depressive disorder include low self-esteem and a feeling of having little control over events. Depressed mothers perceive themselves as being less competent and adequate than other parents and have low confidence in their parenting abilities (Kochanska et al., 1987; Webster-Stratton & Hammond, 1988). Diminished self-efficacy and low perceived competence are both associated with parenting impairments (Bugental & Cortez, 1988; Bugental & Shennum, 1984; Teti, Gelfand, & Pompa, 1990). Therefore the low self-efficacy of depressed parents may decrease their ability to parent their children effectively (Cummings & Davies, 1994)).

In addition to personal difficulties, depression is highly correlated with marital conflict (Coyne, Burchill, & Stiles, 1991; Rutter & Quinton, 1984), which is, in turn, associated with adjustment difficulties for children (the effects of marital conflict are discussed in greater depth later in this chapter). Therefore, parental depression may impact child outcome indirectly through its association with marital discord. For example, one investigation showed that conflict between parents rather than parental depression accounted for the disruptive behaviour of children of depressed parents at

school (Emery, Weintraub, & Neale, 1982). When parents were depressed but marital discord was absent, children were not at increased risk for problematic school behaviour as compared to a control group of children of non-depressed parents. Another study found that disturbances in the interactions of mothers with their two-year-old children were more closely associated with marital discord than they were with maternal depression (Cox, Puckering et al., 1987). A review of studies examining the relationships between parental depression, marital conflict and child competencies stated that "marital conflict may explain the general adjustment problems of children with a depressed parent" (Downey & Coyne, 1990). However, the authors went on to point out that marital discord could not explain the high rates of clinical depression seen in children of depressed parents. They concluded that whilst marital conflict may be most responsible for the development of child conduct disorder, parental depression on its own increased the risk of child depression. It has also been suggested that the interrelations between marital conflict and depression are reciprocal (Cox et al., 1987), with marital conflict causing depression and vice versa.

Most research on depressed parents has focussed on the effect of parents on children, but it is possible that the characteristics of the child have an impact. Field (1992) proposed that the depressed symptoms of low activity levels and flat affect seen in 3-month-old infants of depressed mothers are present from birth, due to genetic and/or prenatal environmental factors. Mothers of these infants would then find interaction with them less easy and less rewarding. A study of neonatal infants of depressed mothers found that they cried more frequently and were more difficult to soothe than other infants, indicating an irritable temperament (Zuckerman, Bauchner, Parker, & Cabral, 1990). Although the relationship between child temperament and parental depression is difficult to disentangle, it seems likely that for a depressed

mother, coping with a difficult child may exacerbate her depression. Child characteristics may also determine to what extent the child is affected by the parent's depression, with some children less vulnerable and more resistant to stress than others (Garmezy & Masten, 1991; Garmezy, Masten, & Tellegen, 1984).

It is undeniable that children of depressed parents are at a disadvantage with regards to their psychological adjustment. However, the extent to which children are affected will vary between individuals, and children of depressed parents often cope and develop effectively (Eisenbruch, 1983; Williams & Carmichael, 1985). Despite the presence of a depressed parent, factors such as a well-functioning marriage, efficient child management, and child resilience can all act as buffers against negative outcomes for children.

Parental anxiety

Anxiety disorders can take many forms including panic disorders, phobias, obsessive-compulsive disorder, and generalised anxiety disorder. It would be reasonable to expect that these would have a significant impact on parenting. In addition, anxiety has a high comorbidity with depression. However, in comparison to depression, there is little research on maternal anxiety, and studies of parental depression have tended not to address the concurrent symptoms of anxiety (Zahn-Waxler et al., 2002). Children of parents with anxiety disorders are at risk for developing anxiety disorders themselves. One study found that the risk of anxiety disorder for children of parents with anxiety disorders was seven times that of children with well parents (Turner, Beidel, & Costello, 1987). With respect to the effects of anxiety disorders on parenting, an observational study of parent-child interactions of parents with anxiety disorders concluded that anxious mothers were less warm and positive, less encouraging of child autonomy, and more critical than non-anxious mothers (Whaley, Pinto, & Sigman,

1999). As with depressed parents, the low positivity of anxious mothers can affect children's attachment patterns. Children of mothers with anxiety disorders have been shown to have elevated rates of insecure attachments (Manassis, Bradley, Goldberg, Hood, & Swinson, 1995).

It is not just clinical anxiety disorders that may disrupt parenting behaviours. High trait anxiety, where increased levels of anxiety are pervasive but do not necessarily reach clinical levels, can also have an impact. Negative correlations between levels of trait anxiety and maternal responsiveness to infants have been identified (Biringen, 1990; Nover, Shore, Timberlake, & Greenspan, 1984), and a reduction in maternal trait anxiety has been associated with a rise in maternal sensitivity (Feldman, Greenbaum, Mayes, & Erlich, 1997). In line with these findings, insecure attachments at 1 year have been found to be more likely in infants of mothers with high prenatal anxiety levels than infants of mothers who reported lower anxiety (Del Carmen, Pedersen, Huffman, & Bryan, 1993). Anxious mothers also report lower confidence in parenting and more problems in child psychological adjustment than non-anxious mothers (Barnett, Schaafsma, Gusman, & Parker, 1991), and allow their children less psychological autonomy (Siqueland, Kendall, & Steinberg, 1996). Children of anxious parents describe themselves as more fearful and anxious than children of non-anxious parents, which may be due in part to the lower levels of autonomy they are permitted (Capps, Sigman, Sena, Henker, & Whalen, 1996).

Parental marital satisfaction

Investigations of the relationship between the quality of the parents' marriage and child psychological outcomes were first prompted by the observations of clinical psychologists that children with behaviour problems often came from families characterised by unhappy marriages. Systematic studies have shown that the important

factor is not marital dissatisfaction *per se*, but the degree to which children are exposed to marital conflict (Emery et al., 1982; Grych & Fincham, 1990; Hetherington, Cox, & Cox, 1982; Rutter et al., 1974). Unhappy marriages where parents engaged in hostile, tense and argumentative interactions were more highly associated with problems in children's adjustment than those where parents expressed their dissatisfaction through apathy or indifference (e.g. Rutter et al., 1974). Similarly, conflict within the marriage of which children were not aware was not related to the level of child behavioural problems (Hetherington et al., 1982).

A range of negative outcomes for children have been found to be more likely in families where there is a high level of overt marital conflict. The strongest associations are between marital conflict and externalising problems in children, particularly aggressive behaviours and conduct problems (see Grych & Fincham, 1990 for review). However, children from high conflict homes are also at risk for internalising problems such as depression (Jouriles et al., 1991), as well as lower social and cognitive competence (Long, Forehand, Fauber, & Brody, 1987). Most studies have focussed on the consequences of marital conflict when children are in middle childhood or early adolescence, rather than investigating the long-term implications. Recently, a few prospective studies using longitudinal data have shown that those individuals exposed to parental conflict as children are more likely to experience problems in romantic relationships themselves when they reach adulthood (Caspi & Elder, 1988; Conger, Cui, Bryant, & Elder, 2000), including an increased probability of using violence towards their partner (Moffit & Caspi, 1998). Adults raised in high-conflict homes also show lower levels of psychological well-being, and report less perceived social support at 30 years old (Amato, 2003). One retrospective study found that, for a sample of pregnant women, recall of high levels of conflict in their parents' marriage was associated with

elevated rates of depressive symptoms (O'Connor, Thorpe, Dunn, Golding, & The ALSPAC study team, 1999). Thus, the evidence indicates that parental discord predicts problems for offspring both during childhood and into adulthood.

A number of mechanisms have been proposed to explain the link between marital conflict and child adjustment. Firstly, social learning theory postulates that children tend to model their parents' behaviour (Bandura, 1989). If parents are engaging in aggressive behaviour, this may directly affect children by teaching them that this is an appropriate way of dealing with conflict. One study found that after observing angry interactions between adults, children showed increased levels of aggression towards familiar playmates, indicating that they were imitating the modelled aversive behaviour (Cummings, Iannotti, & Zahn-Waxler, 1985). The increase was particularly marked in children rated as high on aggression prior to exposure to the angry interaction, suggesting that observing aggression may disinhibit already present aggressive impulses (Grych & Fincham, 1990). Although modelling may explain some of the associations between child outcomes and marital discord, research on modelling effects has been limited because it is impossible to operationalise as a process or to measure in non-experimental contexts (Wilson & Gottman, 2002).

Parental conflict may also affect children directly by exposing them to an experience that is inherently stressful. From the age of 1 year old, children show signs of distress when observing hostile interactions between family members (Cummings, Zahn-Waxler, & Radke-Yarrow, 1981). In a series of studies, Cummings and colleagues monitored children's reactions to witnessing staged arguments between adults (Davies & Cummings, 1994). The findings showed that simply passively witnessing the hostile interchange caused all of the children distress. In addition, individual differences in children's responses to the conflict were found to show some consistency over time

(Cummings, Zahn-Waxler, & Radke-Yarrow, 1984). The implication is that children adopt different coping styles for dealing with the stress of adult anger, perhaps according to their experience of parental conflict.

An alternative explanation is that marital conflict is linked to child adjustment indirectly, through the way that marital conflict interferes with the ability to provide effective parenting. This 'spillover' hypothesis was supported by a meta-analysis of a number of relevant studies, which found that there was a significant and positive relationship between the quality of the marital relationship and the quality of the parent-child relationship (Erel & Burman, 1995). It was concluded that parents in a hostile marital relationship tend to become more hostile or more emotionally unavailable towards their children. An investigation of the association between marital quality, measured before the birth of the child, and parenting quality with 3-month-old infants found that mothers in close/confiding marriages were warmer and more sensitive with their babies than mothers in less satisfied marriages (Cox, Owen, Lewis, & Henderson, 1989). For fathers, marital quality was positively correlated with their attitudes towards the infant and towards their parenting role. Similarly, a study of marriage and parenting during the transition to parenthood found that low-conflict marriages were associated with positive affect and high levels of physical affection in parent-child interactions (Easterbrooks & Emde, 1988). From an attachment theory perspective, the reduced levels of emotional sensitivity and emotional availability exhibited by parents in troubled marriages are predicted to have a negative impact on the security of children's attachments. This was borne out by a study assessing the impact of the quality of the parents' relationship, before and after the child's birth, on child attachment patterns at the age of 1-3 years. Both pre-birth and post-birth measures of the marital relationship

were related to child functioning, with higher levels of marital conflict associated with higher rates of insecure attachment relationships (Howes & Markman, 1989).

Parents in high-conflict marriages may also be less likely to engage in optimal styles of child management techniques. As parents become absorbed in their own conflict, they may be less able to provide authoritative parenting, with its high levels of demandingness and responsiveness (Baumrind, 1989). Patterson (1982) proposed that parental conflict leads to an increase in inconsistent or ineffective parenting styles, and thus to an increase in child conduct problems. Cowan and Cowan (1992) followed up a group of parents from the end of pregnancy until the children were 3 ½ years old, and assessed their marital interactions and their parenting styles, in terms of warmth and control. Marital conflict was associated with less authoritative parenting, and more authoritarian parenting for both mothers and fathers. Another investigation examined marital conflict in conjunction with several dimensions of discipline (Stoneman, Brody, & Burke, 1989). The results were somewhat contradictory, but parents with lower levels of marital conflict generally utilised more effective disciplinary strategies than those experiencing high inter-parental conflict. Other studies have also found that discipline is related to levels of marital conflict, e.g., fathers in high-conflict marriages show more coercive, rejecting and withdrawn behaviour with their sons (Lindahl & Malik, 1999), and mothers in high-conflict marriages show more rejection of their adolescent children (Fauber, Forehand, Thomas, & Wierson, 1990).

Some degree of exposure to episodes of conflict between parents is inevitable in families, and not all children will develop psychological problems as a result. The broader context in which the conflict occurs will determine the impact on the child, particularly the frequency, intensity, and the content of the conflict, including the explanation and resolution of the conflict episodes (Fincham & Osborne, 1993). In

terms of frequency, the child's previous history of exposure to conflict must be taken into account. Using parental diaries to assess the frequency of naturally occurring parental conflict, one study found that children exposed to more frequent marital conflict showed more distress, anger and insecurity in their responses to a later episode of parental conflict than did children exposed to less frequent conflict (Cummings et al., 1981). In addition, children who witnessed two hostile adult interactions in the laboratory exhibited more aggressive behaviour towards their peers after the second episode than after the first (Cummings et al., 1985). It appears that rather than becoming used to conflict through exposure, children become increasingly sensitised to it, and thus more liable to emotional and behavioural maladjustment (Cummings & Zahn-Waxler, 1992).

The intensity of parental conflict can also affect the impact on the child, with children exposed to conflicts of high-intensity (which did not involve physical violence) reporting more feelings of anger, sadness, worry and shame than those exposed to low-intensity conflicts (Grych & Fincham, 1993). This effect may be stronger when the conflict escalates into physical violence. Physical aggression between adults elicits more anger, fear and sadness from children than interactions that involve only verbal anger (Cummings, Vogel, Cummings, & El-Sheikh, 1989; Cummings et al., 1981). In line with this finding, children from violent homes are more likely to show behavioural problems than those from non-violent homes (e.g., Jouriles, Murphy, & O'Leary, 1989; Wolfe, Jaffe, Wilson, & Zak, 1985). One study found that exposure to verbal inter-parental aggression is associated with only low to moderate levels of externalising behaviours, whereas exposure to physical and verbal inter-parental anger is associated with severe levels of both internalising and externalising problems (Fantuzzo et al., 1991).

Children pay attention to the content of the conflict, and it has been proposed that conflict concerning the child may be particularly distressing. This was investigated by Grych and Fincham (1993) who exposed 11 and 12-year-old children to a series of recordings of arguments between adults, and asked them to imagine how they would feel if they were the child of these adults. The topic of the conflicts was varied with some being child-related, such as when the child would do homework, and others being unrelated to the child. Children reported feeling more shame, more self-blame and more fear of becoming involved in the argument when the content was child-related. In an extension of this study, the adults provided the child with an explanation for the conflict, which either absolved the child of blame, or directly attributed blame for causing the disagreement to the child (Grych & Fincham, 1993). Child-blaming explanations led to children reporting feeling more sad, angry and ashamed. Explanations that absolved the child reduced children's perceptions of self-blame and their fears that they would be drawn into the conflict, relative to hearing no explanation. In addition to the explanations given for conflicts, the way in which conflicts are resolved appear to influence children's reactions. Studies have shown that witnessing conflicts that are fully resolved produces responses from children that are indistinguishable from responses to witnessing entirely friendly interactions (Cummings, Ballard, El-Sheikh, & Lake, 1991; Cummings et al., 1989). The conflict resolution does not have to be directly observed; indications of resolutions having taken place "behind closed doors" are as effective in reducing distress as witnessing resolutions (Cummings, Simpson, & Wilson, 1993).

The effects of different aspects of conflict episodes on children has led to the proposal that children's cognitive appraisals of the conflict act as a mediator of the link between marital conflict and child adjustment (Grych & Fincham, 1990). In this

framework, children's past experience of conflict, and the intensity and content of the conflict episode, along with the child's own temperament and the quality of the parent-child relationships, all contribute to how the child interprets the conflict and to the coping strategies the child exhibits. If a child develops dysfunctional attributions or maladaptive coping strategies, child adjustment problems could result. As described above, intense and/or child-related conflicts produce more negative affect in children, which could lead to the development of psychological problems (Grych & Fincham, 1993). This model was tested in a prospective study, examining the links between marital conflict, children's appraisals of self-blame and perceived threat (children's fears and worries when conflict occurs), and their levels of externalising and internalising problems (Grych, Harold, & Miles, 2003). The results showed that children exposed to high levels of hostile, poorly resolved conflict at the first assessment stage reported more feelings of self-blame and perceived threat in response to conflict a year later. These appraisals were related to child adjustment; specifically, feelings of self-blame were associated with higher levels of externalising behaviours whilst perceptions of threat were associated with higher levels of internalising behaviours.

A slightly different perspective on the link between marital conflict and child adjustment argues that the important factor in parental hostility is the implication for children's emotional security (Davies & Cummings, 1994). This theory derives from attachment theory, where children's emotional security, and thus their socio-emotional development, is believed to be influenced by the quality of parent-child relationships. Davies and Cummings proposed that the quality of the marital relationship also affects children's emotional security. As with Grych and Fincham's (1990) model, the emotional security hypothesis emphasises the role of appraisals of conflict, but it differs

in that the emotional, rather than the cognitive, element of appraisals is considered paramount. Repeated exposure to conflict is believed to reduce children's feelings of emotional security, and leave them more prone to feelings of fear, distress and anger, which in turn promote adjustment problems. On the other hand, resolved conflicts do not threaten emotional security, and may even teach children valuable skills for problem-solving. In order to examine these proposed links, children's emotional security and psychological well-being were assessed during and following exposure to a model of parental conflict (Davies & Cummings, 1998). Those children who were from families with high-levels of discord showed more negative emotional reactivity to conflict, and interpreted conflict as more threatening to themselves and to family relations, than those from harmonious homes. This negative emotional reactivity was associated with higher levels of both internalising and externalising behaviour problems. For example, children who perceived parental conflict as a threat to the security of their family life were more likely to have problems with anxiety.

The exact mechanism by which marital relations impact on children is still under debate. What seems clear is that, whether it is through direct effects such as stress or modelling, through indirect effects that impact on parenting practices, or through the mediating effects of child appraisals or emotional security, high levels of marital conflict are detrimental to children. However, it should be borne in mind that a healthy marriage is not merely the absence of marital conflict, and ways of measuring marital quality may vary widely between studies (Fincham, 1998). Parents involved in happy and supportive marriages are more sensitive, responsive, warm and affectionate towards their children, all of which will help to promote healthy child psychological development (Grych, 2002).

CONCLUSIONS

The question of what matters for parenting, in terms of a child growing up to be a well-functioning individual, has no one simple answer. Attachment theory highlights the importance of the relationships formed between parents and children in infancy (Bowlby, 1951). Children who form secure attachments to their parents have higher self-esteem, better relationships with peers, and less problems in psychological adjustment than those who form insecure attachments (Cohn, 1990; Erickson et al., 1985; Lewis et al., 1984; Youngblade & Belsky, 1992). The security of a child's attachments is most influenced by the quality of parenting provided, although the temperament of the child may also play a part (Belsky & Rovine, 1987; Steele, 2002). Parents who are sensitive, emotionally available and positive towards their infant are more likely to have securely attached children (Ainsworth et al., 1978; De Wolff & van IJzendoorn, 1997). Conversely, when parents are rejecting, or use unpredictable and/or ineffective parenting practices, children are at an increased risk of developing insecure attachments. The capacity of a parent to be sensitive to their child's needs can be influenced by their own childhood experiences (van Ijzendoorn, 1995), as well as by other family characteristics such as parental psychological disorders (Manassis et al., 1995; Murray, 1992; Radke-Yarrow et al., 1985), the level of conflict in the marriage (Davies & Cummings, 1994), and by social/environmental factors such as external stresses (Cummings, Davies, & Campbell, 2000).

In addition to parents' warmth and sensitivity, the ability to provide discipline in an appropriate manner is important for children's development (Baumrind, 1989). The optimal parenting style is that of the authoritative parent, who is affectionate and responsive, but also maintains a consistent firm disciplinary style. Parents who are too controlling and lack responsiveness are more likely to produce children who lack social

skills and do less well at school (Steinberg et al., 1992), whereas those who are very warm but do not impose firm control on their children are more likely to produce immature and rebellious children (Baumrind, 1967, 1971; Lamborn et al., 1991). Even more detrimental to children is a parenting style with little warmth and poor control, which increases the risk of non-compliance, behavioural problems and delinquent behaviour (Baumrind, 1989; Lamborn et al., 1991).

Parental depression is a high-risk factor for child development, increasing the probability that children will suffer from internalising and externalising adjustment problems (Cummings & Davies, 1994; Downey & Coyne, 1990). Although depression has a genetic component (Allen, 1976; Cadoret, 1978; Mendelwicz & Rainer, 1977), this does not fully explain the effects of parental depression on child outcomes (Downey & Coyne, 1990). The interference of depression with effective parenting practices must also be taken into account. Parenting behaviours such as warmth and sensitivity are reduced in those suffering from depression (Cox et al., 1987; Jameson et al., 1997), leading to an increased risk of children with depressed parents forming insecure attachments (Murray, 1992; Radke-Yarrow et al., 1985). Depressed parents are more inconsistent in their disciplinary styles (Cummingham et al., 1988; Fendrich et al., 1990; Zahn-Waxler et al., 1990), elevating the risk of child conduct disorders (Patterson, 1982). In addition, parental depression can have negative consequences for children through low parental self-efficacy (Cummings & Davies, 1994) or through the increased risk of marital conflict in relationships where one partner is depressed (Coyne et al., 1991).

Anxiety in parents is also associated with child adjustment problems (Zahn-Waxler, Duggal & Gruber, 2002). Maternal responsiveness and sensitivity are both negatively correlated with maternal anxiety (Biringen et al., 1990; Feldman et al.,

1997). Consequently, infants of mothers with clinical anxiety disorders, or mothers with high non-clinical trait anxiety, may be more likely to form insecure attachments (Del Carmen et al., 1993; Manassis et al., 1995).

Being raised in a family with high levels of marital conflict has long-term consequences for children, with psychological problems observed in children (Grych & Fincham, 1990) but also in adult offspring many years later (Amato, 2003). Inter-parental conflict may impact children directly, either through imitation of parents' behaviour (Cummings, Ianotti, & Zahn-Wxler, 1985) or through the stress experienced by children when exposed to conflict (Cummings & Davies, 1994). In addition, indirect effects on child outcomes appear to be operating, in that marital conflict gives rise to problems in parenting. Children from families with high levels of marital conflict are more likely to form insecure attachments (Howes & Markman, 1989), probably due to their parents exhibiting less warmth and affection (Cox et al., 1989; Easterbrook & Emde, 1988). Parents in hostile marital relationships also utilise less consistent and competent disciplinary techniques (Cowan & Cowan, 1992; Patterson, 1982; Stoneman et al., 1989). It is not inevitable that exposure to conflict will be detrimental to children; factors such as the frequency, intensity and content of the conflict will determine how children are affected (Fincham & Osborne, 1993).

Healthy child development is best fostered in a family environment with happily married, psychologically well-adjusted parents, who combine warm and affectionate behaviour to their children with an appropriate degree of control. However, buffer effects can operate, e.g., the effect of a depressed parent can be ameliorated if the parents still have a harmonious marriage. In addition, there are large individual variations in children's resistance to hazardous experiences, and particularly resilient children can show positive psychological outcomes despite exposure to potentially

serious risks (Rutter, 2003). The following chapters will examine how the aspects of parenting that are likely to influence child development may be affected by creating families through different methods, such as by adoption or through assisted reproduction.

CHAPTER 2

ADOPTION

HISTORY AND DEVELOPMENT OF ADOPTION

Adoption is the oldest form of creating families through a means other than natural conception, having been around since antiquity. It is still popular amongst childless couples with about 25% of infertile couples eventually attempting to adopt (Brodzinsky, 1997). In Britain, the number of adoptions by non-relatives in 2002 was around 4,000 (BAAF website). Over time, adoption practice has changed in line with the prevailing beliefs and social attitudes of the period. Examining the historical development of adoption practice around the world reveals four distinct stages in the evolution of adoption (Triseliotis, Shireman, & Hundleby, 1997).

First stage

In its first inception, adoption was for the most part instrumental in nature. For example, the early Hindus used adoption to ensure a male heir to conduct the rituals of ancestor worship and guarantee their own passage to heaven (Cole & Donley, 1990). In ancient Greece and Rome, young males were adopted to perform religious ceremonies, to provide an heir to perpetuate the family, or to enable candidates to meet the criteria for political office. The earliest known written adoption law comes from the Babylonian code of Hammurabi, dated as around 2800BC (Benet, 1976). It includes references to some issues that are still relevant today, such as the impact on the adopted child of being separated from its birth parents and the problem of treating adopted and biological children differently. Roman law introduced the concept of adoption as absolute and irreversible, with birth parents having no legal rights over the child following the adoption. In general, both Roman and Greek laws were concerned with the role of the

adopting adults. Thus, during this first period of adoption, emphasis was on the interests of and benefits to adults, with the benefits to children being of secondary importance.

Second stage

In the nineteenth century in the UK and the US, adoption emerged as a solution to the problem of housing homeless children. At this time, orphaned or illegitimate children were cared for either in institutions, or by indenture; an agreement where children were placed in a family who fed, clothed and educated them in a trade, in return for labour. Around the mid-19th century, the industrial revolution led to less call for indenturing, whilst at the same time dissatisfaction was emerging with the conditions in which children were kept in almshouses. In the US, Charles Loring Brace, founder of the New York Children's Aid Society, advocated the placing of the 'outcast' child in families, particularly farming families, as opposed to institutions. 'Orphan trains' travelled to rural towns where prospective adopters could choose the child they wanted, with little or no investigation of the adoptive parents. A similar scheme was founded in Scottish parishes, where farmers were paid a small allowance for each foster child. In both situations, a situation similar to adoption often evolved but the lack of adoption law meant that this was only an informal affair (McCausland, 1976; Triseliotis, Sellick, & Short, 1995). In 1851, the state of Massachusetts passed an adoption statute recognised to be the first general adoption law in the US or Britain. This law set out requirements for the agreement of the birth parents to the adoption, and that the adoptive parents be approved by the court as fit and able to rear the child.

In the UK, adoption was not legally recognised by statute until the 1926 Adoption Act in England. Development of the Adoption Act was spurred by World War I, which resulted in increased numbers of illegitimate and orphaned children. The Act placed emphasis on the need for supervision over the adoption in order to protect the

child. Agencies dedicated solely to adoption were established, in order to monitor the proper observation of adoption statutes and to investigate prospective adopters. In addition, adoption records were sealed and the practice of secrecy and anonymity in adoption was founded. The second period of adoption was thus more concerned with the welfare of the child than had been the case previously. However, the usefulness of adopted children as extra labour was still stressed, leading to adoption being mainly practiced by the rural working classes.

Third stage

After World War II, there was renewed public interest in adoption with a particular demand for healthy 'adoptable' infants. Adoption came to be seen as a solution to infertility and became popular with the middle classes. The aim of the adoption agencies was to select the 'perfect baby' for the 'perfect couple' (Triseliotis et al., 1997) and was influenced by two psychological movements. Firstly, the development of psychoanalytic theory led to intensive psychological assessment of adoptive couples. Secondly, Bowlby's theory of attachment predicted that after age three, children would not be able to bond effectively to adoptive parents (Bowlby, 1969). This led to the concentration on the placement of infants, with older children considered 'un-adoptable' and raised in residential care homes.

Over this period, the number of couples applying for adoption began to exceed the number of available infants. Consequently, agencies further restricted their eligibility criteria for adoption, specifying factors such as age limits, socio-economic status, and often religion. Despite this, the focus was on finding 'a child for a home' rather than the most suitable home for that particular child. There was no recognition of the need for post-adoptive services, with the assumption being that once the adoption was finalised the adoptive family would be 'normal'. In line with this position, adoption

records remained sealed and adopters were discouraged from sharing the fact of the adoption with the child.

Fourth stage

Beginning in the 1960s and carrying on through the 1970s, there was a shift in the nature of adoption towards a more child-centred structure. This was prompted in part by alterations in the characteristics of children available for adoption. Single parenthood became increasingly socially acceptable due to changes in attitudes towards illegitimacy (Cole & Donley, 1990). Coupled with a rise in the availability of contraception and abortion, this resulted in a drastic reduction in the numbers of young healthy infants placed for adoption. Social services and adoption agencies broadened their concept of an 'adoptable child' to include older children, those with disabilities, mixed-race children and sibling groups, all of whom were classed as 'special needs' or 'hard to place' children. The demands of these children could not always be met by young, middle-class, childless couples. Therefore, the definition of a suitable adoptive family was broadened to include single parents, older parents and those who had biological children already, and restrictions on socio-economic status were relaxed (Brodzinsky & Pinderhughes, 2002). Emphasis was placed on finding 'a home for a child' and applicants were assessed not just on parenting per se, but on how they would provide the right environment to support a particular child. Adoptive parents were encouraged to be open with the child about the adoption, and the Children's Act 1975 in England and Wales legislated that adopted children could have access to their birth records, allowing them to know the names of their birth parents. The paramount consideration was now considered to be 'the best interests of the child', including the child's need for knowledge of their origins.

Current trends in adoption practice

The developments begun in the fourth stage of adoption have continued in recent years. By 1995, the number of healthy European American infants relinquished for adoption in the US had dropped to under 2% from a rate of nearly 20% in the period from the mid-1950s to the early 1970s (Chandra, Abma, Maza, & Bachrach, 1999). Prospective adoptive parents in increasing numbers are either opting for 'special needs' adoption, or adopting a child of a different race or a child from another country. In the United States, over 16,000 inter-country adoption placements occurred in 1999 (National Adoption Information Clearinghouse, 2000).

The policy of screening in rather than excluding different types of adoptive applicants has also been sustained. The recent Adoption and Children Act 2002 in the UK permitted the placing of adoptive children with unmarried couples, including same-sex couples (HMSO, 2002). Similarly in the US, increasing numbers of adoption agencies will consider gay or lesbian individuals as prospective adopters (Brodzinsky, Patterson, & Vaziri, 2002).

A significant evolution in how adoption is managed has been the emergence of open or inclusive adoption (Baran & Pannor, 1993b; Grotevant & McRoy, 1998). In these arrangements, birth parents and adoptive parents have contact before the placement and this continues throughout the child's life. Contact patterns range from the minimal sharing of information in letters sent through the adoption agency, to regular visits between the birth parents and the adoptive family. The diversity of available arrangements adds to the complex and varied nature of adoption today.

ADOPTION THEORY

Since factors such as the race of the child and the age of the child at placement have implications for the consequences of adoption for both parents and children, the following discussion will focus in the main on adoption of same-race infants, i.e., where the child is placed with adoptive parents of the same race as themselves before the age of 12 months.

Effects of infertility on parenting

The first factor to take account of when considering possible consequences of adoption for parenting is the infertility of the adopting parents. Usually, prospective adopters will have undergone a lengthy period of infertility prior to considering adoption, possibly including invasive fertility tests and failed treatments. Any couple wishing to have children will experience some stress when faced with infertility (Burns, 1990). This stress can come from multiple sources including the failure to conceive, the failure to diagnose the cause of the infertility, the blame that may be directed at the infertile partner by the fertile partner or by themselves, the pressure to have children from outside sources, and the indignities of the infertility diagnostic and treatment procedures (Leiblum, 1997). The extent of stress resulting from infertility will vary from one individual to another, but reviews identify common reactions including grief and depression following the diagnosis, feelings of self-blame and guilt, loss of self-esteem (Robinson & Stewart, 1996), anxiety during treatment and depression when the treatment is unsuccessful (Golombok, 1992). If any of these symptoms of emotional distress were to persist, difficulties would be predicted for adjustment to adoptive parenting and for the parents' future psychological well-being (Brodzinsky & Huffman, 1988).

The feelings arising from infertility differ to some extent between the genders. Women take infertility particularly hard, with 48% of women in one study describing it as the worst experience of their lives compared to only 15% of men (Freeman, Boxer, Rickels, Tureck, & Mastroianni, 1985). Women are also more likely to attribute the responsibility for the infertility to themselves, even when the diagnosis is of a male problem (Mason, 1993; Robinson & Stewart, 1996). Studies have found that men report less overt distress in response to fertility problems (Daniluk, 1988), and that men use more emotion-focused coping strategies such as denial, distancing and avoiding whereas women utilise more problem-focused coping strategies (Wright et al., 1991). These gender differences may result in relationship problems; if the man denies his own emotional distress and focuses on his partner's, there is the possibility of an impairment in communication with the woman feeling that her partner does not care so much about the couple's childlessness, and the man feeling ineffectual in easing his partner's pain (Mahlstedt, 1994). Some studies using standardised questionnaires have found no significant marital or sexual difficulties in couples undergoing infertility evaluations or treatment (Cook, Parsons, Mason, & Golombok, 1989; Raval, Slade, Buck, & Lieberman, 1987). However, other researchers have found evidence of marital or sexual dysfunction in infertile couples. For example, in Burns' (1990) study, couples reported a disruption in their normal sexual relationship, lack of communication, and difficulties in understanding each other's perspective. There may also be a discrepancy in the desires of the couple to embark upon an uncertain procedure such as adoption. Insofar as infertile couples do experience marital problems, if these are not resolved prior to the adoption, it has been suggested that parents may become child-centred in order to avoid conflict with their spouse, which may place a great deal of pressure on the child to stabilise the family unit (Burns, 1990).

More specifically with respect to parent-child relationships, it has been suggested that infertile parents conjure up an idealised 'fantasy child' (Burns, 1987). The child may be expected to be a 'cure' for the psychological stresses of the infertility experience, especially if the couple have not come to terms fully with their own feelings towards infertility. Unrealistic expectations may be created; both of the effect the child will have on the parents' lives, and of the child's own behaviours and achievements. This could lead to problems in adoptive families if the adopted child does not live up to the fantasy.

Effects of adoption process on parenting

In addition to the concerns about the effects of infertility on parenting, there are concerns that relate more specifically to adoption. Unlike parents who conceive through assisted reproduction, adoptive parents have to accept that there will be no form of biological parenthood possible for them, either genetic or gestational. The traditional social work philosophy was that a couple's suitability to adopt depended on their having fully resolved their own feelings about infertility and 'let go' of the ideal of themselves as biological parents. However, Daly (1988, 1990) pointed out that while some couples have to relinquish the biological parenthood identity before pursuing adoption, other couples are able to identify as adoptive parents whilst still pursuing the possibility of having a biological child. This may depend on how strongly the couple value genetic connectedness in parenting, compared to how they value the social and emotional components of parenthood. Although it is no longer assumed that complete resolution is a necessary prerequisite for adoption, failure to confront this issue adequately, i.e. when adoptive parents still mourn the loss of the longed-for biological child, could affect parental bonding to the adopted child (Brodzinsky, 1997).

The lack of the gestational link in adoption may also affect parent-child relationships. It has been argued that immediate post-delivery contact between mothers and infants is important for maternal bonding (Klaus & Kennell, 1976), although this is not now seen as so significant. In addition, recent studies have shown that mothers form attachments to their babies whilst the child is in the womb, and that maternal-foetal attachment styles are correlated, albeit modestly, with postnatal attachment styles (Laxton-Kane & Slade, 2002; Muller, 1996). An adopting mother does not experience pregnancy and does not have an opportunity for post-delivery bonding. Therefore, adoptive mothers may find it more difficult to bond with the child.

A further difficulty faced by adoptive parents in the transition to parenthood is that the decision is not under their control. The couple must be approved first by a social worker via an intensive evaluation – a homestudy - which takes into account many areas of their life, including personal relationships, family history, attitudes towards parenting and attitudes towards their infertility. Prospective adopters must attend courses with other couples with the aim of preparing them for all possible aspects of adoption. Although the contemporary emphasis of this process is supposedly to educate rather than to evaluate, many couples feel that they are being judged and find the procedure intrusive and anxiety-provoking.

The nature of the adoption process means that unlike other methods of family creation, there is no set time period. Even when couples have been accepted as prospective adopters, there may be a long wait before a suitable child becomes available, during which the couple may not wish to 'tempt fate' by planning too much for the eventual arrival. Therefore, when a child is placed with the couple, they may find themselves inadequately prepared, both practically and emotionally. Moreover, even at placement, there is still a period before the adoption is finalised, usually no less than 6

months. During this time there is a possibility, however slight, that there will be an obstacle to the legalisation of the adoption, such as birth parents applying to revoke their consent. The uncertainty this creates may prevent adoptive parents from quickly forming strong attachments to the child.

Despite adoption being an established method of family creation, there is still some social stigma surrounding becoming an adopted parent (Miall, 1987). Adopters may feel that adoption is still regarded as having "second-class status" to biological parenthood, and may be concerned about support for their choice to adopt, and about acceptance of the child by their extended family and friends. This, coupled with the uncertain timing of the expectancy period in adoption, may make prospective adopters reluctant to announce their decision or anxious about doing so. Therefore, they may feel a lack of social support from those around them, compared to biological parents (Levy-Shiff, Bar, & Har-Even, 1990).

The challenges faced by adoptive parents are not over after the placement, but continue throughout the child's life. In order to integrate the child into the family and promote security of attachment, the adoptive parents must be sensitive to the specific needs of their child, which may vary according to the pre-placement history, and the circumstances of the adoption. As the child grows older, the parents must communicate with the child about the adoption in an age-appropriate manner. This involves the parents recognising their own feelings about the child's birth families, and may give rise to parental anxiety or insecurity in their parenting role (Brodzinsky & Pinderhughes, 2002).

Effects on children's socio-emotional development

The first factors to consider when looking at the adjustment of adopted children are the possible biological risks. Some theorists have made the assumption that parents who

place their children for adoption are more likely to have genetic pre-dispositions towards various dysfunctions in psychological adjustment (Cadoret, 1990). For example, one study using the Minnesota Multiphasic Personality Inventory (MMPI) found that unwed mothers whose children were placed for adoption scored higher on a number of clinical scales than did mothers from a control group (Horn, Green, Carney, & Erickson, 1975). The authors claimed that the problems measured by these scales are partly hereditary, thus making the adopted children at higher risk of developing problems themselves. Therefore, to the extent that psychological and behavioural characteristics of individuals are determined by genetics, adopted children will be more vulnerable to difficulties in socio-emotional adjustment (Cadoret, 1990).

It is not only the genetic background of the child, but also the prenatal biological environment that may affect their subsequent development. Maternal abuse of alcohol and drugs, lack of adequate ante-natal care, heightened maternal stress and poor maternal nutrition are all risk factors for children, increasing the chances of developmental delay and childhood behavioural problems (Kopp, 1983). These risk factors are more prevalent among young unwed mothers than among older, married mothers (Ward, 1991). Since a sizeable proportion of children placed for adoption are born to young mothers or come from homes where there is a history of deprivation or substance abuse, some adopted children will be at risk for developing psychological problems due to their poor prenatal history (Bohman, 1970; McRoy, Grotevant, & Zurcher, 1988).

From a psychological perspective, the adopted child will have a number of tasks to accomplish which are not faced by children being raised by their biological parents. These psychological tasks include i) re-attachment to new parents, ii) awareness of being adopted, and iii) formation of identity including the knowledge of oneself as

adopted (Triseliotis et al., 1997). Unless the child is in the rare situation of having been placed directly at birth with the adoptive parents, they will have spent some time living either with the birth parents, with foster parents, or in residential care. Whatever the child's pre-adoption placement, they will have formed bonds of some sort to their primary care-giver(s). Uprooting the child from this placement and setting them in a new family environment may make it difficult for some children to form secure attachments to their adoptive parents. Children with insecure attachments will be at greater risk for problems with their future psychological adjustment over a range of domains (Cohn, 1990; Greenberg, 1999). The ease of attachment formation is likely to depend upon the age of the child at adoption and their pre-adoption history, as well as on the quality of parenting provided by the adoptive parents. According to attachment theorists, separation distress will be minimised, and the chances of developing secure attachment relationships with the new caregivers maximised, if the child is placed for adoption early in life (e.g. before 6 months) and placed in a warm, loving and stable new family environment (Bowlby, 1973, 1980).

A further, and possibly more complex, task for the adopted child is coping with the awareness that they are adopted. The current practice advocated by social work practitioners and adoption agency workers is to start the adoption disclosure as young as possible, usually from the time the child first starts to ask about where babies come from. Disclosure is then seen as a process, rather than a one-off event, with parents adding more information to the adoption story as the child's cognitive capacities increase. Pre-school children may know that they are 'adopted' with little understanding of the implications of this statement. Since they are generally told this information in the context of a warm, loving parent-child relationship, and stress is usually placed on how 'wanted' they were by the adoptive parents, young children are likely to have a

positive appraisal of adoption. However, by the time children are between 5 and 7 years of age, their comprehension of adoption grows, particularly the understanding that they have a biological family whom they do not live with. It is at this age that children may begin to experience feelings of loss and stigma related to the adoption, and may feel somewhat ambivalent about being adopted (Brodzinsky, 1990). This can create stress and confusion for adopted children, and undermine their feelings of security in the adopted family, or their feelings of self-worth.

It has been argued that the success with which children assimilate the knowledge of being adopted depends on the way in which the adoptive parents address the existence of differences between biological family life and adoptive family life. Kirk (1964) developed a classic social role theory of adoption adjustment that distinguished between two styles of communication. In some adoptive families, the coping strategy is to insist that the adoptive family is just like a biological family, a strategy Kirk named 'rejection of differences'. Other families openly discuss and recognise the inherent differences, employing the 'acknowledgment of differences' strategy. Kirk saw these two patterns as representing either end of a continuum and suggested that the acknowledgement-of-difference position was more conducive to promoting healthy child adjustment, whereas rejection-of-difference behaviour may inhibit children's own curiosity, and reinforce the idea that it is negative to be different, which could have a detrimental effect on children's self-esteem. More recently, Brodzinsky (1993) has proposed that taking an extreme position at either end of the continuum could be unhealthy, since over-acknowledgment of differences could allow these differences to take exaggerated importance in the family dynamic.

With the progression from childhood into adolescence, all individuals face the developmental task of establishing a coherent sense of identity (Erikson, 1968). This

may be more complex for the adopted adolescent, who must integrate the adoption into their growing sense of self. Erikson (1968) defined a positive identity as "a sense of psychological well-being, a feeling of being at home in one's body, of knowing where one is going, an inner assuredness of anticipated recognition from those who count". All of these aspects may be complicated by the fact of adoption; for example, an adopted teenager may find it more difficult to become 'at home' in their body due to the lack of physical similarity between themselves and their adoptive family (Brodzinsky, Smith, & Brodzinsky, 1998). Part of identity formation for non-adopted individuals involves incorporating knowledge about their past and their family. An adoptee lacks this genealogical continuity and may find it more difficult to develop a secure and healthy sense of ego identity. According to Sants (1964), the 'genealogical bewilderment' felt by the adopted child results in a state of confusion that "fundamentally undermines his security and thus affects his mental health". Although the existence of the concept of 'genealogical bewilderment' has not been empirically supported, if adoption interferes with the ability to form a positive sense of identity, this could result in psychological problems.

ADOPTION RESEARCH

Parent-child relationships

Early studies of the quality of attachment relationships in adoptive families suggested that there was a long-term adverse affect on children's security of attachment. Two studies by Yarrow and associates (Yarrow & Goodwin, 1973; Yarrow, Goodwin, Manheimer, & Milowe, 1973) looked at the impact of a change in mother figure on infants. They found that all infants who were separated from their biological parents after 6-7 months of age showed socioemotional difficulties due to the separation, in line with Bowlby's theory of early attachment (Bowlby 1973, 1980). When these samples

were followed up 10 years later, a large number of the adopted children placed after 6 months were still exhibiting psychological problems, particularly in their ability to form attachments to family members and others. However, there were methodological weaknesses in these studies, particularly the absence of a control group of non-adopted infants.

A controlled study of attachment in adoptive families was conducted by Singer and colleagues (Singer, Brodzinsky, Ramsay, Steir, & Waters, 1985). Twenty-seven intraracially adopted infants and 19 transracially adopted infants were compared with 27 non-adopted infants at the age of 13-18 months. The adopted infants had all been placed for adoption at less than 1 year, with age at placement ranging from 3 days to 10 months. Mother-infant attachment was assessed using the Strange Situation Test (Ainsworth et al., 1978). There was no difference in the proportion of infants categorised as insecurely attached between the intraracially adopted and the non-adopted infants, although the transracially adopted infants were more likely than the non-adopted infants to be insecurely attached. Contrary to the concerns that adoptive parents may have difficulty in bonding to the child, the authors concluded that "most adoptive mothers and their infants develop warm and secure attachment relationships", especially if the adoption is of an infant of the same racial/ethnic background as the adopters. They found no association between quality of mother-infant attachment and age at placement, although this may be because all the infants were placed before 12 months.

Some studies have looked at the effects of adoption on other aspects of family life. The Colorado Adoption Project, a longitudinal study of nearly 200 adoptive families, used measures such as the Home Observation of the Environment (HOME) and the Family Environment Scale when children were aged 12 months and again at 24

months (Plomin & DeFries, 1985). The research found no meaningful differences between the adoptive families and a comparison group of non-adoptive families at either time-point with respect to the quality of the home environment or the nature of the relationships between parents and children. Levy-Shiff and colleagues assessed parental experiences for 52 first-time adopting parents and 52 first-time biological parents (Levy-Shiff, Goldshmidt, & Har-Even, 1991). When the two family types were compared 4 months after the arrival of the child, adopted parents reported more satisfaction with their parenting role and more ability to cope with the physical demands of parenthood than did the biological parents. It is possible that this was due to the adoptive parents denying difficulties and attempting to present themselves and their family in the best possible light. Alternatively, it may be that having been deprived of parenthood for a long period of time, adoptive parents appreciate the experience more and are less resentful of the stress involved in parenting a young child.

Early adoptive family life and family functioning in adoptive families was studied as part of a longitudinal investigation by Hoopes (1982). Assessments were made of several aspects of parent-child relationships, starting when children were in infancy and continuing through early childhood. During the infancy and pre-school periods, adoptive parents were rated as showing more affection and warmth towards their children, praising their children more, being more accepting of their children and handling their children better than a group of non-adoptive parents. They were also found to show higher anxiety about parenting, to encourage their children to be more dependent on them, and generally to be more protective of their children than the biological parents. These patterns were particularly marked in adoptive mothers. The more anxious attitudes to parenting may be due to the stress experienced by the adoptive parents due to the infertility diagnosis and the adoption process. During the

early school years, adoptive parents were found to be less intrusive, less controlling and less authoritarian than non-adoptive parents. Hoopes concluded that the adopted children were "likely to be especially cherished and protected because they were not easily acquired" (Hoopes, 1982).

Similar conclusions were drawn from a European study, which assessed the quality of parenting in adoptive families using standardised measures, when children were aged 6 years (Golombok et al., 1996; Golombok, Cook, Bish, & Murray, 1995). In terms of parent-child warmth, parental emotional involvement and parent-child interaction, adoptive parents exhibited levels of quality of parenting very similar to a group of parents who had conceived children through assisted reproduction and superior to a comparison group of parents with naturally conceived children. The authors concluded that "genetic ties are less important for family functioning than a strong desire for parenthood" (Golombok et al., 1995).

Parental psychological and marital state

With respect to the couple's relationship, the concern that adoptive parents will experience marital dysfunction does not seem to be borne out by the evidence. One study compared first-time adoptive parents-to-be with first-time biological parents-to-be on a scale of marital adjustment, interviewing both groups of parents between two and four months before the child's arrival (Levy-Shiff et al., 1990). Prospective adoptive parents expressed significantly higher marital satisfaction than prospective biological parents. The longitudinal study by Hoopes (1982) compared the levels of marital conflict in adoptive and non-adoptive families, and found that adoptive parents experienced less conflict than biological parents. Similarly, Humphrey (1975) found that adopting couples were rated higher on measures of affection given and received between partners than a matched sample of non-adoptive couples. When these couples

were followed up nine years later, group comparisons still showed the adopting couples to have the superior marital adjustment. Although infertility and adoption could put a strain on a marriage, the fact that adoptive parents are generally older than biological parents, and have often been married for a longer period of time, may act as a buffer against this stress (Brodzinsky & Huffman, 1988). It is possible that the increased duration of the relationship enables them to better understand and communicate with their partner. Having gone through the process of adoption together, with all the accompanying emotional highs and lows, may also strengthen the couple's relationship, promoting more sensitivity towards and discussion of each other's feelings (Levy-Shiff et al., 1990). On the other hand, it may be that only those couples that already have a strong, stable relationship make it through the adoption process.

Regarding other areas of parental well-being, there has been little empirical research on the adjustment of adoptive parents. Levy-Shiff et al. (1990) found that adoptive mothers-to-be showed significantly lower levels of depression than pregnant mothers. In terms of coping styles, prospective adoptive parents were no more likely to utilise emotion-focused coping, such as emotional distancing or denial, than prospective biological parents. Contrary to assumptions related to social stigma associated with adoption, the adopters reported more satisfaction with social support from the community and from friends than the biological parents. Other studies have also found adoptive parents to be as psychologically well-adjusted as their non-adoptive counterparts, and where differences were seen, they tended to favour the adoptive parents (Hoopes, 1982; Plomin & DeFries, 1985). It has been suggested that since adoptive parents achieve parenthood after a long time of trying, becoming parents gives them a sense of fulfilment that outweighs not only the specific stresses associated with adoption, but also the universal stresses of parenting (Levy-Shiff et al., 1990). However,

as with the findings for marital relationships, it is possible that only those individuals who are psychologically stable to begin with are able to go through the difficult process of becoming adoptive parents.

Child development

There is now a large body of research on the outcomes for children of early adoption. In terms of the proportions of adopted children classified as having social or psychiatric problems, a series of studies have found that adoptees are over-represented in psychiatric hospital populations and other mental health settings (for review, see e.g., Hershov, 1990). Conservative estimates put the proportion of adopted children referred to outpatient mental health clinical facilities at between 4% and 5%, as compared to a proportion of adopted children in the general population of only 2% (Brodzinsky et al., 1998; Zill, 1985). For inpatient mental health populations, the percentage of adopted children is even higher at between 10% and 15% (Brodzinsky, 1987; Piersma, 1987; Rogeness, Hoppe, Macedo, Fischer, & Harris, 1988). It is possible that this is due to the genetic inheritance of psychological problems from their biological parents, since studies show some evidence of correlations between adoptees and their birth parents for a range of psychopathologies, such as antisocial behaviour, substance abuse, depression, anxiety and schizophrenia (for review, see Cadoret, 1990). Alternatively, the stress of the adoption process and the nature of adoptive family life may increase adopted children's vulnerability to psychological dysfunction.

However, there are other possible reasons for the discrepancy in the prevalence of clinical disorders between adoptees and non-adoptees. A study reported by Warren (1992) which analysed data from a survey of 3,698 adolescents found that, for adolescents referred to psychiatric clinics, there was a lower symptom threshold for adopted youths than for non-adopted youths. Thus, adopted children were more likely to

be referred to clinical services even when exhibiting only low levels of disorder. There are several conceivable explanations for this referral bias. Adopted parents may be more inclined to spot potential problems in their children and to seek help, due to their familiarity with social workers and counselling services from their contact prior to the adoption. Adoptive families may also be more vulnerable when faced with challenging behaviour from the child because of the heightened anxiety and insecurity of the adoptive parents, or because they fear that the behaviour has been transmitted to the child genetically (Hartman & Laird, 1990). Moreover, it has been suggested that adoptive families tend to be of higher income and socio-economic status than non-adoptive families, and that these increased resources enable adopted parents to seek treatment for their children more frequently (Brodzinsky & Pinderhughes, 2002).

Additionally, mental health professionals may be biased in their view of adopted children, and may attribute higher levels of problems to adopted children than they would to non-adopted children with identical symptomatology. A study by Weiss (1987) investigated this issue by describing hypothetical cases involving adopted and non-adopted children to clinicians and asking for diagnoses. There was little evidence for the proposed bias, with no major differences in response to the adoptive and non-adoptive cases. Conversely, using the same methodology of hypothetical case studies, Kojis (1990) found that psychologists diagnosed adopted cases as having more serious problems than non-adopted cases. Overall, although the research is not conclusive, there is some support for disputing "the belief that adoptees appear more often in psychiatric settings *purely* [emphasis added] because they are more troubled" (Warren, 1992).

Caution must be taken when generalising the results of clinical studies to the outcomes for adopted children as a whole, since the samples involved are small and the age at placement and circumstances of the adoption are not always specified. For this

reason, there is a growing body of research examining the psychological development and adjustment of adopted children compared to non-adopted children in non-clinical community settings. As mentioned earlier, there is no difference between same-race adopted infants and non-adopted infants in the security of mother-infant attachment (Singer et al., 1985). Similarly, studies have found little or no significant difference between adoptive and non-adoptive families in infant temperament (Carey, Lipton, & Myers, 1974), in mental and motor development of children at 12 and 24 months (Plomin & DeFries, 1985), and in the development of communication in 2 and 3-year-old children (Thompson & Plomin, 1988).

Examinations of the adjustment of older adopted children have found evidence of higher levels of problems in adoptees than in non-adoptees. In a community sample of 260 adopted and non-adopted children assessed when aged between 6 and 11 years, Brodzinsky et al. (1984) found that parents rated adoptees as showing less social competence, more behavioural problems and lower school success than non-adopted children. A study using data obtained by a large-scale national health survey in the US compared a group of 5-11 year old adopted children to a group of children living with their biological parents, and a group of children in foster care, examining ratings on a scale of child behaviour problems (Brand & Brinich, 1999). The adopted children were rated by their parents as exhibiting more symptoms of behavioural problems than the non-adopted children, with the foster children rated higher on the behaviour problem scale than either of the other two groups.

Adolescent adoptees have also been shown to have different adjustment patterns to non-adoptees. In addition to the 5-11 year old samples, Brand and Brinich's (1999) study examined adoptees, non-adoptees, and those in foster care at age 12-17 years. At this stage, scores on a behaviour problems scale were significantly higher for adopted

adolescents than for the non-adopted group. No differences were found between the non-adopted group and the foster-care group, a finding the authors suggested may have been due to the small sample size of children in foster care (N = 13). Similarly, a study utilising data from another national US health study found differences between adopted and non-adopted adolescents aged 10-19 years on a variety of outcome measures, including attitudes towards school, truancy, substance use (drinking and smoking), self-esteem, emotional distress, fighting and lying to parents (Miller, Fan, Christensen, Grotevant, & van Dulmen, 2000). For all significant differences, the adopted group were rated as exhibiting less positive behaviour and more negative behaviour.

A prospective longitudinal study from Sweden compared adopted children with children in long-term foster care, and with a sample of children who had been registered for adoption but whose mothers had changed their decision and were now raising the children themselves (Bohman, 1970; Bohman & Sigvardsson, 1990). At age 11, boys in all three groups showed a higher rate of behavioural disturbances than their non-adopted classmates as rated by teachers. Adopted girls, however, did not have a significantly higher level of maladjustment, but did attain lower mathematics scores than the class controls. At the second assessment at age 15, the differences between the adopted and non-adopted children had reduced, with the adopted group now showing only a non-significant trend towards having lower adjustment scores and lower mean grades. In contrast, foster children and those still living with their biological mothers, showed greater maladjustment and lower school success than at age 11, and the differences between these groups and the control group were significant for both boys and girls. At 18 years, the boys from this study were followed up by studying data from IQ tests undertaken as part of the compulsory Swedish military enlistment training. Adopted youths performed as well as a new group of age-matched non-adopted controls on all

the IQ subtests, whilst boys from the other two study groups scored significantly lower than the control group on most of the subtests.

Data from a New Zealand longitudinal study examined the outcomes for 16-year-olds from three types of families; adoptive families, biological two parent families, and single parent families (Fergusson, Lynskey, & Horwood, 1995). Adopted adolescents scored no higher than those in biological 2-parent families on measures of internalising behaviour, such as mood disorders and low self-esteem. However, the adopted group did score higher on measures of externalising behaviours, which comprised of conduct disorder, attention deficit/hyperactivity disorder, recurrent offending, cigarette smoking and cannabis use. This was despite the adoptees being raised in generally socially advantaged home environments with respect to early childhood education, health care, family stability and standard of living. On the other hand, adopted adolescents scored lower on externalising behaviours than children in single parent families.

One British project, the National Child Development Study, has followed a group of adoptees from age 7 into adulthood (Collishaw, Maughan, & Pickles, 1998). This group was compared to a group of non-adopted children, and a group of illegitimate children being raised by one or both of their biological parents (at the time the study began in 1958, illegitimacy was stigmatised and relatively uncommon). At age 7, the adoptees showed generally satisfactory adjustment, but by age 11, their behaviour had deteriorated to close to the level of the illegitimate group, and was below that of the non-adopted group. The third assessment was at age 16, when behavioural difficulties as measured by teacher ratings on the Rutter Questionnaire (Rutter, 1967) were highest for the illegitimate adolescents, with the adopted group falling between the illegitimate and the non-adopted groups (Maughan & Pickles, 1990). It seems the adoptees'

vulnerability to psychological problems had peaked at 11 and become less marked at adolescence. In early adulthood (age 23), the adopted women appeared to be faring well, with no indication of elevated problems with relationships, mental health or job stability. Adopted men showed no evidence of significant problems in the areas of relationships or mental health, but had higher rates of job changes than men from non-adoptive families. The illegitimate group, both men and women, still had the highest levels of adjustment problems. Similar results were found at age 33, with adopted women showing no elevated problems in the domains of relationship breakdown, emotional problems, social support or employment history (Collishaw et al., 1998). The pattern for adopted men showed some increased vulnerability to problems in the areas of social support and employment history. Again, the illegitimate group were experiencing more problems than the other two groups across all the domains examined.

Taking the research as a whole, it seems that starting from school age, adoptees are at increased risk for problems in psychological, behavioural and academic adjustment as compared to non-adopted individuals. It is important, however, to bear a few caveats in mind. Firstly, there is a great deal of variability in the patterns of adjustment exhibited by adoptees. Adjustment can be dependent on age with the most severe problems generally seen in middle childhood and early adolescence, as well as on gender with boys generally experiencing more adjustment problems than girls. In addition, pre-placement history, and the quality of parenting experienced in the adoptive family will impact on the child's socio-emotional development.

Secondly, most adopted children are more socio-economically advantaged than they would have been if they had been raised by their biological parents, and are also placed in more secure, nurturing and stable environments than would be found in foster homes or residential care (Brodzinsky & Pinderhughes, 2002). This is supported by the

findings that adoptees are at lower risk for maladjustment than children in foster care (Bohman, 1970; Bohman & Sigvardsson, 1990; Brand & Brinich, 1999) or those raised by single or unwed parents (Bohman, 1970; Bohman & Sigvardsson, 1990; Collinshaw et al., 1998; Fergusson et al., 1995; Maughan & Pickles, 1990). Also, adopted children have been found to have higher IQ scores and scholastic achievement than would be expected on the basis of their biological background (Lambert & Streather, 1980). Thus, adoption can serve as a protective measure for children who would otherwise be raised in deprived or damaging environments (Brodzinsky et al., 1998).

The third point to bear in mind when considering the psychological development of adopted children is that the vast majority of adoptees are as well adjusted as non-adopted individuals, and that the effect sizes of most differences found between adopted and non-adopted groups are only small to moderate. Haugaard (1998) proposed that the reason for this pattern, and for the elevated rates of psychopathology in adoptees, is that group differences are the result of a small proportion of adoptees showing very deviant behaviour. In other words, if one considers adjustment scores as following a normal distribution, in the middle range there is little difference between adopted and non-adopted groups, but as one moves towards the tails of the distribution (the extreme scores) the differences become more pronounced. Since individuals at these extremes of the distribution are more likely to be referred for clinical treatment, adoptees are thus over-represented in the clinical populations, whilst overall mean differences for the whole distribution are very small.

Some researchers have found results consistent with Haugaard's (1998) theory. For example, Brand and Brinich (1999) identified a group of outliers, adopted children with extreme scores who may have exerted undue influence on the statistical analysis. When the data were reanalysed excluding these cases, the differences between adopted

and non-adopted children became insignificant. Miller et al. (2000) looked at the distributional differences between their adopted and non-adopted groups and found that, as Haugaard had argued, the closer to the negative end of an outcome variable distribution, the larger the proportional difference between adoptees and non-adoptees. This is not to say that those adopted children experiencing serious problems should be ignored, but it should be remembered that most adoptees are functioning within the normal range and therefore "it is a serious mistake to suggest that adoption per se leads to emotional and behavioural problems in adopted children" (Brand & Brinich, 1999).

Disclosure and openness in adoption

In the past, adoptive parents would often make a conscious decision not to inform their child about their adoptive status, leading to some adoptees experiencing psychological trauma when they discovered later in life that their parents had lied to them (Sorosky, Baran, & Pannor, 1978). This is very uncommon these days as social work agents and adoption workers stress from the beginning of the adoption process the importance of full disclosure to the child. Although there is individual variation in parents' approach to communication about adoption, most parents begin the telling process when the child is aged between 2 and 4 years (Brodzinsky et al., 1998). The task of adoption revelation can be a difficult one for parents, who may have concerns about how the child will react, and how this knowledge will affect relationships within the family. However, most parents deal with the challenge of the telling process reasonably well, and adoption disclosure at the preschool age does not seem to undermine children's psychological adjustment or parent-child relationships (Brodzinsky et al., 1998).

Although young children may know that they are adopted, their understanding of the concept of adoption is limited. Brodzinsky and colleagues interviewed 200 children aged between 4 and 13 years to investigate how adoption concepts develop

with age (Brodzinsky, Singer, & Braff, 1984). They found that at 4-5 years, children had little or no understanding of adoption as being different from the concept of birth. By 6 years, children could differentiate between these two pathways to family creation, but to a large extent still repeated only what their parents had told them about adoption. From 8 to 11 years, children's cognitive development allows their understanding of adoption to expand. At this age, children begin to perceive biological relationships as important in families. Adopted children thus begin to recognise that this relationship is absent in their family, which may create feelings of insecurity and stress (Brodzinsky, Singer et al., 1984). Unlike pre-school children who focus on the positive aspects of their incorporation into the adoptive family, older children come to the realisation that adoption also involves being relinquished by their birth parents. Consequently, by 8 years of age most adopted children express some ambivalence about being adopted that is not seen in younger children (Singer, Brodzinsky, & Braff, 1982). This new perception of adoption may be one of the reasons why problems with adjustment in adopted children are seen to emerge during middle childhood. The sense of loss as a result of being adopted can deepen as children enter adolescence, and begin to perceive not only the loss of birthparents but also a loss of self in relation to their identity formation.

With respect to parents' coping with the telling process, different styles of communication about adoption have been identified which correspond to the strategies proposed by Kirk (1964); either acknowledging or rejecting the differences between adopted and biological families. Kirk argued that "acknowledgment-of differences" was more optimal for promoting children's healthy psychological development. This position was supported by research from Stein and Hoopes (1985). In interviews with 50 adopted adolescents, they found that there was a significant relationship between

family communication relating to adoption and the adolescent's overall adjustment, particularly with respect to school performance and self-esteem. Adolescents who reported more "openness of family communication about adoption issues" had more positive levels of adjustment. However, studies have shown that over-acknowledgment or "insistence" on differences can be equally detrimental to children as a "rejection-of-differences" coping style. One study analysed family discussions about adoption-related issues and categorised the communication styles used as being on a continuum from "high distinguishing", i.e., frequently referring explicitly to the differences inherent in adoption as compared to biological families, to "low distinguishing", i.e., ignoring or denying the existence of such differences (Kaye, 1990). Most parents and children expressed a mixture of distinguishing and non-distinguishing sentiments, leading to the conclusion that for some families, adoption is not generally seen as a major distinguishing factor. Kaye suggested the possibility that the more problems children had, the more these problems were attributed to adoption and the more the differences were acknowledged. Therefore "adopted children can suffer from too much distinguishing as well as too little" (Kaye, 1990). Although longitudinal studies are needed to determine whether adjustment problems are a result of high distinguishing, or whether high distinguishing is caused by adjustment problems, it seems that the most adaptive strategy is one of moderate acknowledgment (Brodzinsky, 1987). This is when adoptive parents are able to strike a balance between the two extreme positions, sharing information honestly with their children without overstressing the significance of the child's adoptive status.

A relatively new phenomenon in adoption is that of the "open adoption" arrangement, where there is some amount of direct or indirect contact between adoptive parents and birth parents. Levels of contact can vary along a continuum from

completely confidential (closed) adoption at one end to fully disclosed (open) adoption at the other, when the birth parents have ongoing regular face-to-face contact with the adoptive family. Most common in the UK are mediated contact arrangements when information is passed between birth and adoptive families via a third party, usually the social services. It has been argued that open adoption will be detrimental to the adoptive family, in particular that it will adversely affect children's bonding to their new parents (Ward, 1981). Research from the Minnesota-Texas Adoption Project, which included groups of families with confidential, mediated and fully disclosed adoptions, found that children's self-esteem was not significantly related to the level of openness of their adoption (Wrobel, Ayers-Lopez, Grotevant, McRoy, & Friedrick, 1996). Therefore, open adoptions did not seem to be having a negative impact on children as had been feared. On the other hand, there was no evidence of any beneficial effect for children, apart from the finding that the more open the adoption, the higher the children's level of understanding of adoption. However, the study did not consider the mediating effect of the quality of family relationships in the adoptive family. Also, the children studied were aged between 4 and 12 years, so it is not yet known how communication with their birth parents will affect adoptees as they move through adolescence. Interestingly, it was found that in almost half of the mediated adoptions, the information received by the adoptive parents about the birthmother was not being shared with the children. Thus, the adoptive parents may not uphold the agreements reached at the time of adoption.

With respect to the views of adoptive parents on open adoption, Ryburn (1994) found those involved in such arrangements did report some advantages, the main one being that it gave them access to a much fuller history of the child, particularly in terms of medical information. These adoptive parents also saw an advantage in the reassurance that contact provided "for children, adopters and birth families in relation to

each other's well-being" (Ryburn, 1994). However, one British study of adoptive parents concluded that adopters were predominantly against the idea of contact with birth parents (Lambert, Buist, Triseliotis, & Hill, 1990). It may that the characteristics of individuals who are amenable to open adoption are different from those who would prefer the more traditional closed adoption.

CONCLUSIONS

It is undeniable that adoption presents challenges for both parents and children, which may affect the quality of parenting and the psychological development of children in adoptive families. However, the majority of adoptive families are shown to be capable of meeting these challenges and creating a healthy family environment. When children are adopted in infancy, research suggests that it is possible for secure mother-child attachments to be formed (Singer et al., 1985). Adoptive parents do not seem to experience great difficulties in the transition to parenthood and, in fact, have been found to be more satisfied with their role as parents in the months following the child's arrival than are biological parents (Levy-Shiff et al., 1991). As children move into the pre-school and early childhood stages, positive parent-child relationships persist with adoptive parents providing high quality home environments (Plomin & DeFries, 1985). Research has found that adoptive parents show more affection, warmth, and acceptance of their child in early childhood and interact with them more than do biological parents (Golombok et al., 1995; Hoopes, 1982). Adoptive parents do exhibit some signs of over-involvement in terms of protection of, and anxiety about, their pre-school child but, by the early school years, adoptive parents show less intrusive and controlling behaviour than non-adoptive parents (Hoopes, 1982).

There are several factors that could explain why adoptive parents do not experience the problems or delays in bonding to their child that some have predicted. The simplest argument is that having wanted to be parents for so long, adoptive parents are highly committed and motivated parents who greatly cherish and appreciate their children. In addition, explanations may lie in the cognitive strategies utilised by adopting parents. For example, in response to the uncertainty of the waiting period in adoption, adopters have been found to employ a process of 'creating temporal order' (Sandelowski, 1995). Here, the couple construct a chronology for the waiting period, participating in other activities to avoid their lives being wholly focussed on the wait for a child. A second process seen only in adoptive families is 'reconstructing a family romance'. This involves the efforts of the couple to create, from a combination of information and fantasy, a narrative biography for the child before the placement, thus allowing this child to replace their previous 'fantasy' biological child. An alternative explanation is that the responses of adoptive parents reflect a 'social desirability bias'. Studies of adoptive families with older children have tended to focus on child adjustment rather than parent-child relationships so it is difficult to draw any strong conclusions about the quality of parenting in adoptive families with children in late childhood and early adolescence.

Findings from the small number of studies that have assessed the psychological well-being of adoptive parents have been generally consistent, with no evidence of raised levels of psychological disorders or marital dissatisfaction in adopting couples. On the contrary, prospective adoptive parents show higher marital satisfaction, more satisfaction with social support and lower levels of maternal depression than prospective biological parents (Levy-Shiff et al., 1990). Positive marital relationships and parental adjustment persist after adoption placement and through the child's early life (Hoopes,

1982; Humphrey, 1975; Plomin & DeFries, 1985). The direction of the association between adoption and parental well-being is not clear; one possibility is that only those prospective parents who are psychologically stable with happy, satisfying marital relationships are successful in their attempts to adopt.

The outcomes for the development of adopted children show a more mixed pattern. In clinical studies, there is evidence of raised levels of prevalence of psychological disorders in adoptees as compared to non-adoptees (Brodzinsky et al., 1998). This may be due to biological factors (Cadoret, 1990), or to the difficulties experienced in coping with the specific tasks of adoption (Triseliotis et al., 1997). On the other hand, it may reflect a bias in considering adopted children as in need of treatment by both adoptive parents and clinical workers (Warren, 1992).

Non-clinical studies of adopted children do not find them to be at risk of problems with temperament or development in the early years. However, in middle to late childhood, adopted children do seem to show higher levels of adjustment problems than non-adopted children, with respect to domains such as social competence, school success and behavioural problems (Brand & Brinich, 1999; Brodzinsky, Schechter et al., 1984). These problems persist as adoptees progress into early adolescence (Bohman, 1970; Bohman & Sigvardsson, 1990; Brand & Brinich, 1999). By late adolescence, adoptees are still exhibiting higher levels of negative behaviour in some areas (Fergusson et al., 1995; Miller et al., 2000) but longitudinal studies show that the magnitude of the differences between adoptees and non-adoptees diminishes across the adolescent period (Bohman, 1970; Bohman & Sigvardsson, 1990; Maughan & Pickles, 1990). Adjustment problems in adopted children thus emerge from around age 7, become most marked at around age 11-12, and have decreased by age 16-18.

However, adopted children have lower levels of maladjustment than children raised in foster homes or deprived biological families, and achieve more than would be predicted by their own genetic background. Also, closer examination of the distributions of outcome variables for adopted children has led to the view that the higher levels of problems seen in adoptees are actually due to a minority of adopted children with extremely severe problems (Brand & Brinich, 1999; Haugaard, 1998; Miller et al., 2000).

The changing pattern of problems experienced by adopted children with age may be related to the process of becoming aware that they are adopted and the implications of this knowledge. The majority of adopted children first 'know' they are adopted at pre-school age, at which time the disclosure seems to have no negative effects (Brodzinsky et al., 1998). As children grow older and their cognitive concept of adoption deepens, they may feel less positive about being adopted and thus about themselves, with consequent effects on their adjustment (Brodzinsky, Singer et al., 1984; Singer et al., 1982). Parents can aid their adoptive children in coming to terms with their family situation by the extent to which they acknowledge the differences between adoptive and biological family life, with a moderate level of acknowledgment considered to best promote children's healthy adjustment (Brodzinsky, 1987; Kaye, 1990).

In terms of contact with the birth family, there have been strong claims on both sides for the disadvantages or benefits that will be encountered by families involved in open adoptions. Adoptive parents have reported some advantages of open adoption and do not seem to feel less secure as a consequence of the continuing involvement of the birth family (Ryburn, 1994). For adopted children, there seemed to be no negative effect of open adoption, but nor did there appear to be any positive effects seen with respect to

children's adjustment (Wrobel et al., 1996). Therefore, no strong conclusions can be drawn about how advantageous open adoption is for helping children deal with their adoptive status.

In general, adopted parents seem to be well-adjusted individuals with strong marriages and positive relationships with their adopted children. Despite the raised levels of problems exhibited by some adopted children, the vast majority of adoptees show behaviour within the normal range. Overall then, the evidence suggests that adoption is a successful solution to the problem of children whose biological parents are unable or unwilling to raise them, in addition to fulfilling the wishes of infertile couples who desire to become parents.

CHAPTER 3

ASSISTED REPRODUCTION

An alternative way for infertile couples to become parents is through the process of medically assisted conception. This chapter will examine the main methods of assisted reproduction and discuss the possible consequences of these methods for parents and children.

IVF – BACKGROUND

The process of *in vitro fertilisation* (IVF) entails the fertilisation of an egg with a sperm in a laboratory. The embryo that is thus created is transferred to the mother's uterus, and, if it implants successfully, a pregnancy is established (Steptoe & Edwards, 1978). When the couple's own gametes are used, the child is genetically related to both parents, so it may seem that this does not differ from having a child with no medical assistance, except in the method of conception. However, there are a number of reasons why conceiving a child through IVF may affect the experience of parenting, with respect to both parent-child relationships and the parent's marital and psychological state.

The most immediate difference between IVF and natural conception is the increased risk of an IVF pregnancy resulting in a multiple birth, and of IVF infants being born prematurely and/or of low birth weight (Olivennes et al., 2002; Vayena, Rowe, & Griffin, 2002). Due to the practice of transferring more than one embryo at a time in the IVF process, over one quarter of births following IVF involve twins, triplets or even high order multiple births, as compared with only one in one hundred births following natural conception (Bergh, Ericson, Hillensjo, Bygren, & Wennerholm, 1999; Nygren & Andersen, 2002). Although the initial reaction of some IVF patients to the

prospect of multiple births is positive, in that they will have a "ready-made family", the reality of coping with two or more infants born at once can be very stressful. Babies of multiple births are also more likely to be premature or of low-birth weight and can have greater difficulties in terms of physical and cognitive development (Botting, MacFarlane, & Price, 1990; Vayena et al., 2002). It is important not to confound the effect of these factors on parenting with the effect of IVF per se, and for this reason, most empirical research on IVF has focused on families with a singleton child born at full-term.

As discussed earlier in reference to adoption, couples who wish to have a child invariably experience infertility as stressful to some degree (Burns, 1990). This stress may be exacerbated by the physical investigation procedures that precede IVF treatment and by the treatment itself, particularly as UK national data shows that for all treatment cycles started the 'live birth rate' is 22 %. Certainly it is the case that women undergoing infertility treatment show raised levels of anxiety (Cook et al., 1989) and for those whose treatment is unsuccessful there is evidence of a higher incidence of clinical depression (Baram, Tourtelot, Muechler, & Huang, 1988). Burns argued that these stresses might lead to dysfunctional parenting patterns where parents become emotionally over invested in their long-awaited child. Other authors have also suggested that parents who have had extreme difficulties conceiving may view their child as very precious or special (van Balen, 1996), leading to the development of overprotective or anxious parenting attitudes which, in turn, could adversely affect the child by encouraging over-dependency on the parents. Alternatively, the emotional effort involved in conceiving the IVF child could create unrealistic expectations in the parents, both of themselves as parents and of the child's own behaviour and achievements (Hahn & DiPietro, 2001; McMahon, Ungerer, Beaurepaire, Tennant, & Saunders, 1995;

Mushin, Spensley, & Barreda-Hanson, 1985; van Balen, 1998). Problems could develop if the reality of the IVF child does not live up to the fantasy. Another influence on the quality of the parent-child relationship may be the fact that with IVF, conception is removed from the expected norm of sexual relationships. It has been suggested that this unusual form of transition to parenthood may influence the nature of the parent-child attachment, particularly for fathers (Colpin, Demyttenaere, & Vandemeulebroecke, 1995).

Additionally, it has been predicted that the raised anxiety due to infertility and its treatment may carry over after the child is born, resulting in problems with parents' psychological well-being and marital satisfaction (McMahon et al., 1995). Burns (1990) found that infertile couples in her study reported elevated levels of marital problems as compared to a fertile control group. These potential risks for parents could negatively impact on the child's psychological development.

IVF – RESEARCH

Parent-child relationships

Studies of IVF families with infants and toddlers have been conducted in the United Kingdom (Weaver, Clifford, Gordon, Hay, & Robinson, 1993), France (Raoul-Duval, Bertrand-Servais, Letur-Konirsch, & Frydman, 1994), the Netherlands (Colpin et al., 1995; van Balen, 1996) and Australia (Gibson, Ungerer, Leslie, Saunders, & Tennant, 1998; Gibson, Ungerer, Tennant, & Saunders, 2000; McMahon, Ungerer, Tennant, & Saunders, 1997). Some differences have been found in these investigations between IVF parents and natural conception parents in terms of parent-child relationships and attitudes towards parenting. Using a sample of 20 of the first successful IVF patients from one hospital in the UK, Weaver et al. (1993) found that IVF parents scored significantly higher on a measure of positive feelings about parenthood, but reported

themselves as being more overprotective than the naturally conceived control group. Similarly, a prospective study of IVF families in Australia, where the families were assessed first when the child was 4 months old and then again at 12 months old, found that at the 1 year assessment, IVF mothers saw their child as significantly more vulnerable and "special" than did the control group (Gibson, Ungerer, Tennant et al., 2000). Also, IVF mothers reported lower feelings of efficacy in relation to specific domains of infant care at 4 months, and considered themselves less competent as parents than natural conception mothers at 12 months (Gibson et al., 2000; McMahon et al., 1997). However, there were no group differences in feelings of bonding towards the child at either time-point, in mother-infant interaction behaviour as rated by observational assessment at 4 months, or in childrearing attitudes and parental stress at 12 months. The authors attributed the lower confidence of IVF mothers in their own parenting to the mothers judging themselves too harshly. In contrast, van Balen's (1996) sample of 45 IVF mothers of 2-4 year old children in the Netherlands reported greater parental competence than did a comparison group of natural conception mothers. They also reported experiencing more pleasure in their child and stronger feelings towards their child. It is possible that the lack of confidence in parenting reported by IVF mothers of infants diminishes over time. The studies by Colpin et al. (1995) of IVF parents with children aged 24 to 30 months, and by Raoul-Duval et al. (1994) of IVF parents seen after delivery and then followed up at 9 months, 18 months and 3 years, found no differences in measures of mother-child relationships.

The European Study of Assisted Reproduction Families focused on a cross-European sample of 116 IVF families with pre-school and early school age children recruited from the UK, Spain, Italy and the Netherlands (Golombok et al., 1996; Golombok et al., 1995), compared with a matched group of 120 families with a

naturally conceived child of the same age. IVF mothers were found to show higher levels of warmth to their child, to be more emotionally involved with their child, to interact more with their child and to show lower levels of parenting stress than natural conception mothers, as assessed by standardised interview and questionnaire. IVF fathers were reported by their partners to interact more with their children than natural conception fathers, and themselves reported less parenting stress. In the first study to be conducted in a non-Western culture, Hahn and DiPietro (2001) examined pre-school and early school age children in Taiwan. In general, the quality of parenting was found to be good, although IVF mothers showed greater protectiveness of their children. However, the children's teachers, who were unaware of the IVF conception, did not rate the IVF mothers as more protective or intrusive in their parenting behaviour than the natural conception parents but did rate them as more affectionate towards their children.

Families who participated in the European Study were followed up as the children entered early adolescence (Golombok, Brewaeys et al., 2002; Golombok, MacCallum, & Goodman, 2001). At this age, IVF parents were generally found to have good relationships with their children characterised by a combination of affection and appropriate control. A few differences were found between IVF and natural conception families in parent-child relationships, and these reflected more positive functioning in IVF families, such as greater enjoyment of parenthood by IVF mothers and fathers, and more warmth expressed towards their children by IVF fathers. The only exception was the possible over-involvement with their children shown by a small proportion of IVF mothers.

Parental psychological and marital state

With respect to parental well-being, IVF parents of infants and toddlers scored very similarly on levels of anxiety and depression to either the naturally conceived control

group or to general population norms in all the studies that included some measure of psychological functioning (Colpin et al., 1995; Gibson, Ungerer, Tennant et al., 2000; McMahon et al., 1997; Raoul-Duval et al., 1994; Weaver et al., 1993). However, McMahon et al. (1997) did find that IVF mothers with 4 month old infants rated themselves as lower on a measure of self-esteem as a woman, which focused on women's feelings about their sexuality indicating that there may be unresolved feelings of being "unwomanly" related to their infertility at this stage. Measures of the parents' marital satisfaction showed that IVF mothers did not rate their marriage as lower in quality than did natural conception mothers (Colpin et al., 1995; Weaver et al., 1993). The only study to include fathers' views on marital state found that fathers of 12-month-old IVF babies reported significantly lower marital satisfaction than natural conception fathers (Gibson, Ungerer, Tennant et al., 2000). It was suggested that this may be due to IVF mothers being more preoccupied with their babies, leading to the father feeling more excluded than in natural conception families. In the European Study of Assisted Reproduction Families, Golombok et al. (1996) found that IVF mothers, but not fathers, actually scored lower on a measure of anxiety than naturally conceived mothers. There were no group differences for either parental depression or incidence of marital difficulties. When the families were followed up as the children reached age 12 years, there was again no evidence of raised levels of psychological or marital problems among the IVF parents (Golombok, Brewaeys et al., 2002; Golombok et al., 2001).

Child development

Since negative aspects of parenting are associated with poor outcomes for children, it is important to look for dysfunctions within the child's actual behaviour as well as their relationships with their parents. In McMahon at al.'s 1997 study, IVF mothers rated their 4-month-old babies as more difficult than did the natural conception

mothers (although no more difficult than the population norm) and the IVF babies showed more negative reactions to stress. The same sample still rated their children as having more difficult temperaments, and also more behavioural difficulties than the control group at 1 year old, although no differences were seen between the two groups of children for social development or test-taking behaviour (Gibson et al., 1998). The IVF mothers' reports of increased difficulties may thus be related to their lower feelings of self-efficacy and parenting competence mentioned above. In contrast, the IVF mothers in van Balen's study (1996) rated their 2 to 4-year-old children as more social and less obstinate than did natural conception mothers, which may again be due to the effects of IVF lessening with time. In terms of cognitive development, Gibson et al. (1998) found no differences between IVF and naturally conceived infants in mental ability as measured on the Bayley Scale. Other controlled studies have reported similar results using the Bayley Scale (Brandes et al., 1992; Morin et al., 1989), the Brunet-Lezine test (Raoul-Duval, Bertrand-Servais, & Frydman, 1993) and the General Cognitive Index (Ron-El et al., 1994).

Golombok and colleagues measured emotional and behavioural problems at age 4-8 years and no differences were found between IVF and naturally conceived children (Golombok et al., 1996; Golombok et al., 1995). Neither were there differences on measures of the child's self-perceived physical and cognitive competence. At early adolescence, the children were found to show positive psychological adjustment, with no difference between IVF and naturally conceived children in levels of emotional and behavioural problems, school adjustment, or peer relationships (Golombok et al., 2001).

One study from Israel of middle school age IVF children has reported a higher incidence of emotional problems, with the IVF group showing poorer school adjustment, more aggression and higher levels of anxiety and depression than naturally

conceived children (Levy-Shiff et al., 1998). This finding may be accounted for to some extent by the fact the IVF parents were significantly older than the natural conception parents. Factors specific to the culture in Israel may also affect parenting in IVF families in a different way to the samples studied from other countries, but no conclusions can be drawn since no assessment was made of parenting. In the same study, the cognitive development of the IVF children as measured by the Wechsler Intelligence Scale for Children did not differ from that of the naturally conceived children.

IVF – CONCLUSIONS

Overall it seems that the use of IVF as a reproductive technique does not result in negative outcomes for family functioning. IVF children show secure attachment patterns (Gibson, Ungerer, McMahon, Leslie, & Saunders, 2000; McMahon et al., 1997), and in some aspects the quality of parenting appears to be superior when the children are young, with IVF mothers reporting more positive feelings towards their baby (Weaver et al., 1993) and more emotional involvement with their 2-4 year old child (van Balen, 1996). This pattern continues in the early school years with IVF mothers and fathers interacting with their children more and enjoying parenthood more than natural conception parents (Golombok et al., 1996; Golombok et al., 1995). By the time the children reached age 12, the IVF families were still enjoying parenthood more than natural conception families, although the difference in parent-child interaction had disappeared (Golombok, Brewaeys et al., 2002; Golombok et al., 2001). So, at early adolescence IVF parents continue to provide a positive family environment in which to raise their child.

There is some evidence of raised levels of anxiety about parenting by IVF mothers in infancy (McMahon et al., 1997), although this seems to abate as the children enter toddlerhood and early childhood when IVF mothers come to see themselves as very competent parents (van Balen, 1996). With respect to the concern that IVF parents will become over-involved with their children, studies do indicate that mothers of young IVF children may be more protective (Weaver et al., 93), and see their children as more vulnerable (Gibson, Ungerer, Tennant et al., 2000). Nevertheless, there are no differences between IVF and natural conception mothers in other measures of maternal feelings, attitudes and behaviours. Nor is there any indication of raised levels of anxiety, depression or marital dissatisfaction in IVF parents, with the exception of lower marital satisfaction for IVF fathers of 1-year-old children in the Australian study (Gibson, Ungerer, Tennant et al., 2000).

These small differences in both directions that have been detected between IVF and natural conception parents do not seem to have affected the children, either in a positive or a negative manner. IVF children are not at risk for cognitive impairment and their social and emotional development is within the normal range, with only one study reporting a higher level of psychological problems among middle school age children conceived by IVF (Levy-Shiff et al., 1998).

DONOR INSEMINATION - BACKGROUND

Donor insemination (DI) involves the insemination of a woman with the sperm of a man who is not her partner and is used in cases where the woman is able to conceive but her partner is infertile. The resulting child is thus genetically related to the mother but not to the father who brings the child up. Although it is generally classed with IVF and other new reproductive technologies, the first reported case of DI dates back to 1884

(Achilles, 1992). The procedure itself is quite simple, involving only the transfer of semen to the vagina by syringe. However, the vast majority of couples opt for insemination at a clinic, allowing them the use of an anonymous donor. Donors are matched to the prospective parents on the basis of physical characteristics and are screened by the clinic or sperm bank for sperm quality and genetic disorders. Currently, approximately 1000 children conceived using donor insemination are born each year in the UK (HFEA website). Lesbian couples and single women who wish to have a child without the involvement of a male partner are also using donor insemination in increasing numbers, but for the purposes of this discussion only heterosexual couples will be considered.

The concerns expressed in relation to IVF, regarding the effect of infertility and its treatment on parenting, are also applied to donor insemination families. Additionally there are concerns about potentially negative consequences that are more specific to families with a child conceived using donated sperm. Firstly, since the father has no genetic link to the child, it is possible that he may feel or behave less positively towards the child, and the child may not fully be accepted as part of the family, which could adversely effect identity development (Baran & Pannor, 1993a). Reports from adults conceived by DI who have discovered the fact of their donor conception have suggested that this may be the case, with several participants recounting dysfunctional family dynamics (Cordray, 2000; Turner & Coyle, 2000). The circumstances of the disclosure of DI, however, vary greatly between participants in these accounts. In addition, all participants were members of donor conception support networks so cannot necessarily be considered to be representative of people conceived by DI in general. Also, since the reports are all retrospectively collected, it is not possible to say whether these feelings

were present during childhood or were affected in hindsight by the knowledge of the donor conception.

The issue of disclosure in donor insemination has probably received the most attention and caused the most debate. The majority of parents who conceive this way decide not to inform their offspring of the nature of their conception, with the result that many adults and children will be unaware that they are genetically unrelated to the man they know as their father. Over the last two decades concern has grown about the possible adverse effects of this secrecy, particularly with regard to relationships in the family and the psychological well-being of the child. In the UK and other European countries there has been a change in climate towards encouraging disclosure, along with a growing social awareness of the use of donated gametes in the treatment of infertility. Support groups, such as DC Network in the UK, encourage parents to be open about the use of donor gametes with their children from a very young age. In spite of this, the identity of semen donors in the UK currently remains protected by law, although new legislation is to come into force in April 2005 that will allow donor offspring access to the identity of the donors. However, as yet this law will not apply retrospectively so donor offspring born before April 2005 will not have this same access.

Those who are in favour of disclosure often draw parallels between donor conception and adoption. The climate surrounding adoption has changed over the last 50 years, from one of secrecy to one of openness. There is an emphasis in the adoption literature on the importance of knowing one's genetic origins, and that not being given information on one's birth parents may have a detrimental effect on emotional and identity development (Brodzinsky et al., 1998; Hoopes, 1990; Triseliotis, 1973). In the same way, it is argued that donor offspring may suffer if they lack knowledge about their genetic background (Baran & Pannor, 1993a; Daniels & Taylor, 1993; Snowden,

1990; Snowden, Mitchell, & Snowden, 1983). In adopted families, children fare better when parents communicate openly about the adoption (Brodzinsky et al., 1998) so it is suggested that the same is true for donor conception children. However, despite the absence of a genetic link, donor insemination families differ from adoptive families in that the child is genetically related to the mother, the child has not been relinquished by and separated from existing parents, and the father has been present throughout the pregnancy and birth. Thus, the two situations cannot be considered to be analogous, and the problems with identity development faced by adopted children will not necessarily be encountered by donor conception offspring.

Another source of support for disclosure to donor conception offspring draws on work in the family therapy field. Studies suggest that secrets in families can be harmful to relationships, in that they set up boundaries between those who know the secret and those who do not (Clamar, 1989). The deception involved can adversely affect open communication between parents and children and leaves open the possibility that if the information comes out by accident, it will break the bonds of trust within the family. Children may become aware that their parents are keeping information on certain topics from them, particularly if the parents become anxious or change the conversation when discussing, for example, whom the child looks like. This could cause the children themselves to become anxious or confused, and in some cases to develop psychological problems (Papp, 1993).

A rights-based argument has also been used to support sharing information about the conception with the child (Gollancz, 2001). Article 7 of the United Nations Convention on the Rights of the Child (United Nations, 1989) states that a child should have "as far as possible the right to know... his or her parents". This has been

interpreted, e.g. by Blyth (2002) as a child having the "a right to know" his/her genetic origins and that this right must be the primary consideration.

Those who defend non-disclosure to donor conception offspring argue that privacy about the method of conception allows both the couple and the child to be protected from still-existing negative societal attitudes about donor insemination and male infertility (Nachtigall, Pitcher, Tschann, Becker, & Szkupinski Quiroga, 1997). Disclosure of information about the donor conception to the child is also seen as potentially damaging to the relationship between the child and the non-genetic parent, with negative consequences for the child's psychological health (Snowden & Mitchell, 1981). It is also argued that in addition to the 'right of the child to know', there is a right of the parents to privacy and a right of the family to make autonomous decisions about issues that may affect the welfare of the child (Shenfield & Steele, 1997; Walker & Broderick, 1999) From this perspective, the decision on disclosure should be left up to parents alone and, if they wish to keep the information private, it is their right to do so.

DONOR INSEMINATION - RESEARCH

Due in part to the secrecy often associated with donor insemination, there are fewer studies of families created by this method of assisted conception than there are of IVF families. Most of the studies that have been carried out, in addition to examining parent-child relationships, parental psychological adjustment and child development, have looked at the extent of disclosure of the use of donor sperm.

Parent-child relationships

In a review of studies of DI families published between 1980 and 1995, Brewaeys (1996, 2001) found that the vast majority of couples viewed DI as a positive choice and a source of great happiness. With a few exceptions, fathers reported that they did not

feel their relationship with the child had been adversely affected by the use of DI and that they considered themselves to be 'real fathers'. There are, however, methodological problems with these studies; no control groups were used, the questionnaires were brief and the children's ages varied from a few months to 15 years.

Parent-child relationships in a group of DI families with children aged between 3 months and 3 years was assessed, again by questionnaire only, in a French study (Manuel, Facy, Choquet, Grandjean, & Czyba, 1990) . The conclusions were that in comparison to a group of naturally conceived families, DI parents showed more "anxious over-investment" in their children. The generalisability of this finding is again limited by methodological weakness, in that there was no information given about the reliability or validity of the measures used, nor was there any clear definition of "anxious over-investment".

In addition to the IVF families discussed previously, the European Study of Assisted Reproduction Families included a sample of 111 families with a child conceived by donor insemination (Golombok et al., 1996; Golombok et al., 1995). When the child was aged 4-8 years, the quality of parenting was shown to be similar to that in the IVF families, i.e. greater levels of warmth towards the child and more interaction with the child than was seen in the natural conception families. There were no differences in parenting identified between IVF and DI families for either mothers or fathers, suggesting that the absence of a genetic link in DI families does not have a detrimental effect on family functioning and that couples who conceive using donor sperm are highly motivated parents.

When the families were followed up at early adolescence (Golombok, Brewaeys et al., 2002; Golombok, MacCallum, Goodman, & Rutter, 2002), this high quality parenting persisted with a high level of warmth observed between parents and children

accompanied by an appropriate level of discipline and control. Again there were no significant differences between the DI and IVF families for any of the measures associated with parent-child relationships. In particular, it is noteworthy that donor insemination fathers were no less warm to their children than were fathers in the other family types, indicating that these fathers are not more distant towards their child despite not being genetically related.

Parental psychological and marital state

In terms of psychological adjustment, DI parents have been found to have self-esteem within the normal range (Klock, Jacob, & Maier, 1994) and have not been shown to have raised levels of anxiety or depression (Golombok et al., 1996). Nor does marital satisfaction appear to be adversely affected, with studies consistently finding that marital adjustment was average to high amongst DI couples, and that the divorce rate amongst these couples remained low or average (Amuzu, Laxova, & Shapiro, 1990; Leeton & Backwell, 1982).

Child development

Early uncontrolled studies of DI children found no evidence of an increased rate of emotional or behavioural problems (Clayton & Kovacs, 1982; Leeton & Backwell, 1982). The study by Manuel et al. (1990) did find signs of increased emotional vulnerability in children conceived by DI as compared to naturally conceived children, but as mentioned previously, the reliability and validity of the measures used was unknown. Consequent studies using standardised measures have not found raised levels of psychological problems. For example, an Australian study examined DI children aged 6-8 years in comparison with matched groups of naturally conceived children and adopted children (Kovacs, Mushin, Kane, & Baker, 1993). No differences were found between the groups. Similarly, the European Study of Assisted Reproduction Families

found no differences between DI children and the other family types in terms of socio-emotional adjustment either at 4-8 years or at 11-12 years (Golombok, Brewaeys et al., 2002; Golombok, MacCallum et al., 2002). With respect to cognitive development, some uncontrolled studies have found DI children to be more advanced than their same-age peers with respect to intellectual, psychomotor and language development (Amuzu et al., 1990; Clayton & Kovacs, 1982; Izuka, Yoshiaki, Nobuhiro, & Michie, 1968; Leeton & Backwell, 1982). Manuel et al. (1990) also found that DI children in their controlled study were more advanced in psychomotor and language development than the comparison group of naturally conceived children. Explanations for this discrepancy proposed that DI parents were more involved with their children and therefore provided more stimulation (Amuzu et al., 1990; Clayton & Kovacs, 1982) and that the DI families were of higher socio-economic status than the general populations (Izuka et al., 1968). It may also be due to the use of high-ability donors (Golombok & MacCallum, 2003).

Disclosure of donor conception

It is striking that in all of these studies, only a small proportion of parents were planning to tell the child the truth about their genetic origins. In her review of studies of DI families, Brewaeys (1996, 2001) found that few parents (between 1% and 20%) intended to tell their child, and in the majority of studies fewer than 10% of parents intended to tell. Despite a change in climate towards greater encouragement of disclosure, a comparison between DI recipients in 1980 and 1996 found that the more recent patients were no more likely to disclose than those treated over 15 years previously (van Berkel, van der Veen, Kimmel, & te Velde, 1999). In Sweden, legislation implemented in 1985 gives donor offspring the right to obtain information about the donor including his identity. However, a study of DI families with children

conceived since this change in the law showed that still only 11% of parents had informed their child (Lindblad, Gottlieb, & Lalos, 2000). Recent studies in the United States have found similar patterns of non-disclosure (Leiblum & Aviv, 1997; Nachtigall, Becker, Szkupinski Quigora, & Tschann, 1998).

Parents in the European Study of Assisted Reproduction Families were questioned about the extent of their sharing of information about DI with their children and their reasons for this decision (Golombok et al., 1996). Not one of the families from any of the four countries involved had told their child about their origins at age 4-8 years. Attitudes towards disclosure were examined in more depth with the UK sample, 80% of whom had decided that they would definitely not ever tell the child (Cook, Golombok, Bish, & Murray, 1995). Only two mothers reported planning to tell the child when older, and 7 (16%) were undecided. The most common reasons for not telling the child were protection of the child (mentioned by 70% of mothers), and protection of the father (69%). Mothers felt that for children to learn that the man who brought them up was not their genetic father would be potentially very damaging to the child's happiness and well-being. Protection of the father involved two elements: first, there was concern that the father-child relationship would be harmed and that the child might end up loving the father less. Secondly, DI mothers wished to protect their partner from the stigma of other people knowing about his infertility. Some mothers also talked about problems with the timing and method of disclosure. At the follow-up of these families at early adolescence, with all four countries included, only 8.6% (8 sets of parents) had told their child that he or she had been conceived by DI by the time they reached 11-12 years old (Golombok, Brewaeys et al., 2002; Golombok, MacCallum et al., 2002). Similarly to the earlier results, the most frequent reasons given for non-disclosure were a desire to protect the child and concern that disclosure would damage the father-child

relationship. In addition, a large number of parents simply believed that there was no need to tell.

It is important to note that although the majority or parents in the European Study had decided against telling their child, half (50%) had told another family member, leaving open the possibility that the child could find out later from another source. This is in line with the finding from Brewaeys's (1996) review that almost half of the DI parents had told at least one other person that their child had been conceived through DI treatment. Some researchers found that once the child was born, parents changed their mind about how open they wished to be about the DI treatment and regretted that they had disclosed to others (Back & Snowden, 1988; Klock & Maier, 1991).

There are some studies, however, that show a different pattern of disclosure. For example, Rumball and Adair (1999) in New Zealand found that 30% of the families they studied had told the child before the age of eight years. In addition, of the couples that had not told the child at the time of study, 77% intended to disclose the information in the future. This may be due to the fact that the general climate surrounding donor insemination is more open in New Zealand, where donation with identifiable donors is practised. Similarly in the United States, the Sperm Bank of California has an identity-release programme allowing donor offspring access to the identity of the donor on reaching age 18. Scheib et al. (2003) found that nearly all of the parents who opted for identifiable donors had shared information on the donor conception with their children. A very recent study of donor insemination families in the UK, focussing on families who conceived from 1999 onwards found some evidence that attitudes here are also changing, with 46% of parents planning to tell their child about the donor conception, a marked increase from previous reports (Golombok, Lycett et al., 2004). However, the

children were aged just 9-12 months at the time of study so it remains to be seen whether the parents will carry through this intention once the children grow up.

DONOR INSEMINATION - CONCLUSIONS

The quality of parent-child relationships and the psychological development of children in DI families do not appear to be negatively affected by the absence of a genetic link between the father and the child. In particular, fathers in DI families have been found to be as warm towards their child, and as involved with their child, as are natural conception fathers (Golombok, MacCallum et al., 2002). Neither is there any evidence of increased parental psychological problems or marital dysfunction associated with DI (Brewaeys, 1996, 2001). Nevertheless, it remains the case that, in spite of the greater encouragement of openness over the last 20 years, the majority of parents continue to withhold the facts of the donor conception from their children. Considering the parallels drawn between donor insemination and adoption, it is interesting that the areas presenting obstacles for disclosure are precisely those in which donor insemination differs from adoption: the stigma associated with donor insemination, acknowledgement of the fertility problem as the father's alone, uncertainty about the timing and method of disclosure, and lack of available information about the child's genetic father (Cook et al., 1995; Nachtigall et al., 1997; Snowden et al., 1983). Adopted parents are advised in pre-adoption preparation that children should be told about the circumstances of their birth in an age-appropriate manner from an early age, and books that explain adoption in a child-friendly way are available. In addition, post-adoption services have been set up which parents can turn to for support if they are having difficulties. In the UK, social workers and parents create life-story books for children, often containing pictures of the birth parents, or at least of the foster parents. In contrast, there are no generally accepted

scripts for disclosing donor insemination to the child, although a couple of books have now been published in attempts to rectify this, such as 'My Story' (1991). Parents may feel the process is too complicated and that they would have to explain the mechanics of sexual reproduction, including the father's infertility, to the child, which they are unwilling to do at such a young age. Clinics do not as a rule run post-treatment counselling services that would allow parents to discuss the disclosure issue fully. Moreover, the widespread use of anonymous donors means that parents may feel they have little information to give the child. These factors seem to have led most donor insemination parents to conclude that non-disclosure is the most desirable option for their family, although the situation is rather different with lesbian families (Brewaeys, Devroey, Helmerhorst, Van Hall, & Ponjaert, 1995). Interestingly, when parents who had told their children were studied, 57% of them felt that the disclosure had been a positive step and only 20% felt some apprehension as to how their child would react in the future (Rumball & Adair, 1999).

Despite the fact that non-disclosure has not been shown to have negative consequences for family functioning, as assessed by parent-child interaction and children's socioemotional development, it does not necessarily follow that it is better for children not to be told about their genetic origins. It must be remembered that the children studied so far are young and have yet to develop a complex awareness of their relationships with their parents and of their own sense of identity. Problems may arise as these children move through adolescence and into early adulthood. Research from adoption shows that although adopted children welcome information about their genetic parents (Brodzinsky et al., 1998; Grotevant & McRoy, 1998), it is often not until adulthood that adoptees feel the desire to search for their genetic parents (Howe & Feast, 2000). Parents who have not yet told their children about the method of their

conception are likely to find it increasingly difficult to do so as the children grow older and, indeed, some parents of 4-8 year old DI children felt that even at this age it was too late to tell them and regretted not having done so from the start (Cook et al., 1995).

The finding that many parents have told someone else about the donor insemination presents a further problem, in that it leaves open the possibility that the offspring will discover the nature of their conception at a later date from a source other than their parents. The increasing use of genetic testing in medicine also increases the risk that individuals conceived by DI will discover that the person they know as their father is not genetically related to them. As yet, little is known about the consequences for children who do become aware of their donor conception since no controlled studies have been carried out comparing those who know to those who do not. The small sample studies of adults who are aware of their donor conception show that whereas some report good relationships with their parents (Snowden et al., 1983), others report feelings of hostility, distance and mistrust within the family (Cordray, 2000; Donor Conception Support Group, 1997; Turner & Coyle, 2000). However, as discussed earlier, these samples are not necessarily representative of all DI offspring. It is likely that how a child reacts to the discovery that they were conceived by donor insemination will depend on several factors, including their age at the time of disclosure, the manner of disclosure, and the existing quality of their relationship with their parents.

EGG DONATION - BACKGROUND

Egg donation is similar to donor insemination in that the child lacks a genetic link with one parent, but in this case it is the mother to whom the child is genetically unrelated. Egg donation involves the use of IVF techniques to implant into a woman's uterus an embryo created with her partner's sperm and an oocyte donated by another woman. As

such, egg donation is a far more technologically advanced procedure than donor insemination and has only been possible since 1983 (Lutjen et al., 1984; Trouson, Leeton, Besanka, Wood, & Conti, 1983). It has become an increasingly popular technique, in that it allows women who are unable to have their own genetic child to undergo the experience of pregnancy and childbirth. In the UK, estimates put the number of children born since 1990 as a result of egg donation at approximately three thousand.

As with DI families, the absence of a genetic bond between parent and child in egg donation families, and the effect of disclosure or non-disclosure about the child's genetic origins, have raised concerns. However, unlike a man whose partner conceives through donor insemination, a woman who conceives through egg donation has a biological link to the child in that she carries the foetus and gives birth. This may make the lack of genetic relatedness less important to the mother and therefore she may feel more confident about telling the child about the donor conception (Greenfield, Greenfield, Mazure, Keefe, & Olive, 1998). In addition, it has been suggested that egg donation is a more socially accepted procedure than donor insemination and that this reduced social stigma may mean that egg donation parents are less likely to conceal the child's origins (Haimes, 1993). Another difference between DI and egg donation is that the egg donor is not always anonymous and may be a relative or friend of the couple. This can be viewed as beneficial for the child, since ongoing contact between the family and the donor may increase the likelihood of parents sharing information about the donation with the child and allow the child to develop a relationship with the genetic mother. On the other hand, it is not yet known whether this contact will have a positive or a negative impact on the child's psychological development, particularly on their

sense of identity, as they grow older. The presence of the donor in the family's life may also affect the mother's security in her parenting role.

EGG DONATION - RESEARCH

Parent-child relationships

The first study of parenting and child development in egg donation families looked at a sample of 12 egg donation families (all of whom used anonymous donors) in France (Raoul-Duval et al., 1994). Families were assessed when the children were aged 9 months and 18 months, and 9 of the families were followed up at 36 months. The quality of the mother-infant relationship was rated on mother's body language, vocal dialogue, visual dialogue, and attitude towards breast-feeding. The mother-infant relationships were all described as excellent, although the details of how an "excellent" relationship was defined were not given.

A controlled study in the UK compared 21 egg donation families with donor insemination families when the children were aged 3-8 years (Golombok, Murray, Brinsden, & Abdalla, 1999). In three of the egg donation families, the donor was a family friend, with all other families having used anonymous donors. Both groups of families were found to be functioning well and there were no differences between the egg donation and donor insemination families with respect to their quality of parenting. There was no evidence that the lack of genetic link between mother and child in egg donation families was having a negative effect on the mother-child relationship. Nor was there any difference in the quality of this relationship between the small group of mothers who knew their donor and those for whom the donor was anonymous.

Parental psychological and marital state

In the study by Golombok et al., both mothers and fathers of egg donation children reported lower levels of stress associated with parenting than did mothers and fathers of DI children, but there were no differences in levels of depression or marital satisfaction, both of which where within the normal range (Golombok et al., 1999).

Child development

With respect to the children themselves, data from Raoul-Duval et al.'s (1994) study found the 12 egg donation children to be showing normal psychomotor development. A Finnish study by Soderstrom-Antilla et al. (1998) compared 59 egg donation children to 126 IVF children (all aged 6 months to 4 years). The groups did not differ on the proportions of children reported by their mothers to be suffering feeding or sleeping difficulties, and the egg donation parents were less likely than the IVF parents to be concerned about aspects of their child's behaviour. In the UK study of 3-8 year old egg donation children, Golombok et al. (1999) assessed the presence of emotional and behavioural problems as reported by parents and also measured the level of self-esteem using a standardised instrument administered to children. The egg donation children did not show raised levels of psychological dysfunction.

Disclosure of donor conception

Golombok et al. found that at age 3-8 years, only one set of egg donation parents had told the child about the method of their conception (Golombok et al., 1999). However, egg donation parents were significantly less opposed to the idea of telling the child in the future than were DI parents. Only 38% of egg donation parents had definitely decided never to tell, compared to 80% of DI parents. The reasons given for deciding against disclosure were similar to those given by DI parents; a desire to protect the child from distress or confusion (mentioned by 75% of mothers), a desire to protect the

mother-child relationship and a belief that there is no need to tell, particularly since the mother carried the child (Murray & Golombok, 2003). As with the DI families, the majority of egg donation mothers (around 70%) had told family or friends about the circumstances of the child's conception. In a more recent UK study of egg donation babies born between 1999 and 2001, 56% of parents stated an intention to disclose the donation to the child, which was a higher proportion than that found for DI parents (Golombok, Lycett et al., 2004).

Similar results were found in the Finnish study of 49 families with an egg donation child aged between 6 months and 4 years (Soderstrom-Antilla et al., 1998). Thirty-eight per cent of parents reported that they intended to tell their child whilst 73% had told someone else. The sample included 8 families who had used a known donor (sister or friend of the mother), all of whom saw the child regularly with no reported difficulties in the relationship between the donor and the mother. However, this did not seem to increase the likelihood of disclosure to the child, with only 2 of these families stating that they had decided to disclose in the future.

EGG DONATION - CONCLUSIONS

So far there have been few studies of egg donation families and the samples used have been small. However, there is no evidence yet of a detrimental effect on parenting or on child development. It seems that, as with DI families, the important factor is the desire to become a parent, and not the genetic relationship between the parent and the child. Although there is a tendency for egg donation parents to be more open with their child about the method of their conception than donor insemination parents, a large number are still opting for non-disclosure which may present problems in the future. The majority of the families studied to date conceived their child using the egg of an

anonymous donor, leaving largely unanswered the question of the consequences for parents and children when the donor is a relative or friend.

The IVF technology that makes possible conception using donated eggs also allows for conception to take place using a donated embryo, i.e. with no genetic contribution from the intended parents. Thus, embryo donation parents, like adoptive parents, raise a child to whom they are not genetically related. The following chapter discusses the process of embryo donation, and in particular, its comparisons with adoption.

CHAPTER 4

EMBRYO DONATION

BACKGROUND

In 1983, Trounson et al. reported the first successful transfer of a donated embryo in a human (Trouson et al., 1983). The recipient woman had originally presented for donor insemination (DI) since her husband was azoospermic. After 22 cycles of DI with no resulting pregnancy, the clinicians attempted embryo transfer, using an embryo created using a donor egg and donor sperm (the egg donor and the sperm donor were unknown to each other and to the recipient couple) and a pregnancy was established. The clinicians involved likened the process to egg donation and sperm donation, and believed it to be an advantage if both gametes were donated on the basis that "any possible psychological ill effects on the marriage may be less as neither of the infertile couple are genetic parents and both are rearing parents so that the contribution of the couple to the conception is more balanced than in artificial insemination by donor" (Trounson et al., 1983). However, Sauer et al. (1995), in a report on the use of donor eggs and donor sperm, viewed the transferring of donor embryos somewhat differently, referring to the process as "pre-implantation adoption" since "conceptions resulted from embryos conceived *in vitro* without any genetic ties to the recipients" (Sauer, Paulson, Francis, Macaso, & Lobo, 1995).

The refinement of embryo freezing techniques, along with the reduction in multiple embryo transfers, has resulted in thousands of IVF embryos being held in storage, with couples then having to decide whether to retain them, dispose of them, or donate them. Therefore, in a large number of embryo donation treatments nowadays, the embryos used had originally been produced by another couple in their own attempts at conception through IVF. Thus, if the treatment is successful, the recipient couple will

raise a child that is genetically that of the donor couple and who may have genetic full siblings being raised by the donor couple; a situation that is structurally similar to adoption. Indeed, Baroness Warnock, one of the main architects of the policies surrounding assisted reproduction treatment in the UK referred to embryo donation as "a better way of adopting" (Sunday Times, 1991).

Robertson considered whether ethically and legally the process of embryo donation more strongly resembles gamete donation or adoption and came down on the side of gamete donation, concluding that "the procedure of embryo donation is not equivalent to postnatal adoption of a born infant" (Robertson, 1995). The European Society of Human Reproduction and Embryology agrees, stating in its guidelines on embryo donation that "the ethical concerns related to the technique are general to the donation of gametes" (ESHRE Task Force on Ethics and Law, 2001).

Others contend that embryo donation does strongly resemble adoption, with a group of mental health professionals arguing in response to Robertson's analysis that "embryo adoption should receive the same safeguards as adoption" (Bernstein et al., 1996). In the United States, "embryo adoption" services such as the Snowflakes Embryo Adoption Program, have been established where donors are able to set criteria for selection of the recipient couple, and may keep in contact with the recipients following the birth of the child (Daily Telegraph, 2003; New York Times, 2001). Headlines in the media in the United Kingdom, such as "Embryo adoption register planned" (The Independent, 1999b), "Orphan embryos up for adoption" (Red Magazine, 1999) and "This little girl was adopted when she was just an embryo in a freezer" (London Evening Standard, 2003) reinforce the perception of a process synonymous with adoption. Thus the most contentious issue surrounding treatment with donated embryos has become: should it be considered as "embryo donation" or "embryo adoption"?

COMPARISONS OF EMBRYO DONATION AND ADOPTION: DISPARITIES IN APPROACH

When comparing the processes of embryo donation and adoption, the first issue to be addressed is the differences that exist between approaches to these two methods of family creation. The two areas that show the largest disparity in approach are the legal status of embryo donation versus adoption, and the selection processes used for adoptive parents compared with embryo donation parents.

Legal status

In the UK, embryo donation is treated legally in the same way as sperm or egg donation, with the recipients of donated embryos being the sole legal parents. When agreeing to donate embryos, donors automatically give up all legal rights and responsibilities to the resulting child. The same is true for those other European countries which allow embryo donation (including Finland, France, Greece, and Spain; it is not allowed in Austria, Germany, Ireland, Italy, Norway, Sweden or Switzerland; Jones & Cohen, 2001). In the United States, there are currently only five states that presently have statutes explicitly recognising embryo donation (Florida, North Dakota, Oklahoma, Texas and Virginia), and they too have modelled their laws regarding embryo donation on sperm donation laws, making the recipient woman and her spouse the legal parents for all purposes (Crockin, 2001). In contrast, adoption laws in all countries are complex, with protections inserted for all parties. Virtually every adoption law bans relinquishment of a child before birth and often for a set period of time after birth, in order to protect the birth parents from making decisions they come to regret. For the protection of the child, there must be a social study of the prospective adoptive home by licensed professionals. In both the UK and the US, the child must be in the adoptive placement for a minimum of three months before the adoption becomes final.

Adoption requires either the consent of the birth parents or a judicial termination of parental rights; thus, birth parents are allowed to contest adoptions. No such laws exist with regard to embryo donation and it is highly unlikely that any patient would consider using donated embryos, then carrying and giving birth to a child, if there was a proviso that consent for adoption had to be sought from the genetic parents (and was not guaranteed) after the birth. As Crockin explains "embryo 'adoption' is a term that may be endearing and may even be accurate in a bio-psycho-social sense, but it is not accurate in a legal sense" (Crockin, 2001).

Selection criteria for parents

One of the most striking differences in the approaches to embryo donation and adoption is the disparity between the parent selection procedures in these two methods of family creation (Widdows & MacCallum, 2002). In adoption, the selection process is lengthy and detailed, and focuses on social and emotional factors. In the UK, prospective adopters will be assigned a social worker who will visit their home several times over a period of months. A two-part form (Form F) must be completed; Part I asks first for factual information concerning characteristics such as age, marital status, ethnic origin, occupation, income, and hours of work. It then asks for two personal references for the applicants, and assesses the referees' views of the applicants' parenting capacity. Part II of the form is a descriptive report made by the social worker, based on observations of the household members during the home visits. A great amount of detail is obtained about the applicants, including their present relationship, their previous relationships, their attitudes towards being childless, their understanding of child development, and their own childhood experiences. Issues ranging from the self-image of the applicants to specific problems that may be encountered in the child's upbringing are explicitly considered. Emphasis is placed on the personalities of the individual applicants and the

nature and quality of their relationships (The British Agencies for Adoption and Fostering, 1991). If, having completed Form F, the social worker considers the applicants to be suitable to become adopters, their recommendation is then put to an adoption panel of independent assessors who have the final say on whether the applicants should be approved for consideration as adoptive parents. This in-depth assessment procedure can be seen as intrusive and is highly time-consuming, but it is regarded as essential to protect the child; anything less is considered irresponsible and negligent. The focus is on the needs of the child and on finding parents appropriate to fulfil those needs. Thus, even having been approved by the panel, a couple may have to wait for a long time to be considered suitable for an available child.

In contrast, the selection process for embryo donation parents focuses on medical criteria, with the emphasis on whether the mother is "medically suitable" to carry the child rather than on whether the couple are psychologically suitable to be parents. Decisions on who should be allowed access to the treatment are made by medical practitioners, rather than by someone trained to consider the social and psychological factors. Embryo donation patients in the UK are treated in the same way as couples applying for any form of assisted conception, in that the only social criteria they are expected to meet are those laid down by the Human Fertilisation and Embryology Act (1990). The Act states that a woman "shall not be provided with treatment services unless account has been taken of the welfare of any child born as a result of the treatments (including the need of that child for a father)". This places providers of assisted conception services under an obligation to consider the prospective parents in terms of the child's future well-being. However, the HFEA Code of Practice, when discussing the balancing of the wishes of those seeking treatment with the needs of any child involved, asserts that "neither consideration is paramount above the other".

Unlike adoption where the child's needs are of primary importance, fertility clinics must give equal weight to the prospective parents' wishes.

Regarding the collection of information relevant to the future 'welfare of the child', the Code of Practice suggests that this should be done by taking medical and family histories, and seeing the couple together and separately. Counselling should be available but is not mandatory. The clinic is also required to contact the couple's GP to check if there is any reason why they should not be offered treatment. If the result of any of these inquiries causes concern, the clinic should approach the relevant authority or agency, such as the police or social services, for further information. However, an approach can only be made with the consent of the couple. In effect, the psychological components of the selection process are relatively superficial, and it seems that only couples who are at risk of actually harming the child will be refused on social reasons (this applies only to heterosexual couples, and not to single women or lesbian couples for whom selection may be more complicated). Those couples who are medically unfit or for whom successful conception is doubtful are more likely to be refused, especially given the need of clinics to increase their 'take-home' baby rate.

Thus, compared with adoption, the selection of embryo donation parents is far less involved: "Selection for adoption is concerned with whether an applicant will be a fit parent and every effort is made to discover this, for medically assisted reproduction the effort is fairly minimal and is designed to exclude only those who might seem grossly unfit" (Campion, 1995). The fundamental principle in adoption is that the child is the client, whereas in embryo donation the client is the would-be parent and the child is a product of a service created to meet the needs of these clients.

COMPARISONS OF EMBRYO DONATION AND ADOPTION: UNDERLYING SIMILARITIES AND DIFFERENCES

Treatment with donated embryos is clearly viewed by both the legal system and the social authorities as a very different process from the adoption of a child. The extensive psychological assessment and counselling required of adoptive parents is not applied to embryo donation parents, nor is there a complex legal procedure to undergo. The question of how and why these disparities arise must be addressed. In order to do this, similarities and differences between embryo donation and adoption will be examined, alongside the experiences of parents and children involved in these two processes.

Genetic relationships

Embryo donation and adoption are undeniably similar in the genetic structure of the resulting family; the child is reared by two parents with whom they lack a genetic relationship and, in both cases, the child has genetic parents elsewhere. However, for the most part, embryo donation programmes differ greatly from adoption arrangements in the attitude towards these genetic parents. As mentioned in Chapter 2, there has been a move over the last decade or so towards encouraging openness in adoption. In the UK, particularly if the birth parents are voluntarily relinquishing the child for adoption, meetings will often be arranged between the birth parents and the prospective adopters prior to the placement of the child. Social services encourage adoptive parents to maintain contact post-adoption with the birth parents, although this is generally done through letter contact via the adoption service, rather than through direct contact or meetings between birth parents and adoptive parents. In some states in the US, the involvement of birth parents in the adoption process has been taken further, with the establishment of 'directed adoption', where the birth parents (usually the mother) choose with which family their child will be placed.

In contrast, the majority of embryo donation programmes run by fertility clinics have involved anonymous donors with no contact between donors and recipients. The recent announcement by the UK Government that, from 2005 children born through gamete or embryo donation will be allowed access to the identity of the donors when they reach 18, will not affect this structure since recipients themselves will not receive identifying information about the donors prior to their children requesting it. Thus, despite the similarity between embryo donation and adoption in terms of the lack of genetic links between parents and children, in adoption these genetic relationships are considered highly important whilst in embryo donation, they are considered much less so. The significance of the role of the genetic parents in embryo donation has not been emphasised to the same extent as adoption has acknowledged the role of the birth parents. Therefore, embryo donation parents do not have the added complication of the involvement in the child's life of a second set of 'parents'.

However, one organisation in the US takes a very different view of the transfer of embryos from one couple to another. 'Snowflakes' styles itself as an 'embryo adoption' service and is actually run by an adoption agency. Here, recipients are screened through the same processes as in post-natal adoption, including home studies, criminal checks and counselling. Contact is encouraged between donor and recipient families both prior to and following the 'adoption', with donors allowed to set criteria for the 'adopting' couple. The Snowflakes programme has created controversy due to the strong pro-life principles backing it, which have been described as a "religious mission to save embryos from destruction or medical experimentation" (The Observer, 2003), and there is a fear from the women's rights movement that the programme's assertion that life begins at conception will be used by the anti-abortion lobby to extend legal human rights to all embryos (Daily Telegraph, 2003). Despite this, the Bush

Administration has backed the programme with a $1 million federal fund, and there are calls from some quarters for similar services to be available in Britain (The Observer, 2003).

A further question is how the genetic parents themselves, either the embryo donors or the birth parents, view the process. It is well documented that birth parents suffer negative and long-lasting effects, such as grief and depression, as a result of relinquishing their child (e.g. Hughes & Logan, 1993; Winkler & van Keppel, 1984). It is believed that the option of open adoption can ameliorate these consequences for the birth parents (Baran & Pannor, 1993b; Chapman, Dorner, Silber, & Winterberg, 1986). One study found that the majority of birth mothers were not in favour of continued contact with the adoptive family but that they were very interested in having periodic updates on the child's progress so as to reassure themselves as to the child's welfare (Hughes & Logan, 1993). How do these views compare to those of embryo donors?

Those donors who approach the Snowflakes programme seem to consider their embryos as potential children, with one donor describing the prospect of maintaining contact with the recipients once the child is born as "an exciting, extended family" (New York Times, 2001). A study by Newton et al. (2003) that assessed attitudes of infertile couples towards the process of embryo donation seemed to support this position. They found that those couples who expressed a willingness to seriously consider donating their embryos held "views more congruent with a model of 'embryo adoption' than with a model of traditional medical donation" (Newton, McDermid, Tekpety, & Tummon, 2003). These potential donors were more comfortable with providing information about themselves to the recipients and more receptive to the idea of future contact from the child than were couples who were less sure about donating their embryos. However, it is important to remember that these were only potential

donors and this position is not necessarily shared by the majority of those who actually donate embryos for use by infertile couples. A Finnish study evaluated the attitudes of 46 couples who had donated their embryos and found that only 35% of them were willing to register identifying information for the child to access in the future (Soderstrom-Antilla, Foudila, Ripatti, & Siegberg, 2001). Less than half of the donor couples (47%) felt that the child should be informed about the donor conception. One woman said about the donation "[it] is the same as if I would have donated blood or some organ to another human being". Similarly, a UK study found that 75% of embryo donors did not want to know the outcome of their donation (Marcus, Appleton, Marcus, & Brinsden, 1998). Clearly, at least for a large proportion of donors, the process is not akin to adoption.

One important consideration is that of how much influence genetic links have on the experience of parenthood. From an evolutionary psychology perspective, it has been argued that one of the paramount reasons why parents invest so much time and effort in their children is because "children are a parent's most direct route to genetic immortality" (Bjorklund, Younger, & Pellegrini, 2002). Thus, it might be expected that non-genetic parents would be less invested in their children and therefore show lower quality of parenting. For prospective adopters, one of the first challenges to accomplish is the letting go of the idea of themselves as achieving this 'genetic immortality'. Failure to confront the reality that biological parenthood will not be possible, or an inability to come to some sort of resolution regarding their infertility, increases the risk of encountering later difficulties in the adoptive parent-child relationships (Brodzinsky, 1997). Prospective embryo donation parents also have to accept the loss of the prospect of their own genetic child before they consider conceiving a child using donated embryos. However, research suggests that, when adopted children are placed early,

there is no difference in the security of mother-infant attachment between adoptive and non-adoptive families (Singer et al., 1985). In addition, comparisons between natural conception parents and genetically unrelated parents who have conceived through the use of donor gametes do not confirm the notion of less investment in a non-genetic child. As discussed previously, donor insemination and egg donation families show no evidence of dysfunctional family relationships. In fact, genetically unrelated parents appear to show high-quality parenting, with no negative consequences for children (e.g., Golombok et al., 1999). For these families certainly, it seems there is far more to parenting than a genetic connection. Therefore, with respect to quality of parenting, it could be argued that embryo donation families and adoption families will be similar to each other and to other assisted reproduction families.

Gestational relationship

The most obvious difference between embryo donation and adoption is that in embryo donation there is a biological link to one parent, through gestation. The parents experience the pregnancy and the birth, allowing them to bond to the child pre-natally, as well as the opportunity to regulate the pre-natal environment. It is argued that the gestational mother has made the greatest contribution of work to the child, sometimes referred to as "sweat equity" (Annas, 1988). The gestational relationship leads to differences between embryo donation and adoption for several reasons: legal, psychological, social and practical (Widdows & MacCallum, 2002).

Firstly, from a legal standpoint, as already discussed, the difference between the status of embryo donation parents and adoptive parents is clear. In UK law, whether assisted reproduction is involved or not, the woman who gives birth to the child is the legal mother and, if she is married, her husband is the legal father, regardless of genetic relationships. In adoption, parental rights and responsibilities have to be legally

transferred from the birth parents to the adoptive parents following birth. This does not happen immediately on placement of the child with the adoptive parents, and may in fact take several months, or longer if the birth parents contest the adoption. Therefore, until the adoption is finalised, the adoptive parents are in the precarious position of caring for a child who is not yet legally theirs, and some adopters may not feel 'fully parental' until this legal process is complete (Sandelowski, 1995).

Having a gestational link allows the woman to consider the child as 'hers' psychologically as well as legally from the outset. Some view the gestational link as equally important to the genetic link, if not more so. Research by Mahowald found that "for some, the inability to gestate and give birth represents a greater loss than the inability to have a child whose genetic complement comprises 50% of their own genes" (Mahowald, 2000). The experience of gestation can be seen as conferring on the mother the perception of self as mother. Over the last 20 years, there has been increasing recognition that attachment between mother and infant begins before birth, with the mother forming a relationship to the foetus (Laxton-Kane & Slade, 2002). This prenatal attachment is important in that it has been shown to be associated with the postnatal attachment styles of infants (Muller, 1996), and attachment in early infancy is a significant factor in the healthy psychological development of children (e.g., Erickson et al., 1985). Therefore, as Eisenberg and Schenker (1998) point out, from a psychological perspective, in addition to the benefits to the mother, "unlike adoption, the child born through pre-embryo donation also benefits from the additional bond of being gestated in its future mother's womb, with the support of its future father" (Eisenberg & Schenker, 1998).

Socially, the fact that embryo donation parents go through pregnancy and birth allow them to present the pregnancy to the outside world as a "natural" conception if

they so desire. Unless the couple chooses to tell family and friends of their assisted conception, no one will know. This contrasts with adoption, where the couple must explain the arrival of a child who will already be a few months old. The gestational relationship also allows the parents to keep the non-genetic relationship secret from the child. Adoptive parents as a rule disclose to the child the circumstances of their birth from a young age, for example, by keeping "life-story books" containing photos and information about the adoption. In contrast, parents who have conceived using donor gametes have tended not to disclose the donor conception to the child, although there are signs that attitudes may be changing (Golombok, Lycett et al., 2004). It is not yet known whether embryo donation parents will tend towards the adoption model of full disclosure, or will be more similar to other assisted reproduction families in keeping the method of conception relatively private. Soderstrom-Antilla et al. (2001) found that 69% of couples who had been treated with donor embryos in their programme thought that a child conceived in this way should be informed about the manner of his/her conception. However, only 11 of these couples (41%) had actually had a child at the time of study, and less than half of these (46%) had definitely decided to inform the child. It could be argued that disclosure is more necessary in adoption since it may affect psychological issues that arise with respect to children as they develop. For example, the child may have already formed a relationship with the genetic parent prior to the adoption. Adopted children may need to know the circumstances of the adoption in order to feel that they have a complete 'life story'. Indeed, a study by Howe and Feast (2000) of adopted adults who were trying to trace their birth families found that, for the majority of adoptees, the psychological need for more autobiographical information was the major motivating factor for the search. The concept of 'genealogical bewilderment' has been widely used to support the disclosure of adoption to children (for further

discussion, see Chapter 2). Sants describes a 'genealogically bewildered' child as "one who either has no knowledge of his natural parents or only uncertain knowledge of them" (Sants, 1964). If we apply this to children born through embryo donation, the question remains of who are the 'natural' parents? Here, the gestational link and the genetic link are in conflict and the relative importance of each must be assessed. Although embryo donation children have a gestational link to their rearing parents, and therefore do not have the same gap in their life stories, information about their genetic parentage may also be important for their sense of identity.

A further consideration is that, due to the gestation process, embryo donation parents do not have the same practical obstacles to overcome as do adoptive parents. The first of these practical issues is that adoptive parents must meet not only selection criteria that mark them as fit to parent a child in general, but also selection criteria specific to an individual child. The already existing child has an individual personality, a specific history and particular needs arising from that history. Adoption services must select from all prospective adopters the couple who is most suitable for all these aspects, making it "not just a matter of finding people who would be fit to look after children, but fit to look after the particular children available" (Campion, 1995). Thus, the child's needs and not the parents' wishes are paramount in selection of adoptive parents. As discussed above, in embryo donation, the only stipulation is that the future welfare of a potential child must be taken in account. Importantly from a practical viewpoint, unlike in adoption, at the point of parent selection the embryo donation child has no specific needs to be met.

The second practical issue that must be overcome in adoption is that of the child's separation from and relinquishment by the birth parents. The assumption is that adopted children have a 'significant wound' to resolve (The Independent, 1999a), and

that in order to achieve this resolution, they must receive the best possible parenting. Thus, "adoptive parents need to be not just ordinary parents but extra-ordinary parents – with an emphasis on the 'extra'" (Campion, 1995). In terms of the children themselves, distinctions have been drawn between the psychological experiences of adoptees and those of the offspring of donor conception on the basis of the initial parental rejection in adoption. Therefore, for children born through donor conception, "the fact that a child has always been a wanted child may constitute a very important difference" (Golombok et al., 1995). This may be true for children born using either donated sperm or donated eggs who still have a genetic link to one parent, but embryo donation children have the additional considerations that both their genetic parents are unknown to them and that they may have full genetic siblings born to the donor couple. It is possible that these factors may make embryo donation children, more than other assisted reproduction children, feel that they have been 'given up' by their 'parents'. This has led to some arguing that there is a parallel in embryo donation to the 'history of rejection' in adoption. For example, Bernstein and colleagues proposed that embryo donation children "may see themselves as 'spare' or 'surplus' goods and may indeed have the same need for information – for access to their story – as other adoptees" (Bernstein et al., 1996). This conclusion seems extreme in that donating an embryo does not equate to placing a child for adoption, but it does highlight the fact that embryo donation children may be more similar to adoptive children in this aspect than are other assisted reproduction children.

Intention to parent

For some, parenthood is determined primarily not by genetics or gestational links, but by intent. For example, in the situation of surrogacy, one woman carries and gives birth to a child whom she has previously agreed to relinquish to another couple who will then

become the child's parents. The fact that makes it possible for the commissioning couple to be considered the 'real' parents, even when the surrogate mother is the genetic as well as the gestational mother, is their intent. The parents' intent is causal: it caused the child to come into being and without it there would not have been a pregnancy. Such reasoning has been used in judgements of cases where the surrogate has changed her mind following the birth and wishes to retain custody of the child. In Johnson v. Calvert (1993), where a surrogate mother was in dispute with the commissioning couple (who were the genetic parents of the child), the court ruled that the commissioning couple were to be the legal parents, based on their intent to parent. Although legally in the UK, the birth mother is always initially the legal parent, the notion of intentionality is a factor in issues surrounding assisted reproduction techniques. Thus, in gamete donation, it is considered that the intent of gamete donors is to provide their gametes for the use of others to become parents, and therefore the donors are not legally or morally responsible for the upbringing of their genetic offspring. In these terms, embryo donation is closer to assisted reproduction than to adoption; the child born through embryo donation is created through the wishes and intent of the prospective parents and would not exist without this intent, whereas the adoptive child exists regardless of the intent of the adoptive parents. Although would-be adoptive parents, like couples undergoing assisted conception treatments, are acting on their desire to parent, in adoption this desire does not cause the child to come into being.

The status of the embryo

To some extent, the likening of embryo donation to adoption depends on whether an embryo is viewed as having the status of 'person' or 'property'. Those who maintain that life begins at fertilisation, such as the Catholic Church, believe that the embryo should be regarded as a human being, stating that "the human being is to be respected

and treated as a person from the moment of conception" (Rutzinger & Bovone, 1987). From this perspective, embryo donation is the same as adoption since both involve the integration of a human being into a new family, and should thus be treated in the same way. On the other hand, there is the opposite point of view that embryos are like property and therefore, those who 'own' them are free to make decisions affecting them. Therefore, embryo donation involves transfer of property and does not resemble adoption.

There has often been reluctance to categorically define embryos legally, with policy makers generally opting for a position in the middle, treating embryos as somewhere between person and property. For example, the Warnock Report declared that "the human embryo...is not, under the present law in the UK, accorded the same status as a living child or and adult", but did grant the embryo 'special status' due to its potential to become a human being (Warnock, 1984). The American Fertility Society similarly concluded that an embryo cannot be regarded as a person but that it is different from other human tissue (American Fertility Society, 1990). The consensus among those involved in assisted reproduction seems to be that practitioners have to be seen as 'showing respect' for the embryo (ESHRE Task Force on Ethics and Law, 2001) but not the same level of respect as is shown to actual persons. From this perspective then, embryo donation differs from adoption, but also may need more consideration than other forms of assisted conception.

History of adoption vs. history of embryo donation

Embryo donation and adoption differ in the reasons for their origin and in how the nature of the procedures has been perceived. Throughout human history, adoption has been used as a means of creating families. It evolved as a social practice with two functions; firstly, to provide families for abandoned and orphaned children and

secondly, to provide heirs for childless couples. Over time, the process has become regulated by law and formal selection criteria have been set for adoptive parents, most of which are social or psychological. By contrast, embryo donation is a relatively new procedure having only been possible for the last 20 years. It arose through a combination of the technologies of other assisted reproductive techniques, namely IVF and gamete donation. Thus, embryo donation can be seen as driven by the technological imperative – the assumption that scientific progress is good in itself and should be pursued (Widdows & MacCallum, 2002). As the technology required to perform embryo donation has become available it has been implemented. Embryo donation is therefore viewed as one medical procedure among others that can be attempted when 'treating' infertility (like gamete donation, embryo donation does not 'treat' infertility in that it does not cure the cause of the problem, but rather allows childless couples to become parents). From this perspective, embryo donation is a medical solution to a medical problem whereas adoption is a social response to a social problem. This difference may affect how embryo donation parents and adoptive parents respectively view the method of the creation of their family.

CONCLUSIONS

There are a number of similarities and differences between the processes of embryo donation and adoption. The key similarity is that, in both cases, there is no genetic relationship between the parents and the child. The main differences are the gestational link which exists in embryo donation but not in adoption, the intentionality of the parents which is considered causal in embryo donation but not in adoption, the status of the embryo compared to that of an existing child, and the differing histories of the way in which embryo donation and adoption have evolved. The question is what impact, if

any, these differences will have on the experiences of the families created, in terms of the quality of parenting and the child's psychological development.

The most compelling distinction between embryo donation and adoption is the gestational link, which gives rise to legal, psychological, social and practical differences. Of these, the legal difference could be important initially for adoptive parents' experience but may not continue to have an effect once the adoption is legalised. From this point on, parental responsibility is equal to that of embryo donation parents. On the other hand, this initial uncertainty prior to the finalisation of the adoption could result in adoptive parents feeling less secure in the parenting role. From a psychological perspective, carrying the child could have the effect of creating more secure attachments in embryo donation families than in adoptive families. However, gestation does not in itself guarantee bonding between mother and child with some 'natural' conception mothers failing to bond immediately with their child. Although gestation may give embryo donation parents an initial psychological advantage, there is no evidence that adoptive parents cannot bond with their children, or that this will have any long-term effect on the parent-child relationship. Socially, the fact that the embryo donation parents are able to present as a 'normal family' is likely to have an impact on their experience of parenthood. Unlike adoptive parents, embryo donation parents can choose not to disclose the circumstances of the child's birth. Whether this can be seen as beneficial for either the parents or the child depends on how one views the idea that the ability to keep the child's genetic origins secret is desirable; an assumption that has been the subject of considerable debate. More compelling are the practical differences that arise as a result of gestation; it is undeniable that the specific needs of the adopted child, and the 'rejection' experienced by adoptees, are likely to have long-lasting effects on the experience of adoptive families, particularly in terms of

the child's social and emotional development. Adoptive parents need to provide support for the child to resolve these issues. It is not yet known to what extent embryo donation children will also feel some sense of 'rejection' and will have to resolve their own sense of having been relinquished by their genetic parents.

Considering the intentionality of parents in adoption and embryo donation, the argument is that in embryo donation, the parents' intent is causal whereas it is not in adoption. However, the intentionality of adoptive parents can be considered 'causal' in that it causes them to become parents. The underlying intention of parents in both cases is the same but the methods of fulfilling this intention differ. Since both achieve their goal, one would not necessarily expect this to cause any differences in their experiences.

The status of the embryo influences how differently embryo donation is treated from adoption by the legal and medical professions, since if an embryo does not have the status of a person, the process cannot be synonymous with adoption. Similarly, the history of the two processes accounts for differences in approach to embryo donation and adoption, since adoption arose as a social phenomenon and embryo donation as a medical procedure. These two factors may affect parents' perceptions of the method of family creations, however, there seems to be little reason why either of these two factors would have much impact on the quality of parenting or the well-being of the child.

Overall therefore, the most important difference for the experience of embryo donation families as compared to adoptive families, seems to be the presence of the gestational link in embryo donation. Do embryo donation parents bond more strongly to their children due to the experience of pregnancy? Are embryo donation parents, like other gamete donation parents, inclined to keep the method of family creation secret or will they behave more like adoptive parents in being open? Do embryo donation children have a 'history of rejection' to resolve despite the gestational link? As yet, no

studies have been published examining exactly how the experience and feelings of embryo donation parents compare to those of adoptive parents, or of whether these two processes differentially influence the psychological development of the children themselves.

THE CURRENT STUDY

The main aim of the current study was to assess the quality of parenting, and the psychological development of children, in families with a child conceived by embryo donation. To this end, systematic data were obtained from a sample of embryo donation parents using standardised interviews and questionnaires. In order to investigate the extent to which the experience of conceiving a child using donated embryos is akin to the experience of adoption, a comparison group of families with a child adopted in infancy was recruited. These families are similar to the embryo donation families in that there is no genetic relationship between the parents and the children, but differ in that the parents have not been through the experience of pregnancy and childbirth. Thus, this comparison has implications for understanding the effects of prenatal bonding on parenting. A second comparison group of families with a child conceived through IVF, using the parents' own gametes, was included. These families differ from the embryo donation families in that the child is genetically related to both parents, so this comparison has implications for understanding the importance of genetic relationships in families. IVF families were chosen as the comparison group, rather than families with naturally conceived children, to control for the experience of infertility and the use of high-tech assisted reproductive procedures.

In terms of the quality of parenting, aspects considered significant for child development, including parental warmth, sensitive responding, and parental control

were assessed. Parents' levels of emotional over-involvement and mothers' perceptions of their child's vulnerability were also ascertained, since there is some evidence that both adoptive and assisted reproduction parents show increased tendencies towards over-involved parenting (see Chapters 2 & 3).

The first hypothesis was that the experience of pregnancy and childbirth, including the opportunity for the formation of prenatal attachments, would result in more positive parenting in the embryo donation families as compared to the adoptive families. It was also hypothesised that, due to the embryo donation parents' experience of assisted reproduction and pregnancy, these parents would show an increased degree of emotional over-involvement and perceived child vulnerability compared to the adoptive parents. Furthermore, it was predicted that the higher quality of parenting in embryo donation families, combined with the fact that embryo donation children do not experience the stress of separation from their birth parents, would lead to more positive outcomes for embryo donation children than for adopted children, although this may be tempered by the effects of higher emotional over-involvement.

In relation to the IVF families, it was hypothesised that the absence of a genetic link between the parents and the child would affect the quality of parenting in embryo donation families, such that embryo donation families would demonstrate less positive parenting than IVF families. Although previous research on donor insemination and egg donation families has not found evidence of lower quality of parenting, in these situations there remains a genetic link to one parent, whereas embryo donation parents are both genetically unrelated to the child. Since the absence of genetic relationships may cause embryo donation parents to be less invested in their child than IVF parents, it was also predicted that embryo donation parents would exhibit lower levels of emotional over-involvement and perceived child vulnerability than IVF parents. The

lack of genetic relationships was expected to result in more negative outcomes for embryo donation children as compared to IVF children to the extent that the embryo donation children experienced a lower quality of parenting.

Parental marital state and levels of parental depression and anxiety were also assessed, since these factors have been shown to influence child development (see Chapter 1). The evidence available suggests that adoptive and assisted reproduction parents do not show an increased incidence of marital or psychological problems (see Chapters 2 and 3). However, embryo donation is potentially a more emotionally difficult process than either adoption or IVF. Although both embryo donation parents and adoptive parents are faced with the task of forming relationships with a non-genetic child, the experience of high-tech reproductive treatment in embryo donation may be particularly stressful. Likewise, although both embryo donation and IVF parents have experienced the stress of infertility treatment, embryo donation parents additionally lack a genetic relationship with the child. Therefore, it might be expected that embryo donation parents would show decreased levels of marital satisfaction and psychological adjustment as compared to both the adoptive parents and the IVF parents.

The hypotheses relating to parenting and child development can be summarised thus:

Parent-child relationships

1. Embryo donation parents will exhibit higher quality parenting than adoptive parents.
2. Embryo donation parents will exhibit lower quality parenting than IVF parents.
3. Embryo donation parents will be more emotionally over-involved with their child and perceive their child as more vulnerable than adoptive parents.

4. Embryo donation parents will be less emotionally over-involved with their child and perceive their child as less vulnerable than IVF parents

Child development

5. Embryo donation children will show more positive outcomes than adopted children.
6. Embryo donation children will show more negative outcomes than IVF children.

Parental marital and psychological state

7. Embryo donation parents will show lower levels of marital satisfaction and psychological adjustment than adoptive parents.
8. Embryo donation parents will show lower levels of marital satisfaction and psychological adjustment than IVF parents.

Other aspects of parents' experience of and feelings about the process of infertility treatment or adoption were also examined. It was assumed that the role of the genetic parents would be more salient for adoptive parents than for embryo donation parents (see Chapter 4). Therefore, it was predicted that the embryo donation parents would report less thinking about and talking about the donors than the adoptive parents would report thinking about and talking about the birth parents. Adoptive parents tend to be open with their child about the circumstances of their birth whereas families created through the use of donated gametes tend to keep the method of conception secret. Disclosure of the method of family creation to children and to others was compared between family types to examine whether embryo donation parents are more like other donor conception families or more like adoptive parents in relation to openness about the child's genetic origins. Since openness has been associated with

more positive outcomes for family relationships, one might expect greater difficulties for embryo donation families if they keep the child's genetic origins secret. As this is the first study of families created as a result of embryo donation, parents' experiences and feelings regarding these issues were explored using a more qualitative approach.

CHAPTER 5

MATERIALS AND METHODS

PARTICIPANTS

Embryo donation families

Twenty-one families with a child conceived through the use of donated embryos were recruited through three fertility clinics in the United Kingdom. In order to maintain confidentiality, parents were approached in the first instance by a letter from the clinic Director and details were passed on to the researcher only if the parents agreed. An example of the recruitment letter can be seen in Appendix 1. All parents with an embryo donation child aged between 2 and 5 years inclusive at each of the participating clinics were asked to take part. Although the majority of the families who agreed to participate had children born from singleton births, six families had twins. Children born at less than 30 weeks gestation were excluded, as were those with severe congenital abnormalities. The response rate for these families was 72% of those who responded to the request, or 57% including those families who did not reply/could not be traced.

Adoptive families

The comparison group of adoptive families was obtained through three local authority adoption services in the United Kingdom. The criteria for inclusion were that the child had been placed with the adoptive family at or below the age of 12 months, and that the child was currently aged between 2 and 5 years inclusive. Forty-one parents were contacted by a letter from the adoption agency and 28 agreed to take part in the study, representing a response rate of 70%. In all of the families recruited the target child was a singleton, although some had been adopted as part of a sibling group.

IVF families

The second comparison group of thirty families with a child conceived through IVF was obtained through one fertility clinic in the United Kingdom. Inclusion criteria were that the child had been conceived using the parents' own gametes and that the child was currently aged between 2 and 5 years inclusive. As with the embryo donation families, parents were first approached by a letter from the clinic Director, and families with children born at less than 30 weeks gestation or born with severe abnormalities were excluded. Of the first 35 letters sent out, 30 families agreed to take part and 5 refused, giving a response rate of 86%. Since the target size of the group was 30, recruitment was then stopped. Nine of the participating families had twins and the remainder had singleton children.

DEMOGRAPHIC CHARACTERISTICS

Demographic variables rated on interval scales were compared using one way ANOVAs and categorical demographic variables were compared using χ^2 analyses (see Table 1 below for details). There were similar proportions of boys and girls in each group, with an overall distribution of 50.6% of girls to 49.4% of boys. The age of the target child did not differ significantly between groups, and the mean age of child was 42 months (3 ½ years). There was a significant group difference in the age of the mothers, $F(2, 76) = 9.09, p < .001$. The embryo donation mothers were significantly older than the IVF mothers, with mean ages of 43 years and 37 years, respectively. The mean age of the adoptive mothers was midway between that of the other two family types, at 40 years. There was no group difference for the age of the fathers (mean age = 41 years).

Table 1: Demographic Characteristics of Participants by Family Type

	Embryo donation		Adoptive		IVF			
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	***F***	***p***
Age of child (months)	42.38	9.59	44.11	10.50	39.77	11.53	1.21	n.s.
Age of mother (years)	42.86	6.11	39.75	5.09	36.80	4.00	9.09	<.001
Age of father (years)	43.25	6.64	40.68	5.28	40.15	6.75	1.58	n.s.
Number of siblings	.62	.67	.79	.83	.73	.64	.33	n.s.
	N	**%**	**N**	**%**	**N**	**%**	χ^2	***p***
Sex of child							2.46	n.s.
Number of boys	13	61.9	11	39.3	15	50.0		
Number of girls	8	38.1	17	60.7	15	50.0		
Marital status							3.02	n.s.
Parents still married/cohabiting	20	95.2	28	100.0	27	90.0		
Parents separated/divorced	1	4.8	0	0.0	3	10.0		
Location							2.52	n.s.
Families living in urban areas	15	71.4	22	78.6	15	50.0		
Families living in rural areas	6	28.6	6	21.4	15	50.0		
Birth order							6.75	n.s.
Target child is 1st born	16	76.2	15	53.6	22	73.3		
Target child is 2nd born	4	19.0	9	32.1	8	26.7		
Target child is 3rd born	1	4.8	4	14.3	0	0.0		
Employment status							.26	n.s.
Mothers working (full or part-time)	12	57.1	15	53.6	15	50		
Mothers not working	9	42.9	13	46.4	15	50.0		
Social class							18.76	<.01
Professional occupation	1	4.8	10	35.7	2	6.7		
Managerial/technical occupation	14	66.7	17	60.7	23	76.7		
Skilled non-manual occupations	4	19.0	1	3.6	5	16.7		
Skilled manual occupation	2	9.5	0	0.0	0	0.0		

No differences were found between the groups for marital status or for geographical location, i.e., whether the families lived in urban or rural areas. Neither

were there differences in the size of the family or the birth order of the child, with 67% of target children being the mother's first-born. The proportion of mothers who had returned to work since the birth or adoption of the child was similar across the family types. In total, 10% of mothers had returned to full-time employment, 43% of mothers were working part-time, and the remaining 47% of mothers were not working. Of those mothers who were working either full-time or part-time, 42% stated 'financial reasons' as their motivations for returning to employment, and 27% had returned because they wished to further their career. Reasons for rejoining the workforce did not differ between groups. Social class of the families was measured by the highest-ranking occupation of either parent, using a modified version of the Registrar General's classification (OPCS and Employment Department Group, 1991), ranging from 1 (professional) to 6 (unskilled). A significant difference between groups was found for social class, $\chi^2(6, N = 79) = 18{,}76, p < .01$, which was due to the adoptive parents receiving higher rankings than the other two family types. Thirty-six per cent of adoptive parents were in professional occupations, compared to 7% of IVF parents and 5% of embryo donation parents. The demographic variables that differed significantly between groups (mother's age and social class) were entered into all further analyses as covariates.

PROCEDURE

A research psychologist who was highly trained in the study techniques (FM) visited the families at home. Data were collected from the mother and father separately by tape-recorded interview and by questionnaire. In most cases, two visits were made to each family, the first to interview the mother (a visit that lasted 1 to 2 hours) and the second to interview the father (a visit that lasted 45 to 60 minutes). A copy of the interview

used with embryo donation mothers is included in Appendix 2, with interviews for adoptive and IVF mothers, and for fathers, being adaptations of this schedule. Interviews were conducted with 100% of mothers and 75 % of fathers. Fewer fathers than mothers were available for interview due to work commitments. Questionnaire data were obtained from 86% of mothers and 75% of fathers. The questionnaires administered to mothers are included in Appendix 3. There were no significant differences between the groups in the proportions of fathers who took part, or in the proportions of mothers or fathers who completed questionnaires.

MEASURES

Parents' marital and psychological state

Marital relationship

The quality of the marital relationship was assessed both by interview and by questionnaire.

Interview measure. The interview with mothers and fathers included an assessment of marriage, based on a standardized procedure for which predictive validity with marital breakdown has been demonstrated (Quinton & Rutter, 1988; Quinton, Rutter, & Rowlands, 1976). Each variable was rated according to a detailed coding manual. The following ratings were obtained: (1) *mutual enjoyment* was rated on a 4-point scale from 1 (a great deal) to 4 (none) and represents the enjoyment expressed by both partners in shared activities and interests; (2) *confiding* was rated on a 5-point scale from 1 (all important matters discussed adequately) to 5 (no communication about matters of importance) and assessed the level of discussion between the couple about important issues; (3) *arguments* was rated on a 4-point scale from 0 (none or occasional) to 3 (more than 1 per month) and measured the frequency of serious disputes, i.e. arguments involving shouting and/or violence, and/or denigration of each other or each other's

families, and/or not speaking to each other for more than one hour following a dispute; and (4) *marital level* was rated on a 6-point scale from 1 (marriage/cohabitation positive source of support and enjoyment) to 6 (history dominated by discord/breakdown, or failure to establish relationships). This was an overall rating of the quality of the relationship assessed from the couple's reported behaviours, feelings and attitudes, taking into account aspects such as expressed affection and concern, shared leisure time, frequency and severity of quarrelling, and the presence or absence of overt tension in the relationship. Pearson product-moment inter-rater reliability coefficients were calculated for these variables using data from a study running concurrently involving the same interview and the same researcher (Golombok, Murray, Jadva, MacCallum, & Lycett, 2004). The coefficients for mutual enjoyment, confiding, arguments and marital level were .58, .64, .73 and .58, respectively.

Questionnaire measure. The Golombok Rust Inventory of Marital State (GRIMS: Rust, Bennum, Crowe, & Golombok, 1988; Rust, Bennun, & Golombok, 1990) was completed by both parents. The GRIMS is a 28-item self-report measure of the quality of the marital relationship, and includes items such as "I wish there was more warmth and affection between us" to which respondents indicate their level of agreement (rated on a 4-point Likert scale from "Strongly disagree" to "Strongly agree"). Some items are reverse scored to control for acquiescence effects. Items are then totalled to produce an overall score of marital satisfaction, with low scores representing a high level of satisfaction and high scores representing a high level of dissatisfaction with the marriage. A score of around 30 represents an average relationship, whereas scores above 40 represent relationships with severe problems. The GRIMS has split-half reliability of .91 for men and .87 for women, and has been shown to discriminate well between couples who are about to separate and those who are not.

Depression

The depression level of both parents was evaluated using the self-report Edinburgh Depression Scale (EDS). The EDS was originally developed to assess levels of post-natal depression in mothers (Cox, Holden, & Sagovsky, 1987) but has since been validated for use outside the post-delivery period and for use with fathers (Cox, Chapman, Murray, & Jones, 1996; Thorpe, 1993). The 10 items of the EDS assess the common symptoms of depression, e.g. "I have been so unhappy that I have had difficulty sleeping". Each item is scored on a 4-point scale from 0 to 3 with some items being reverse scored. The total score is obtained from summing all the items, thus giving a value ranging from 0-30. Using a cut-off score of 13 points or above to indicate possible clinical depression, the EDS has been found to have satisfactory sensitivity (79%) and specificity (85%), as well as good levels of reliability.

Anxiety

Parents' feelings of anxiety were measured using the Trait Anxiety Scale of the State-Trait Anxiety Inventory (STAI: Spielberger, 1983), completed by both mothers and fathers. The STAI comprises two scales, one assessing 'state anxiety', i.e. the respondent's anxiety level at the current time, and the other assessing 'trait anxiety', i.e. the respondent's usual level of anxiety-proneness. Since the issue of interest was whether the parents feel anxious generally rather than at the specific time of interview, only the trait anxiety scale was administered. Respondents rate how often they experience certain feelings, represented by the 20 items (e.g. "I feel nervous and restless"), on a 4-point Likert scale from "Almost never" to "Almost always". Reverse scorings are applied to some items, and item scores are then totalled to generate an overall score. A higher overall score indicates a higher level of trait anxiety. Reliability

for the STAI is good, with high internal consistency (coefficient alpha, .90) and it has been shown to discriminate significantly between clinical and non-clinical populations.

Mother's social support

One section of the mother's interview probed for the extent to which the mother felt she had emotional support available from family members, including in-laws, and from friends (Quinton & Rutter, 1988). Ratings were made of the following variables: (1) *emotional support from mother's family*; (2) *emotional support from father's family*; and (3) *emotional support from friends.* All three variables were rated on a three-point scale from 0 (cannot discuss problems) to 2 (discuss all problems), and assessed the extent to which the mother felt able to discuss or ask for advice with problems relating to the child. Pearson product-moment correlation coefficients for these variables derived from the concurrent study were .97, .95 and .91 (Golombok, Murray et al., 2004).

Quality of parenting

Interview measures

The mothers were interviewed using an adaptation of a standardized interview, developed by Quinton and Rutter (1988), which was designed to assess quality of parenting. Detailed accounts were obtained of the child's behaviour and the mother's response to it, with reference to the mother's activities with the child, the child's bedtime routine and the mother's handling of conflicts with the child. Particular attention was paid to parent-child interactions relating to issues of parental warmth and control. In this way, a detailed picture of parenting behaviour was obtained. The interview procedure has been validated against observational ratings of mother-child relationships in the home, and has demonstrated a high level of agreement between global ratings of the quality of parenting by interviewers and observers (Quinton and Rutter, 1988), concurrent validity, $r = .63$.

The following ratings of parenting quality were made according to strict coding criteria, taking into account all the information obtained from the entire interview: (1) *expressed warmth* was rated on a 6-point scale from 0 (none) to 5 (high). Aspects of warmth considered for this variable included the mother's tone of voice, facial expressions and gestures when speaking about the child, spontaneous expressions of warmth, sympathy and concern about the child's difficulties (if applicable), and interest shown in the child as a person; (2) *emotional over-involvement* was measured on a 4-point scale from 0 (little or none) to 3 (enmeshed) and took account of the extent to which family life and the mother's emotional functioning appeared to be centred around the child, the extent to which the mother had interests or activities that were not related to the child, and the extent to which the mother appeared to be over-concerned or over-protective towards the child; (3) *defensive responding* was rated on a 5-point scale from 0 (not at all defensive) to 4 (extremely defensive). This variable was concerned with the extent to which the mother appeared defensive in her response to questioning about the child or about family life, taking into account her willingness to answer questions and admit to difficulties where they existed; (4) *sensitive responding* was rated on a 5-point scale from 0 (none) to 4 (very sensitive responding) and assessed the mother's ability to recognise and respond appropriately to her child's needs, particularly the child's fears and anxieties; and (5) *mother-child* interaction was rated on a 5-point scale from 0 (very poor) to 4 (very good) and measured the extent to which the mother and child spent time interacting together, enjoyed each other's company, and showed affection to one another. Inter-rater reliability coefficients for these variables, derived as above, were .65, .54, .58, .47 and .69, respectively (Golombok, Murray et al., 2004).

In addition to these global ratings, the following individual variables relating to child control issues were rated from the interview material: (1) *control of bedtime* was

rated on a 5-point scale from 1 (controlled by child) to 5 (parents inflexible) and concerned who finally decides when the child goes to bed, i.e., whether parents are able to enforce bedtimes; (2) *ease of bedtime* was measured on a 5-point scale from 0 (no difficulty) to 4 (major battles) and assessed the amount of difficulty parents have in getting the child to go to bed at the specified time and whether there is parent-child conflict over bedtimes; and (3) *severity of disputes* was rated on a 4-point scale from 0 (no confrontations) to 3 (major battles) and assessed the intensity of conflict during disciplinary interactions with the child.

Fathers were separately administered a shortened form of this interview, which focused on the father's relationship with the child. Ratings of *expressed warmth, emotional over-involvement, defensive responding, father-child interaction,* and *severity of disputes* were made in the same way as for the mother's interview. Pearson product-moment correlation coefficients between raters for paternal expressed warmth, emotional over-involvement, defensive responding, father-child interaction and severity of disputes were .82, .70, .64, .59, and .71 respectively (Golombok, Murray et al., 2004).

Questionnaire measures

Parents were administered the short form of the Parenting Stress Index (PSI/SF: Abidin, 1990), a standardised instrument measuring the level of stress that the parent-child system is under. The PSI/SF contains 36 items, which the parent responds to using a 5-point Likert scale from "Strongly disagree" to "Strongly agree". Three sub-scale scores were obtained: *Parental distress* evaluates feelings of impaired parental competence, stresses due to the restriction on life-style imposed by being a parent, conflict with the child's other parent, lack of social support and feelings of depression; *Parent-child dysfunctional interaction* determines the extent to which the parent feels

that interactions with their child are not reinforcing and that the child does not meet their expectations; and *Difficult child* focuses on the basic behavioural characteristics of children that make them easy or difficult to manage. In addition, a *Defensive Responding* score can be calculated that assesses the extent to which the respondent is completing the questionnaire in a biased way in order to present the most favourable impression of himself or herself and of the parent-child relationship. Test-retest reliability for the PSI/SF subscales over 6 months is .85 for *parental distress,* .68 for *parent-child dysfunctional interaction*, and .78 for *difficult child*, and internal consistency is .91. The short form correlates highly with the full-length PSI (r = .95 for the total stress score), of which it is a direct derivative, and concurrent and predictive validity for the full-length version has been satisfactorily demonstrated.

Maternal perception of their child's vulnerability was measured using the Vulnerable Child Scale (VCS: Perrin, West, & Culley, 1989). This self-administered questionnaire comprises 16 items, assessing the mother's concerns about the child's health and well-being, such as "In general, my child seems less healthy than other children of the same age". Respondents complete the items using a 4-point Likert scale from "Definitely true" to "Definitely false". A total score of vulnerability is obtained by summing all the items, and scores may range from 16 to 64 with lower scores representing a greater sense of vulnerability. Internal consistency of the scale is acceptable, alpha coefficient = .75, and test-retest reliability is high, r = .95. The validity of the scale is supported by the finding that parents of currently sick and/or prematurely born children score as perceiving their child as significantly more vulnerable that do parents of healthy full-term infants.

Father's contribution to parenting

Questions relating to the extent to which the mother perceived the father to be a help or a hindrance in parenting were included in the mother's interview (Quinton & Rutter, 1988). Four ratings were made: (1) *father's help in control* was rated on a 7-point scale from 1 (exacerbates issues) to 7 (takes the major load). This assessed how much the father helped the mother when she was engaged in disciplinary interactions relating to the child; (2) *parental coordination over control* was measured on a 5-point scale from 1 (active uncoordination) to 5 (coordinated action), and assessed the extent to which the mother and father acted in a joint and consistent way with respect to child control issues; (3) *general reliability of father in parenting support* was rated on a 5-point scale from 0 (no support) to 4 (very reliable), and measured whether the father could be called upon and trusted to take some parenting responsibility; and (4) *load taking of father* was rated on a 5-point scale from 0 (none) to 4 (major parenting load) and measured the extent to which the father looked after the child in order to give the mother time to pursue other activities. Pearson product-moment correlation coefficients for these variables derived from a previous study involving the same interview and the same researcher were .65, .54, .69, and .53, respectively (Golombok, MacCallum et al., 2002).

Children's socio-emotional adjustment

The presence of behavioural or emotional problems in the children was assessed using the pre-school version of the Strengths and Difficulties Questionnaire (SDQ: Goodman, 1994, 1997) administered to mothers. This 25-item questionnaire probes for the presence of a range of behavioural problems, presenting statements such as "Often fights with other children or bullies them", which the respondent rates on a 3-point Likert scale from "Not true" to "Certainly true". The measure also includes 5 items

designed to measure the level of child's prosocial behaviour, such as "Kind to younger children". The problem-related items are summed to produce a *total deviance score*, with higher scores representing a higher level of problematic behaviour. In addition, four subscale problem scores of *hyperactivity, conduct problems, emotional difficulties* and *peer problems* are obtained by summing the relevant items. The five prosocial items are totalled to obtain a *prosocial* score, with higher scores representing a higher level of positive behaviour. The SDQ has been shown to have good reliability, with correlations between parent and teacher total deviance scores reported to be .62. Evidence for validity of the SDQ comes from the high correlations between the total deviance score and the total score of the Rutter Parent Questionnaire, r = .88 (Rutter, Tizard, & Whitmore, 1970), which was designed to assess child psychiatric disorder. In addition, the SDQ discriminates well between psychiatric and non-psychiatric samples.

Experience of infertility treatment/adoption

Parents were administered additional sections of the interview that focused on issues directly related to the method of family creation. These explored the following five areas that related to the couples' past and current experiences of going through the infertility treatment or adoption. The additional sections were based on questions used in previous studies of assisted reproduction families (e.g., Golombok, Murray et al., 2004) and were constructed using the procedure developed by Quinton & Rutter (1988). The variables were rated according to strict standardized coding criteria.

Motivations for infertility treatment/adoption

Information was obtained from mothers on their history of infertility, i.e., how long they had been trying for a child, what diagnosis they had been given for their infertility (i.e. female problem, male problem, both, or unexplained), and what had first caused them to consider the use of embryo donation, adoption, or IVF, as applicable

(i.e. media coverage, clinician's suggestion, friends/family suggestion, or another source). Mothers and fathers were asked why they had chosen that particular method of family formation rather than any other, and whether the decision to pursue the infertility treatment/adoption had been reached jointly between the couple. The extent to which the decision had been jointly made was rated on a 5-point scale from 1 (male decision) to 5 (female decision), with a rating of 3 representing a joint decision between the couple. Embryo donation mothers were also asked an open-ended question as to whether the couple had considered the alternative option of adoption when they had been told that they would not be able to conceive their own genetic children. For embryo donation and IVF parents, the financial burden put on the couple by the expense of infertility treatment was also assessed, and rated on a 5-point scale from 0 (no burden) to 4 (high burden). This took into account the extent to which the couple had to change their lifestyle to fund the treatment, e.g., cutting back on luxuries, using savings or taking out loans.

Experience of embryo donation/adoption

Data on the couple's knowledge of, and feelings about, the donors or birth parents were obtained from embryo donation parents and adoptive parents. Embryo donation mothers were asked what information they had been given by the clinic about the donors, i.e. no information, physical characteristics only, or demographic information. Both mothers and fathers of embryo donation children were asked how often they thought about the donors and how often the couple talked about the donors. The frequency of thinking about the donor and talking about the donor were each rated on a 4-point scale from 0 (never) to 3 (frequently). If the couple did not talk about the donors at all, the reasons for this were established and rated as being either the father's decision, the mother's decision, a joint decision, or that the topic was

unimportant/irrelevant. The opinion of embryo donation mothers and fathers on the optimum level of information available about the embryo donors was ascertained and was classified into one of 3 categories: (1) donors should remain anonymous; (2) some non-identifying information about donors should be available; and (3) the identity of donors should be disclosed to the recipients and/or the child.

Adoptive mothers were questioned about the information they had been given about the reasons for adoption (i.e. teenage pregnancy, history of abuse/neglect, parental psychiatric disorder, or other reasons), the age of the child at placement, where the child had been living prior to the adoption placement (i.e. with foster parents, in a residential institution, or with birth parents), and whether the adoptive parents had met the birth parents prior to the placement. As with embryo donation parents, adoptive mothers and fathers were questioned about how often they thought about the birth parents and how often they talked about the birth parents to each other. These variables were rated on a 4-point scale from 0 (never) to 3 (frequently). In addition, the frequency and type of contact between the adoptive parents and the child's birth family since the adoption placement was established from the mother's interview. Contact was rated on a 6-point scale from 1 (4 to 12 times a year) to 6 (no contact). If there was no direct contact between the adoptive parents and the birth family, but they exchanged letters through the social services, this was classified as 'letterbox' contact and was rated as 5.

Transition to parenthood

The feelings of mothers and fathers about the pregnancy/adoption process were rated on a 4-point scale from 1 (high anxiety) to 4 (happy). This rating was made separately for two points in time, firstly when the parent became aware of the pregnancy or was accepted for adoption, and secondly towards the end of the process when the child's arrival was imminent. It assessed to what extent the parent was happy and

excited about the impending event, and the amount of apprehension and concern present about the process and about parenting. The coding manual states that expectant parents should normally score either 4 (happy) or 3 (mild apprehensions) on this scale. Parents were also asked about their feelings about being a parent in the first few weeks following the birth or adoption placement. This variable was rated on a 5-point scale from 1 (rejecting) to 5 (happy) and assessed the parent's feelings of excitement, stress, and positive or negative evaluations of being a new parent.

Openness about infertility treatment/adoption

Disclosure to family/friends. Mothers were asked about the extent of their disclosure to family about the use of infertility treatment or adoption, and their reasons for disclosure or non-disclosure. This information was analysed in two ways. Firstly, data relating to the extent of secrecy, and the reasons given for disclosure or non-disclosure of the child's origins, were coded into pre-set categories, according to strict coding criteria derived from previous theory and investigations of disclosure in gamete donation families (e.g., Cook et al., 1995). For those mothers who had disclosed to their family, their reasons for this decision were classified according to the following categories, each of which was coded as 'yes' or 'no': (1) wanted to share; (2) no reason not to tell; (3) to avoid accidental disclosure; and (4) had to tell/no choice. Similarly, the responses of mothers who had not told their family were rated according to the following categories: (1) to protect the child; (2) to protect the mother; (3) to protect the father; (4) to avoid disapproval; (5) no need to tell; and (6) don't know what/how to tell. Mothers were not constrained to giving a single response but had the opportunity to describe all the reasons influencing their disclosure decision. Where more than one reason was reported, each of these was rated, e.g., if a non-disclosing mother mentioned wanting to protect the child and wanting to avoid disapproval, both of these categories were coded

as 'yes'. In addition, mothers were questioned about the extent of their disclosure to friends, i.e. whether they had told all their friends, a few friends, one close friend only, or none of their friends.

Secondly, this section of the interview was transcribed verbatim and the transcripts were content analysed using the themes defined by the quantitative variables above. This method was adopted to obtain more in-depth information about the specific issues surrounding the response categories, e.g., if a mother mentioned a desire to protect the child, the transcript was examined to establish what she was trying to protect the child from. Quotes from this analysis will be used when reporting the results to illustrate the reasons for the disclosure decision.

Disclosure to child. Systematic information was obtained from both mothers and fathers on whether or not they had told or planned to tell the child about the method of his or her conception or adoption. The parents' reasons for their decision concerning disclosure to the child were determined. Data from those parents who had told their child, or intended to tell them in the future, were coded into the following categories: (1) child has a right to know; (2) to avoid accidental disclosure; and (3) no reason not to. Parents who had already told their child were asked to describe how the issue had been explained. Those parents who had not yet disclosed to the child, but were intending to do so in the future, were questioned as to what age they planned to start the disclosure process, and how they planned to tell the child. For those parents who did not intend to share this information with the child, or who were uncertain, reasons for non-disclosure were coded as follows: (1) to protect the child; (2) to protect the mother; (3) to protect the father; (4) to maintain family relationships; (5) no need to tell; and (6) don't know what/how to tell.

Current feelings about infertility treatment/adoption

Data were obtained from both mothers and fathers on whether the parents wanted to have any more children, rated from 0 (no/unable) to 2 (yes). If couples did want more children, they were questioned as to whether they would repeat the process of infertility treatment or adoption. Couples were also asked whether they thought that the way in which they had achieved parenthood had affected their competence as parents. This variable was rated on a 4-point scale from 0 (no difficulties) to 3 (a lot of difficulties) and assessed the extent to which the parents felt that having a child through embryo donation, adoption or IVF had resulted in more difficulties in parenting for them than for natural conception parents. Both mothers and fathers were also asked whether they would recommend their method of family creation to other couples experiencing fertility problems. This variable was rated on a 3-point scale from 0 (no) to 2 (yes).

CHAPTER 6

RESULTS: PARENTAL ADJUSTMENT, QUALITY OF PARENTING AND CHILD DEVELOPMENT

Multivariate analyses of covariance (MANCOVAs), using mother's age and social class as covariates, were conducted for mothers and fathers separately for the quality of marriage variables, the social support variables, the quality of parenting variables and the variables relating to the father's contribution to parenting. In addition, ANCOVAs were carried out for the Edinburgh Depression Scale (EDS) scores, the State-Trait Anxiety Inventory (STAI) scores, and the Vulnerable Child Scale (VCS) scores. Where a significant group difference was found, the following contrast analyses were performed on each variable within the MANCOVA or ANCOVA to answer specific questions: (1) *Embryo Donation* vs. *Adoptive Families* [ED vs. AD]. This contrast examined whether families where parents experience the pregnancy and birth of a child to whom they are not genetically related differed from families where the child was adopted in infancy. (2) *Embryo Donation* vs. *IVF Families* [ED vs. IVF]. This contrast examined whether families created by assisted reproduction with donated embryos differed from families created by IVF treatment using the parents' own gametes.

Where the family had twins, one twin was randomly chosen for data analysis to avoid bias associated with non-independence of measures. To check for the effects of individual children, all the analyses were re-run using the data relating to the other twin. The results from each of the analyses were the same and only the first analysis is reported here.

Table 2: Means, Standard Deviations (SD) and *F* values for Parents' Marital and Psychological State by Family Type

	Embryo donation		Adoptive		IVF				Contrasts	
	Mean	SD	Mean	SD	Mean	SD	*F*	*p*	ED vs. AD	ED vs. IVF
Maternal marital quality							.57	n.s.		
Mutual enjoyment	1.89	.68	1.62	.70	1.67	.62				
Confiding	1.78	.65	1.85	.61	1.63	.74				
Arguments	1.28	.96	1.19	.85	.85	.95				
Marital level	1.94	.54	1.92	.56	1.70	.72				
GRIMS score	21.27	12.18	21.52	9.51	24.14	9.11				
Maternal EDS score	6.06	4.74	4.48	3.03	5.91	2.84	.21	n.s.		
Maternal STAI score	36.25	10.89	34.00	6.08	36.96	7.93	.21	n.s.		
Maternal social support							2.70	< .05		
From own family	1.27	.70	1.65	.49	1.56	.75			$p < .05$	$p < .10$
From father's family	.88	.89	1.23	.87	.68	.80			n.s.	n.s.
From friends	1.58	.67	1.91	.29	1.78	.51			$p < .01$	$p < .05$
Paternal marital quality							.60	n.s		
Mutual enjoyment	1.86	.86	1.65	.59	1.75	.55				
Confiding	2.00	.78	1.80	.62	1.70	.57				
Arguments	.79	.89	1.05	.89	.60	.82				
Marital level	1.93	.62	1.75	.72	1.70	.66				
GRIMS score	21.66	8.81	15.61	5.36	21.18	9.43				
Paternal EDS score	4.17	4.28	3.22	2.90	3.94	3.01	.66	n.s.		
Paternal STAI score	32.58	10.00	31.83	5.98	33.50	6.07	.55	n.s.		

Mothers

Regarding the quality of the marriage, the interview variables (*mutual enjoyment, confiding, arguments* and *marital level*) and the Golombok Rust Inventory of Marital

State (GRIMS) score were entered into a MANCOVA (see Table 2). Wilks's λ was not significant, indicating no differences between groups for the quality of the marital relationship.

For psychological problems, scores for the EDS and the STAI were entered separately into ANCOVAs. No differences were found for the degree of depression or anxiety reported by mothers in each of the family types (see Table 2).

The three variables relating to mother's social support (*emotional support from mother's family, emotional support from father's family,* and *emotional support from friends)* were entered into a MANCOVA. Wilks's λ was significant, $F(6, 100) = 2.70, p < .05$., showing an overall difference between the three groups in the mother's perception of social support received (see Table 2). Contrast analyses for the individual variables indicated a significant difference between groups for *emotional support from friends,* with embryo donation mothers sharing fewer problems with friends than both adoptive mothers [ED vs. AD], $t = 3.02, p < .01$, effect size = .68, and IVF mothers [ED vs. IVF], $t = 2.10, p < .05$, effect size = .40. With respect to *emotional support from the mother's family,* embryo donation mothers were less likely to share problems with their own family members than were adoptive mothers [ED vs. AD], $t = 2.04, p < .05$, effect size = .58. There was also a non-significant trend for embryo donation mothers to receive less emotional support from their own families than IVF mothers [ED vs. IVF], $t = 1.82, p < .10$. The groups did not differ in the level of *emotional support from the father's family.*

Fathers

With respect to marital quality, a MANCOVA was conducted using the *mutual enjoyment, confiding, arguments* and *marital level* variables and the GRIMS score as

dependent variables. Wilks's λ was not significant, indicating no group differences for the quality of marriage, as shown in Table 2.

Regarding psychological problems, separate ANCOVAs were carried out for on the EDS and the STAI scores. There were no significant group differences for fathers for either depression or anxiety (see Table 2).

MOTHER-CHILD RELATIONSHIPS

Interview variables

Separate MANCOVAs were conducted for the overall quality of parenting variables, and those relating to control issues. The overall variables (*expressed warmth, emotional over-involvement, defensive responding, sensitive responding,* and *mother-child interaction)* were entered into a MANCOVA and Wilks's λ was significant, $F(10, 142) = 2.39, p < .05$, indicating an overall group difference (see Table 3). Contrast analyses for these variables individually showed a significant difference between groups for *emotional over-involvement*, with greater over-involvement among the embryo donation mothers than the adoptive mothers [ED vs. AD], $t = 2.42, p < .05$, effect size = .93. However, there was no difference between the embryo donation mothers and the IVF mothers for emotional over-involvement [ED vs. IVF]. Family types also differed significantly with respect to *defensive responding*, with embryo donation mothers showing higher levels of defensive responding than adoptive mothers [ED vs. AD], $t = 2.81, p < .01$, effect size = .91. Embryo donation mothers also showed more defensive responding than IVF mothers [ED vs. IVF], $t = 3.70, p < .001$, effect size = 1.15. No significant contrasts were found for *expressed warmth, sensitive responding* or *mother-child interaction.*

The variables from the mother's interview relating to child control issues (*control of bedtime, ease of bedtime* and *severity of disputes*) were entered into a MANCOVA. Wilks's λ was not significant, indicating no overall difference between groups (see Table 3).

Table 3: Means, Standard Deviations (SD) and *F* values for Mother-Child Relationships by Family Type

	Embryo donation		Adoptive		IVF				Contrasts	
	Mean	SD	Mean	SD	Mean	SD	*F*	*p*	ED vs. AD	ED vs. IVF
Quality of Parenting							2.39	< .05		
Expressed warmth	4.12	.71	4.18	.72	4.38	.59			n.s.	n.s.
Emotional over-involvement	1.50	.91	.68	.67	.87	.80			$p < .05$	n.s.
Defensive responding	1.58	.95	.68	.72	.46	.68			$p < .01$	$p < .001$
Sensitive responding	2.69	.84	2.93	.60	2.90	.64			n.s.	n.s.
Mother-child interaction	3.58	.70	3.36	.68	3.44	.55			n.s.	n.s.
Control issues							.23	n.s.		
Control of bedtime	3.35	1.18	3.86	.52	4.07	.74				
Ease of bedtime	1.00	1.17	.64	.78	.57	.90				
Severity of disputes	1.76	1.79	1.29	.66	1.16	.53				
PSI/SF subscales							.86	n.s.		
Parental distress score	22.53	9.97	21.84	6.24	22.73	4.51				
Parent-child dysfunctional interaction	17.25	5.74	16.96	5.00	16.62	3.61				
Difficult child	23.38	8.38	23.48	9.50	22.54	5.34				
Defensive responding score	14.80	6.22	13.00	3.94	13.35	2.93	.74	n.s.		
Vulnerable Child Scale score	50.82	5.20	51.84	5.10	53.88	4.92	3.34	< .05	n.s.	$p < .10$

Questionnaire variables

Scores on the *parental distress, parent-child dysfunctional interaction,* and *difficult child* subscales of the PSI/SF were entered into a MANCOVA, and Wilks's λ showed

no overall group difference (see Table 3). The *defensive responding* score includes items from the other three sub-scales so was not included in the MANCOVA. A separate ANCOVA was conducted with the *defensive responding* score, and no significant difference between groups was found.

Mother's perceptions of *child vulnerability* as measured by the VCS were analysed using an ANCOVA. A significant difference was found between the family types, $F(2, 63) = 3.34, p < .05$ (see Table 3). Neither of the contrasts of interest showed a significant difference, but there was a non-significant trend for the IVF mothers to obtain higher scores on the VCS than the embryo donation mothers [ED vs. IVF], $t = 1.75, p < .10$, indicating a higher perception of child vulnerability for embryo donation than IVF mothers.

FATHER-CHILD RELATIONSHIPS

Interview variables

The variables relating to overall parenting quality derived from the father's interview (*expressed warmth, emotional over-involvement, defensive responding* and *father-child interaction)* were entered into a MANCOVA. Wilks's λ was significant, $F(8, 98) = 2.16, p < .05$ (see Table 4). Contrast analyses on the individual variables found significant group differences for *emotional over-involvement.* Embryo donation fathers showed greater emotional over-involvement with their child than both adoptive fathers [ED vs. AD], $t = 2.72, p < .01$, effect size = 1.07, and IVF fathers [ED vs. IVF], $t = 2.69, p < .01$, effect size = 1.22. There was also a significant difference between family types for *defensive responding*, reflecting a greater level of defensive responding by embryo donation fathers than by adoptive fathers [ED vs. AD], $t = 2.48, p < .05$, effect size = 1.12, but embryo donation fathers and IVF fathers did not differ significantly on

this variable [ED vs. IVF]. Nor were there any group differences for the variables of *expressed warmth* or *father-child interaction.*

The variable from the father's interview relating to disciplinary issues, *severity of disputes*, was entered into an ANCOVA. There was no significant group difference in the intensity of disputes between fathers and children (see Table 4).

Table 4: Means, Standard Deviations (SD) and *F* values for Father-Child Relationships by Family Type

	Embryo donation		Adoptive		IVF				Contrasts	
	Mean	SD	Mean	SD	Mean	SD	*F*	*p*	ED vs. AD	ED vs. IVF
Quality of Parenting							2.16	< .05		
Expressed warmth	4.00	.89	4.38	.67	4.40	.50			n.s.	n.s.
Emotional over-involvement	.81	.91	.14	.36	.05	.22			$p < .01$	$p < .01$
Defensive responding	1.13	.89	.33	.48	.40	.50			$p < .05$	n.s.
Father-child interaction	3.25	.58	3.38	.59	3.10	.31			n.s.	n.s.
Control issues							.16	n.s.		
Severity of disputes	1.50	.52	1.33	.48	1.21	.42				
PSI/SF subscales							.54	n.s.		
Parental distress score	22.92	5.73	19.33	4.17	21.12	4.04				
Parent-child dysfunctional interaction	18.42	5.24	17.11	3.89	16.47	4.62				
Difficult child	25.08	8.34	22.61	8.44	21.47	6.02				
Defensive responding score	12.75	3.28	11.50	3.59	12.35	3.00	.94	n.s.		

Questionnaire variables

A MANCOVA was conducted with the *parental distress, parent-child dysfunctional interaction* and *difficult child* subscale scores obtained from the PSI/SF. Wilks's λ was not significant, indicating no group difference, as shown in Table 4. A separate

ANCOVA was conducted on the *defensive responding* subscale score, and no significant difference was found between family types.

FATHER'S CONTRIBUTION TO PARENTING

The variables from the mother's interview that assessed the mother's perception of the father's help in parenting (*father's help in control, parental coordination over control, general reliability of father in parenting support* and *load taking of father)* were entered into a MANCOVA. Wilks's λ was significant, $F(8, 130) = 2.26, p < .05$, revealing an overall difference between groups (see Table 5).

Table 5: Means, Standard Deviations (SD) and *F* values for Father's Contribution to Parenting by Family Type

	Embryo donation		Adoptive		IVF				Contrasts	
	Mean	SD	Mean	SD	Mean	SD	*F*	*p*	ED vs. AD	ED vs. IVF
Father's overall contribution							2.26	< .05		
Father's help in control	5.50	.79	5.93	.54	5.50	.79			n.s.	n.s.
Parental coordination over control	3.28	.67	3.00	.77	3.33	.62			$p < .10$	n.s.
General reliability of father in parenting support	3.44	.51	3.50	.51	3.44	.58			n.s.	n.s.
Load taking of father	2.17	.71	2.89	.63	2.33	.83			$p < .01$	n.s.

Contrast analyses indicated that there was a significant difference for *load taking of father*, with embryo donation mothers perceiving their partners as taking less of the parenting load than adoptive mothers [ED vs. AD], $t = 2.72, p < .01$, effect size = .93. There was no difference between the embryo donation and IVF families for load taking of father [ED vs. IVF]. In addition, there was a non-significant trend for *parental coordination over control*, where embryo donation mothers reported lower levels of coordination between parents over disciplinary issues than adoptive mothers [ED vs.

AD], $t = 1.78, p < .10$, but again there was no difference between the embryo donation mothers and the IVF fathers. No differences were identified between the three groups for *father's help in control* or *general reliability of father.*

CHILDREN'S SOCIO-EMOTIONAL ADJUSTMENT

Each of the SDQ subscales of *hyperactivity, conduct problems, emotional difficulties,* and *peer problems,* as well as the *total deviance score,* has a designated cut-off point above which the child is considered to be outside the normal range for emotional or behavioural problems.

Table 6: Comparisons of Children's SDQ Scores by Family Type

	Embryo donation		Adoptive		IVF			
	N	%	N	%	N	%	χ^2	*p*
Total deviance score							4.50	n.s.
Number above cut-off	3	17.6	4	16.0	0	0.0		
Number below cut-off	14	82.4	21	84.0	24	100.0		
Hyperactivity score							3.86	n.s.
Number above cut-off	3	17.6	6	24.0	1	4.2		
Number below cut-off	14	82.4	19	76.0	23	95.8		
Emotional difficulties score							2.69	n.s.
Number above cut-off	2	11.8	2	8.0	0	0.0		
Number below cut-off	15	88.2	23	92.0	24	100.0		
Conduct problems score							9.35	< .01
Number above cut-off	3	17.6	14	56.0	5	20.8		
Number below cut-off	14	82.4	11	44.0	19	79.2		
Peer problems score							8.28	< .05
Number above cut-off	4	23.5	0	0.0	7	29.2		
Number below cut-off	13	76.5	25	100.0	17	70.8		
Prosocial score							.92	n.s.
Number below cut-off	3	17.6	4	16.0	2	8.3		
Number above cut-off	14	82.4	21	84.0	22	91.7		

Scores for all scales of the SDQ as completed by mothers were recoded, so that a score below the cut-off was designated as "0", representing normal behaviour. Scores above the cut-off were designated as "1", and represented the borderline to abnormal range of behaviours (see Table 6 above) Using χ^2 analyses, no differences were found between groups for the total deviance score, or for the subscales of *hyperactivity* or *emotional difficulties.* However, differences were found for the *conduct problems* subscale, $\chi^2(2, N = 66) = 9.35, p < .01$; a higher proportion of the adopted children were rated as showing conduct-related problem behaviours than were children from the other two groups, as shown in Table 6. Also, differences were found for *peer problems,* $\chi^2(2, N = 66) = 8.28$, $p < .05$. A smaller proportion of the adopted children were rated as having peer problems than the proportions of embryo donation or IVF children. For the *prosocial* scale, where high scores represent positive behaviour, scores above cut-off represent normal behaviour so were coded as "0", whilst scores below cut-off were coded as "1" and represent borderline to abnormally low levels of prosocial behaviour. No differences were found between family types for this positive behaviour scale using a χ^2 analysis.

EFFECTS OF PARENTS' MARITAL AND PSYCHOLOGICAL STATE AND CHILDREN'S ADJUSTMENT ON QUALITY OF PARENTING

From a theoretical perspective, as described in Chapter 1, the quality of parenting can be affected by factors external to the parent-child relationship including parental marital satisfaction, parental psychological well-being, social support available, and the psychological adjustment of the child (this can be a two-way process whereby parent-child relationships affect child psychological development and vice versa). In order to explore whether parent-child relationships in the embryo donation families were

influenced by these factors, simple regression analyses were performed with the data obtained from embryo donation couples. Maternal and paternal emotional over-involvement and defensive responding were chosen as the outcome variables since embryo donation parents scored higher on measures of these aspects of parenting than the other two groups. The aim was, therefore, to examine the factors associated with these variables within the embryo donation families. Since the sample size of the embryo donation group is small, the aim of the regression analyses was not to draw strong conclusions from the results, but to explore the data further and perhaps highlight areas for future research.

Marital satisfaction as assessed by the GRIMS, and psychological well-being as assessed by the EDS and the STAI, were entered as independent variables into regression analyses for embryo donation mothers and fathers separately. For mothers only, analyses were conducted also with social support measures as the independent variables. These included the emotional support available from the mother's family and the childcare load taking of the father. In addition, regression analyses using child psychological adjustment, as assessed by the total problem score on the SDQ, were conducted separately for mothers and fathers.

Maternal emotional over-involvement and defensive responding

For mothers, marital satisfaction predicted emotional over-involvement, $\beta = -.71, p < .01$. Since the beta coefficient was negative, the higher the mother's GRIMS score (and thus the higher the mother's marital dissatisfaction), the lower her emotional over-involvement with her child (see Table 7 below). Maternal psychological well-being, social support, and child adjustment did not predict emotional over-involvement of mothers.

With regard to maternal defensive responding, none of the independent variables was found to be a significant predictor.

Paternal emotional over-involvement and defensive responding

Similarly, in the regression analyses for the fathers' variables, none of the independent variables was related to emotional over-involvement or defensive responding.

Table 7: Regression Analyses for Embryo Donation Group Only to Predict Maternal and Paternal Emotional Over-involvement and Defensive Responding

	Standardised coefficient beta	R^2	F	*p-value*
Maternal emotional over-involvement				
Marital satisfaction	-.71	.50	12.95	< .01
Psychological well-being (EDS & STAI)			2.87	n.s.
Social support			.75	n.s.
Child adjustment			1.65	n.s
Maternal defensive responding				
Marital satisfaction			2.77	n.s.
Psychological well-being (EDS & STAI)			.12	n.s.
Social support			1.16	n.s.
Child adjustment			1.06	n.s.
Paternal emotional over-involvement				
Marital satisfaction			.16	n.s.
Psychological well-being (EDS & STAI)			.31	n.s.
Child adjustment			1.75	n.s.
Paternal defensive responding				
Marital satisfaction			.38	n.s.
Psychological well-being (EDS & STAI)			1.65	n.s.
Child adjustment			.74	n.s.

SUMMARY

These findings suggest that there are some differences in parental adjustment, quality of parenting and child development in families with a child conceived by embryo donation

as compared to families with an adopted child and families with a genetically related IVF child. With regard to the marital relationship, there were no differences between the groups for either mothers or fathers. Nor did the family types differ on levels of maternal and paternal anxiety or depression. However, embryo donation mothers reported lower levels of social support than either adoptive or IVF mothers, in particular, feeling less able to share or discuss problems with their family or friends. Mothers also varied between groups in their reports of the father's help and support in parenting, with embryo donation mothers perceiving their partners as making a lower contribution to the task of parenting. Specifically, embryo donation mothers reported their partners taking less of the child-caring load, and reported less coordination between parents over disciplinary issues, than did adoptive mothers

In terms of the quality of parenting provided, both mothers and fathers in embryo donation families reported significantly higher levels of emotional over-involvement with their child, and responded more defensively when questioned about their child and their family life, than did mothers and fathers in the other two family types. Embryo donation mothers also showed a tendency to view their child as more vulnerable than did IVF mothers. When the relationship between these parenting variables and other factors, such as parental psychological and marital state, were examined for the embryo donation parents, the only significant predictor found for mothers was marital satisfaction, as measured by the GRIMS. Greater marital dissatisfaction reported by the mother was related to lower levels of emotional over-involvement with her child. Other aspects of parenting, such as expressed warmth and sensitive responding, showed no differences between groups. Neither was there any difference for either mothers or fathers on the variables relating to disciplinary control.

Children's overall levels of psychological adjustment, as measured by the SDQ total deviance score, did not differ across the family types. There was, however, some variation between the groups when individual problem subscales were considered. Adopted children were significantly more frequently rated by their mothers as exhibiting conduct problems than were embryo donation children or IVF children. On the other hand, significantly fewer adopted children were rated as having problems in peer relationships than were children from the other two groups.

CHAPTER 7

RESULTS: EXPERIENCE OF INFERTILITY TREATMENT/ADOPTION

MOTIVATIONS FOR INFERTILITY TREATMENT/ADOPTION

The mean length of time for which the couple had been trying to start a family was compared between the three groups, using an ANCOVA (with mother's age and social class as covariates). There was a significant difference between the groups, $F(2, 74) = 7.96, p < .01$. Of the three family types, the embryo donation families had been trying to have a child for the longest, with the mean length of time for this group being 15 ½ years. Contrast analyses showed that this was significantly longer than both the adoptive group, $t = 2.09, p < .05$, effect size = .78, and the IVF group, $t = 3.96, p < .001$, effect size = 1.54. The means for the adoptive and IVF group were 12 years and 9 years, respectively.

The cause of the couple's infertility was compared between the groups using a χ^2 analysis. The embryo donation mothers were more likely to report that they had been diagnosed as having a problem with both male and female infertility than the other two groups, $\chi^2(6, N = 79) = 19.14, p < .01$. Forty-eight per cent of the embryo donation couples (n = 10) had both male and female infertility problems, as compared to 18% of the adoptive group (n = 5) and 10% of the IVF group (n = 3), as shown in Table 8. With regard to what had first caused the couple to consider their course of action, 86% of embryo donation couples (n = 18) and 83% of IVF couples (n = 25) had been recommended the treatment by infertility specialists. Adoptive parents were less likely to have been recommended their course of action by doctors, $\chi^2(6, N = 79) = 43.78, p < .001$. The majority of adoptive parents, 71% (n = 20), reported that there was no one

source that had caused them to consider adoption, rather that it was something they had been aware of generally even before their infertility diagnosis.

Table 8: Motivations for Infertility treatment/adoption by Family Type

	Embryo donation		Adoptive		IVF			
	Mean	**SD**	**Mean**	**SD**	**Mean**	**SD**	***F***	***p***
Length of infertility (years)	15.52	5.46	11.79	4.80	8.90	3.10	7.96	< .01
	N	**%**	**N**	**%**	**N**	**%**	χ^2	***p***
Infertility diagnosis							19.14	< .01
Male problem	7	33.3	3	10.7	10	33.3		
Female problem	2	9.5	14	50.0	10	33.3		
Male & female problem	10	47.6	5	17.9	3	10.0		
Unexplained	2	9.5	6	21.4	7	23.3		
Consider treatment/adoption							43.78	< .001
Media coverage	1	4.8	1	3.6	0	0.0		
Suggested by clinician	18	85.7	3	10.7	25	83.3		
Suggested by friend	1	4.8	4	14.3	2	6.7		
Other	1	4.8	20	71.4	3	10.0		

Both embryo donation couples and adoptive couples cited previous IVF failures as the most common reason for opting for that particular method, with this given as a reason by 95% of embryo donation (n = 20) and 71% of adoptive couples (n = 20). One-third of embryo donation couples (33.3%, n = 7) also stated that the mother had wanted to carry and give birth to a child herself, and thus embryo donation was their preferred option. Eighteen per cent of adoptive parents (n = 5) reported that they had pursued adoption for social reasons, i.e. to give a home to a needy child. For IVF couples, the most common reason for trying IVF was that it seemed the logical next step after failing to conceive naturally (53% of couples, n = 16), and 23% of IVF mothers (n = 7) cited a wish to have a child that was genetically related to them.

The extent to which the decision to pursue the infertility treatment or adoption had been made jointly between the couple was compared between the family types for mothers and fathers separately (see Table 9 below). There was no significant difference between the groups with respect to whether the decision was seen as being jointly made, or more one partner's decision than the other's, for either mothers or fathers. However, there was a non-significant trend for mothers, $\chi^2(6, N = 79) = 11.45$, $p = .075$, with more of the IVF mothers reporting that it had been a completely joint decision than either the embryo donation mothers or the adoptive mothers (67% of IVF compared to 43% of embryo donation and 36% of adoptive).

Table 9: Decision about Infertility treatment/adoption

	Embryo donation		Adoptive		IVF			
	N	%	N	%	N	%	χ^2	*p*
Decision (Mother's report)							11.45	<.10
Male decision	0	0.0	0	0.0	0	0.0		
More male than female	2	9.5	5	17.9	0	0.0		
Joint decision	9	42.9	10	35.7	20	66.7		
More female than male	8	38.1	10	35.7	10	33.3		
Female decision	2	9.5	3	10.7	0	0.0		
Decision (Father's report)							5.81	n.s.
Male decision	0	0.0	0	0.0	0	0.0		
More male than female	0	0.0	2	9.5	1	5.3		
Joint decision	10	66.7	9	42.9	10	52.6		
More female than male	5	33.3	8	38.1	8	42.1		
Female decision	2	9.5	0	0.0	0	0.0		

Examination of the embryo donation mothers' responses regarding whether they had considered adoption discovered that eight of the couples (38%) had made inquiries about adoption from Social Services or attended meetings for prospective adopters. In

five cases, the couple had been told that they would only be able to adopt older children rather than babies so had decided against it. Two couples had stopped the process because they felt the social worker was too intrusive, and one couple had been told they couldn't begin the adoption process because they were still undergoing IVF treatment. Of the remaining 13 couples, five (24%) stated that adoption would have been their next step if the embryo donation had not worked, whereas another five couples (24%) had not considered it as they believed they were too old to be accepted as adoptive parents. Three embryo donation couples (14%) had never considered adoption since they were unsure about bonding to what one mother described as 'other people's children'.

There was no significant difference between embryo donation couples and IVF couples for the extent to which the expense of the treatment had caused them financial burden. Seventy-one per cent of embryo donation couples (n = 15) and 50% of IVF parents (n = 15) reported that paying for the treatment had caused them some financial strain, requiring a general cutting down on expenses in order to afford it. Nineteen per cent of the embryo donation couples and the remaining 50% of the IVF couples had felt no financial burden, whereas 10% (n=2) of the embryo donation couples reported a moderate or high financial strain, involving them using all their savings or getting into severe debt to pay for the treatment.

DETAILS ABOUT THE DONATION/ADOPTION

Seventy-six per cent of the embryo donation couples (n = 16) had been informed by the clinic that the embryo donors had been a couple who had themselves gone through IVF treatment and donated spare embryos, with the remaining 24% (n = 5) being told that the donated embryo had been created through separate donations of egg and sperm by unrelated donors. Regarding the couples' knowledge about the donors, 67% of the

recipients (n = 14) had received information on the donor's physical characteristics only, with 9% (n = 2) receiving more detailed information including some demographic information about the donors and 24% (n = 5) having no information on the donors at all. In the main, embryo donation mothers reported thinking about the donors only rarely (43%, n = 9), with the remaining mothers equally divided between thinking about the donors occasionally (28.5 %, n = 6) and never thinking about the donors (28.5%, n = 6). Fathers were less likely to think about the donors, with 67% (n = 10) stating that they never thought about the donors, 13% (n = 2) thinking about the donors only rarely, and 20% (n = 3) reporting thinking about the donors occasionally. In addition, couples talked about the donors infrequently, with 62% (n = 13) stating that they never talked to their partner about the donors, whereas 14% (n = 3) rarely talked about the donors and 24% (n = 5) occasionally discussed the donors together. For couples who did not talk about the donors, the reason given was that it was not relevant to them or that there was no point in talking about it.

The majority of the embryo donation couples would not have wished to receive identifying information about the donors, as shown in Table 10 below. For mothers, 38% expressed a preference for completely anonymous donation (n = 8), and 52% (n = 11) were happy with their current situation of receiving just non-identifying information. Only 2 mothers (10%) favoured the option of having identifying information about the donors available to recipients and/or donor offspring. Fathers were more likely to choose the option of complete anonymity of donors (56%, n = 9), with 25% (n = 4) of fathers preferring non-identifying information. As with mothers, only 2 fathers (13%) expressed a preference for identifiable donors, with one father having no particular preference for the amount of information available.

Table 10: Embryo Donation Parents' Preference for Information about Donors

	Mothers		Fathers	
	N	%	N	%
Complete anonymity	8	28.1	9	56.3
Non-identifying information only	11	52.4	4	25.0
Identity disclosure	2	9.5	2	12.5
Don't know/no preference	0	0.0	1	6.3

With regard to the adoptive group, all the adopted children had been placed with the family at less than 12 months old, with the mean age at placement being 7 months, and the youngest placement age being 1 month. Forty-six per cent of children (n = 13) had been placed for adoption as a result of a history of neglect and/or abuse from their birth parents, and 21% of children (n = 6) had been put up for adoption after being born to teenage mothers. In 14% of cases (n = 4), the adoption was due to one or both of the birth parents suffering from psychiatric disorder, and the remaining adoptive children (19%, n = 5) were placed for adoption for various reasons, including parental separation during pregnancy, and the mother's religious or social background prohibiting single parenthood. Prior to the adoption placement, the majority of the children (89%, n = 25) had been living in foster families. Two children (7%) had been in residential institutions, and one child (4%) had come to the adoptive family from the birth family. Over half of the adoptive parents (57%, n = 16) had met the birth parents before the adoption placement.

The frequency with which adoptive mothers and fathers thought about the birth parents was assessed separately for thoughts about birth mothers and thoughts about birth fathers. Adoptive mothers all thought about the birth mother sometimes, with 32% (n = 9) thinking about her frequently, 46% (n = 13) reporting occasional thoughts, and 22% (n = 6) only rarely thinking about her. Thoughts about the birth father were less

frequent, with only 7% (n = 2) of adoptive mothers thinking about him frequently, 43% (n = 12) thinking occasionally, 32% (n = 9) thinking rarely, and 14% (n = 4) never thinking about the birth father. In the remaining case, the birth father had died. Adoptive mothers reported thinking about the birth mother more often than embryo donation mothers reported thinking about the donors, $\chi^2(3, N = 49) = 17.54, p < .01$ (see Table 11).

Data from adoptive fathers followed a similar pattern, with 10% (n = 2) frequently thinking about the birth mother, whilst 52% (n = 11) occasionally thought about her, and 33% (n = 7) rarely thought about her. One adoptive father (5%) stated that he never thought about the birth mother. In contrast, 38% adoptive fathers (n = 8) reported that they never thought about the birth father, a further 38% (n = 8) rarely thought about him, and 19% (n = 4) had occasional thoughts about the birth father. No adoptive fathers thought about the birth father frequently. As for mothers, adoptive fathers thought about the birth mother more frequently than embryo donation fathers thought about the donors, $\chi^2(3, N = 36) = 16.16, p < .01$ (see Table 11).

Adoptive parents were more likely to discuss the child's birth parents than embryo donation parents were to discuss the donors, $\chi^2(3, N = 49) = 28.62, p < .001$, as shown in Table 11. Most adoptive couples talked about the birth mother occasionally (57%, n = 16). Thirty-two per cent of couples (n = 9) rarely talked about the birth mother, and 11% (n = 3) of couples frequently discussed the subject. Conversations about the birth father were less frequent, with 11% (n = 3) of couples never discussing this topic, 29% (n = 8) rarely talking about it, and 43% (n = 12) talking about the birth father occasionally.

Table 11: Comparison of Thoughts and Discussions about Donors/Birth Parents by Family Type

	Embryo donation		Adoptive			
	N	%	N	%	χ^2	*p*
Mother's thoughts about donors/birth parents					17.54	< .01
Never	6	28.5	0	0.0		
Rarely	9	43.0	6	21.4		
Occasionally	6	28.5	13	46.4		
Frequently	0	23.5	9	32.1		
Father's thoughts about donors/birth parents					16.16	< .01
Never	10	66.7	1	4.8		
Rarely	2	13.3	7	33.3		
Occasionally	3	20.0	11	52.4		
Frequently	0	0.0	2	9.5		
Discussion about donors/birth parents					28.62	< .001
Never	14	66.7	0	0.0		
Rarely	5	23.8	9	32.1		
Occasionally	2	9.5	16	57.1		
Frequently	0	0.0	3	10.7		

In terms of contact between adoptive parents and the child's birth family, only 2 couples (7%) had no contact at all with the birth mother. The large majority of couples (86%, n = 24) were involved in 'letterbox' contact schemes, where letters are exchanged between the adoptive parents and the birth mother via the adoption services. Two couples (7%) had been in direct contact with the birth mother, either meeting her or speaking on the telephone once or twice a year. Contact with birth fathers was less frequent, with only 32% of couples (n = 9) exchanging information with birth fathers through a 'letterbox' arrangement, and the remaining 68% of couples having no contact at all with the birth father. There were no cases of ongoing direct contact between

adopted children and their birth parents, although one adopted child had met his birth mother once since the adoption placement.

TRANSITION TO PARENTHOOD

Couples' feelings about the impending experience of parenthood were compared between the family types separately for mothers and fathers, and for the beginning and end of the pregnancy/adoption process, using ANCOVAs with mother's age and family socio-economic status entered as covariates. For mothers, a significant difference was found between the groups, $F(2, 74) = 7.39, p < .001$ (see Table 12). Contrast analyses showed that the embryo donation parents had more concerns at the start of the pregnancy than adoptive parents did at the start of the adoption process, $t = 2.04, p < .05$, effect size = .41, whereas there was no difference in the level of concerns between the embryo donation parents and the IVF parents. By the end of the process, when the child's arrival was imminent, there was no significant difference between the groups with respect to the mother's concerns about parenthood, with 82% having no concerns or only mild apprehensions. The level of concern expressed by fathers about parenthood showed no group differences at either of the two time-points.

The couples' feelings about their parental role during the first few weeks post-birth or post-adoption were compared separately for mothers and fathers using ANCOVAs. No significant differences were found between the three family types for either mothers and fathers in the assessment of their positive or negative evaluations of the experience of being a new parent.

Table 12: Comparisons of Feelings on Transition to Parenthood by Family Type

	Embryo donation		Adoptive		IVF				Contrasts	
	Mean	SD	Mean	SD	Mean	SD	*F*	*p*	ED vs. AD	ED vs. IVF
Feelings about impending parenthood										
Mother's concerns (start of process)	2.76	1.04	3.43	.74	2.60	.73	7.39	< .01	$p < .05$	n.s.
Mother's concerns (end of process)	3.24	.94	3.51	.89	3.23	.86	2.04	n.s.		
Father's concerns (start of process)	3.19	.93	3.68	1.22	3.60	2.01	1.73	n.s.		
Father's concerns (end of process)	3.48	.66	3.74	.98	3.90	1.88	1.99	n.s.		
Feelings about parenting in 1st few weeks										
Mothers	4.19	.68	4.54	.57	4.17	.65	2.44	< .10		
Fathers	4.10	.94	4.46	.51	4.14	.89	1.40	n.s.		

OPENNESS ABOUT INFERTILITY TREATMENT/ADOPTION

Extent of disclosure to family and/or friends

Eighty-six per cent of the embryo donation parents (n = 18) had told someone, either a family member or a friend, about the donor conception, leaving 14% (n = 3) who had told no one. In contrast, 100% of both the adoptive parents and the IVF parents had told someone about the circumstances of the child's birth. This difference was significant, $\chi^2(2, N = 79) = 8.61, p < .05$, as shown in Table 13. With respect to disclosure to family, again all of the adoptive parents and all of the IVF parents had told the maternal grandparents about the adoption/IVF, whereas significantly fewer of the embryo donation maternal grandparents had been told (71%, n = 12), $\chi^2(6, 72) = 66.04, p < .001$. Even fewer embryo donation parents had shared the information about the donor conception with the paternal grandparents (53%, n = 9), as compared to 96% of IVF parents (n = 25) and 100% of adoptive parents who had disclosed to paternal grandparents, $\chi^2(6, N = 64) = 56.45, p < .001$.

Similarly, 40% of embryo donation parents (n = 8) had told neither maternal nor paternal siblings about the embryo donation. This was a significantly higher proportion than either the adoptive parents (0% non-disclosure) or the IVF parents (4%, n = 1), $\chi^2(6, N = 70) = 58.69, p < .001$. In embryo donation families, maternal siblings were more likely to have been told than paternal siblings (60% compared to 33%).

Table 13: Comparison of Extent of Disclosure to Family and Friends by Family Type

		Embryo donation		Adoptive		IVF			
		N	%	N	%	N	%	χ^2	*p*
Told anyone :	Yes	18	85.7	28	100.0	30	100.0	8.61	< .05
	No	3	14.3	0	0.0	0	0.0		
Told maternal: grandparents	Yes	12	70.6	26	100.0	29	100.0	66.04	< .001
	No	5	29.4	0	0.0	0	0.0		
Told paternal: grandparents	Yes	9	52.9	21	100.0	27	96.4	56.45	< .001
	No	8	47.1	0	0.0	1	3.6		
Told maternal: siblings	Yes	12	60.0	22	100.0	27	96.4	58.69	< .001
	No	8	40.0	0	0.0	1	3.6		
Told paternal: siblings	Yes	5	33.3	22	100.0	21	91.3	60.87	< .001
	No	10	66.7	0	0.0	2	8.7		
Told all friends:	Yes	2	10.0	26	92.9	23	76.7	49.70	< .001
	No	18	90.0	2	7.1	7	23.3		

One quarter of the embryo donation couples (25%, n = 5) had not told any friends about the method of family formation, and a further 6 couples (30%) had told only one friend. In comparison, many adoptive and IVF parents had told all their friends (93% adoptive and 77% IVF), which differed significantly from the embryo donation parents, $\chi^2(6, N = 78) = 49.70, p < .001$ (see Table 13). Only 2 embryo donation couples (10%) had disclosed the fact of the donor conception to all their friends.

Reasons for non-disclosure to family

The reasons for non-disclosure were examined for the five embryo donation mothers who had told no family members, including the maternal grandparents, about the donor conception.

Table 14: Reasons for Non-disclosure to Family

		Embryo donation group	
Reasons		**N**	**%**
To protect child:	Yes	3	60.0
	No	2	40.0
To avoid disapproval:	Yes	3	60.0
	No	2	40.0
To protect father:	Yes	2	40.0
	No	3	60.0
Private matter:	Yes	2	40.0
	No	3	60.0

To protect the child

Three of the embryo donation mothers had not told the family about the donation in order to protect their child, as shown in Table 14. Examination of the transcripts showed that these mothers were concerned that the family would treat the child differently if they knew that there was no genetic relationship, as the following quotes demonstrate:

"We don't want at any point for (child) to feel that he didn't belong. As far as my family are concerned we've just had a little boy and he's still family and I want him to think that he's just part of the family. He hasn't been bought into the family as an outsider, he was born in."

"We don't want someone else who perhaps treats them different because they're not ours."

To avoid disapproval

Three of the embryo donation mothers were concerned that the maternal grandparents would react negatively to the use of donor conception. The feeling seemed to be that since the grandparents were older and, as one mother put it, *"of a different generation"*, they would not understand or approve of the type of treatment used.

"You see my mum's 83 and she's a very very devout Catholic. And she would not understand. She really wouldn't. And for her to find out now, it would do her more harm than good, it would upset her immensely."

Other reasons

Two embryo donation mothers had not fully disclosed to their family due to their husband's wish to keep his infertility secret. In both cases, the families were aware that the couple was going through IVF but not that donor embryos were involved, although one woman did tell her family that she was using donated eggs:

"They know the eggs are donated eggs but they don't know the sperm is donated sperm. We wanted to do it like that because I didn't want (husband) to feel that, because his sperm is no good, I didn't want it to reflect on him, I didn't want the family to be 'oh he's no good, he can't produce any children'."

In addition, two embryo donation mothers felt that the donor conception was a private matter between the couple and therefore there was no need to discuss it with their family.

"I don't think, you know, it's a thing that you discuss with people .I think it was just you know a personal thing and you know...No need to tell anybody, no."

Reasons for disclosure to family

The reasons given by mothers for discussing the child's origins with the family were assessed for 15 of the embryo donation mothers, and for all of the adoptive and IVF mothers (see Table 15 below).

Table 15: Reasons for Disclosure to Family by Family Type

		Embryo donation		Adoptive		IVF			
Reasons		N	%	N	%	N	%	χ^2	*p*
Wanted to share:	Yes	14	93.3	22	78.6	23	76.6	1.99	n.s.
	No	1	6.7	6	21.4	7	23.3		
No reason not to:	Yes	3	20.0	13	46.4	15	50.0	4.13	n.s.
	No	12	80.0	15	53.6	15	50.0		
Had to tell/: no choice	Yes	1	6.7	9	32.1	3	10.0	6.31	<.05
	No	14	93.3	19	67.9	27	90.0		
To avoid: disclosure	Yes	3	20.0	3	10.7	1	3.3.	3.26	n.s.
	No	12	80.0	25	89.3	29	96.7		

Wanted to share

The most common reason for disclosure to the family was simply that the mother wanted to share this information with them, cited by 93% of embryo donation mothers (n = 14), 79% of adoptive mothers (n = 22), and 77% of IVF mothers (n = 23). Two themes centred around wanting to share with the family emerged from examination of the transcripts. Firstly, mothers reported that they had told their families because they needed emotional support from them.

"Because I just thought they should know, because I thought if anything then goes wrong, I'm going to need somebody else to turn to." (IVF mother)

"I think it was such a long process that it was nice to discuss parts of it with people, to get people's feedback or just sort of have a moan." (adoptive mother)

Secondly, mothers stated that they wanted to share the information with their family because they generally had a close relationship with family members and discussed most personal matters.

"I think it's just that we've got quite a close relationship with both sets [of parents] really that it seemed to be a big thing not to tell." (embryo donation mother)

"We're just very close and we've always been close and I've always kind of shared important things with her." (adoptive mother)

"Because I wanted to be open with them, I'm very close to my mum, and to be honest my mum would have known something was up anyway." (IVF mother)

No reason not to tell

Twenty per cent of embryo donation mothers (n = 3), 46% of adoptive mothers (n = 13), and 50% of IVF mothers responded that they felt there was no reason not to tell the family. These mothers did not feel that the method of family creation they used was something to be ashamed of, and so did not want to keep it secret.

"So many people have IVF, I just don't see what the big deal is, you know, I don't feel oh, you know, someone's going to label me as being a weirdo." (IVF mother)

"I don't really know, just couldn't see any reason not to tell them really, um the family, I've always thought it's important to be truthful." (embryo donation mother)

"I don't think there would be any reason for me to hold anything back, I wanted it to be as natural as possible really, I didn't want it to be secretive." (adoptive mother)

Had to tell/no choice

Nearly one-third of the adoptive mothers (32%, n = 9) reported that they had no choice but to tell their family. This was significantly greater than the proportion of embryo donation mothers (7%, n = 1) or IVF mothers (10% n = 3), who gave having to tell as a reason for disclosure to the family, $\chi^2(2, n = 67) = 6.31, p < .05$. For the

adoptive mothers this was because, unlike the use of fertility treatment where the mother still carries a pregnancy, it would have been very difficult to conceal the adoption.

"I mean you're not going to be able to pretend that you've had the child yourself..."

"Well they'd have known anyway, wouldn't they? I mean otherwise I'd have had a belly out here wouldn't I? So I mean there was no point lying about it."

Adoptive mothers also referred to the fact that family members were sometimes asked to act as referees for the couple during the adoption process, and therefore had to be informed.

"They had to give their opinions and that all went on to the adoption form as far as I remember."

For the embryo donation mother and the IVF mothers, it was the fact that their families were already aware of their fertility problems that made the mothers feel they had to disclose to their families.

"Because everyone knew I couldn't have children anyway so..." (embryo donation mother)

"All my family know I've got endometriosis and they all knew that I was going to have problems." (IVF mother)

To avoid accidental disclosure

Twenty per cent (n = 3) of the disclosing embryo donation mothers, 11% of adoptive mothers (n = 3) and 3% of IVF mothers (n = 1) had told their family from the beginning because they were concerned that otherwise the family would find out later or from another source.

"Can't really keep secrets, can you? They always come out of the woodwork somehow, people always find out the truth, I don't know how they do it, but they do." (embryo donation mother)

Other reasons for disclosure

Some mothers gave other reasons for telling their family about the infertility treatment or adoption. For example, one embryo donation mother, who was planning to disclose the method of conception to her children, said she felt it would be *"easier for the children when they found out if they knew that Grandma knew, and still loved them for themselves and not for 'what they are'."*

The expectation of the family that the couple would have children, and the ensuing pressure on the mother when she was having difficulty conceiving, was referred to by both adoptive mothers and IVF mothers as a reason for disclosure.

"Um, in a way I think it got a lot of them off my back." (adoptive mother)

"There was a few digs, and sniggers saying 'oh, she'll never have children, she's too selfish'... And I thought I wanted them to know... I said 'I weren't selfish, I wanted a baby for years and nothing ever happened'." (IVF mother)

Two adoptive mothers reported that their decision to disclose to the family had been influenced by the advice of social workers.

"From the word go in the Social Services home study, it was always advised that you should be open and honest and it should never be something that was hidden under the carpet. It's probably what we would have done anyway but it was endorsed by the Social Services that that was the best way forward."

Extent of disclosure to child

Of the 21 embryo donation families, only 2 (9%) had already told the child about the method of their conception. A further 5 couples (24%) reported that they were planning

to tell the child in the future. Forty-three per cent (n = 9) of embryo donation parents had definitely decided that they would never tell the child, and the remaining 24% (n = 5) were undecided. This contrasts sharply with the adoptive and IVF families, none of whom reported that they had definitely decided against telling the child about the circumstances of their birth, $\chi^2(6, N = 79) = 56.31, p < .001$ (see Table 16). All of the adoptive parents had either already told the child or were planning to tell them in the near future (79% told, 21% planning to tell). Thirty per cent of the IVF parents (n = 9) had already told their child something of their method of conception, 63% (n = 19) were planning to tell, and the remaining 7% (n = 2) of parents were undecided.

Table 16: Comparison of Extent of Disclosure to Child by Family Type

	Embryo donation		Adoptive		IVF			
	N	%	N	%	N	%	χ^2	*p*
Already told	2	9.5	22	78.6	9	30.0	56.31	< .001
Planning to tell	5	23.8	6	21.4	19	63.3		
Uncertain	5	23.8	0	0.0	2	6.7		
Not telling	9	42.9	0	0.0	0	0.0		

Where parents intended to tell the child in the future, the age at which they intended to tell was compared across the three groups, using an ANCOVA (with mother's age and socio-economic status as covariates). There was a significant difference between the groups, $F(2, 18) = 3.81, p < .05$, with contrast analyses showing that the adoptive parents were planning to tell their children at a significantly younger age than the embryo donation parents, $t = 2.40, p < .05$. The mean age at which embryo donation parents were planning to tell was 9 ½ years old, which was the same as the mean age for the IVF parents. In comparison, the adoptive parents planned to tell at a mean age of 4 ½ years.

For the purposes of examining parents' reasons for their disclosure decision, the families were divided into 2 groups. The first group included all parents who were inclined towards non-disclosure (n = 17) and comprised those parents who had definitely decided not to tell (9 embryo donation) and those who were undecided (5 embryo donation and 2 IVF). The undecided parents were categorised as part of the non-disclosing group since they had not expressed positive feelings towards openness. The second group included all parents who were inclined towards disclosure (n = 63) and comprised those who had already told their child (2 embryo donation, 22 adoptive, 9 IVF) and those who stated an intention to tell when the child grew older (5 embryo donation, 6 adoptive, 19 IVF). Combining these two groups follows the approach of previous studies (Brewaeys, Golombok, Naaktgeboren, de Bruyn, & van Hall, 1997; Lycett, Daniels, Curson, & Golombok, 2004; Nachtigall et al., 1997) where those who had already told formed a composite group with those who were intending to tell.

Reasons for non-disclosure to child

Table 17: Reasons for Non-disclosure to Child by Family Type

		Embryo donation		IVF	
Reasons		**N**	**%**	**N**	**%**
To protect child:	Yes	9	64.3	2	100.0
	No	5	35.7	0	0.0
To protect family: relationships	Yes	6	42.9	0	0.0
	No	8	57.1	2	100.0
No need to tell:	Yes	6	42.9	0	0.0
	No	8	57.1	2	100.0
Don't know: what to tell	Yes	1	7.1	1	50.0
	No	13	92.9	1	50.0

To protect child

Both of the non-disclosing IVF parents and 64% of the non-disclosing embryo donation parents (n = 9) expressed a desire to protect the child from the possible negative consequences of disclosure (see Table 17). For the embryo donation parents, two separate themes emerged as concerns for how children would react. Firstly, there was a fear that the child would be upset or confused on learning that his/her parents were not genetically related to him/her, as illustrated by these quotes:

"I think it would cause a lot of insecurity with (child) really and a lot of upheaval, a lot of upset..."

"What good would it do telling him? How would he react to it, especially when he was older, and thinking that we're not his mother and father?"

"I don't know what added value it would bring, other than that it would bring discomfort and concern and questions when there is no need, he's a happy lad."

The second factor in protecting the child stemmed from the practice of clinics using anonymous embryo donors with no way of tracing them. Parents were concerned that this lack of available genetic information would make disclosure to the child more harmful than beneficial.

"As much as anything else the people that actually donated embryos wanted their anonymity, and if you start telling children..., they could quite easily go in search of trying to find out who the real parents are, the biological parents, which could be very upsetting for them."

"He's not going to be able to find out, so why make him think Daddy and I weren't his real parents?"

The two IVF parents had slightly different reasons for being inclined towards non-disclosure. In one case, the couple were concerned about the embryos they still had

in storage and how their existing children would feel if they discovered that these embryos had been destroyed:

"I'm not complete in my mind with these frozen embryos, because it's like there is some other brothers and sisters somewhere."

The other IVF parents had only pursued IVF after one of their other children had died and did not want the IVF child to feel like a replacement for the deceased child.

To protect relationships with family members

Forty-three per cent of the non-disclosing embryo donation parents (n = 6) expressed a concern that family relationships, particularly between the parents and the child, would be damaged by disclosure. They feared that the child would reject them on learning of the absence of a genetic link.

"When he's older, you could always get it thrown back in your face, couldn't you? I probably don't want him to alter the way he thinks of us."

"Possibly you'd get the 'you're not really my parents', you know, 'what right have you got?'"

There was also concern that the child would feel isolated from the rest of the family.

"We don't want at any point (child) to feel that he didn't belong."

"I want him to know he's got a family that will look after him,...I want him in with sort of like the family rather than outside."

No need to tell

Forty-three per cent (n = 6) of the non-disclosing embryo donation parents were rated as feeling that there was quite simply no need for disclosure. The most common justification given was that since the mother had carried the child in pregnancy and given birth, she is to all intents and purposes the 'real mother'.

"As far as I'm concerned everything went into me and he came out, so he's mine!"

"You're going to be carrying them for 9 months, you're going to be feeding them for 9 months, you are their mummy."

Similarly, since the father has been in the child's life from the beginning, the fact that he is not the genetic father is irrelevant.

"We've brought them up, so it's not an issue that's important really, the important thing is that they've got a mum and dad who loves them and the actual genetics is a by-the-by."

Don't know what/how to tell

The support available for assisted reproduction parents who would like to tell their children is often contrasted unfavourably with that available to adoptive parents. For example, there are as yet only a couple of books published that explain assisted conception in child-friendly terms compared to the numerous stories involving adoption. However, only one embryo donation couple and one IVF couple stated that they were inclined towards non-disclosure due to uncertainty over how to tell their child:

"It would be very difficult to explain, it's complex, it's hard for adults to understand so would he understand?" (embryo donation mother)

"I don't know how because it's a bit tricky I think, you know it's already difficult to explain to a child what sexuality is, or like babies." (IVF mother)

Parents who were undecided - concerns about disclosure decision

Examination of the transcripts revealed that of the 5 embryo donation parents who were uncertain about whether they would disclose to their child, 3 couples expressed an apprehension regarding the child having future medical problems requiring serious

treatment, which would mean the lack of genetic relationship would be revealed or have to be disclosed.

"I mean I don't think I'd ever want to tell them later unless of course for some reason we had to, medically say, I mean God forbid, one of them needed some sort of transplant or something and we couldn't provide."

"I would be against not telling him if there was an issue later like a medical condition turns up, 'well hang on a minute, you can't be my genetic parents?'"

This issue was not relevant for the IVF parents since they were the genetic parents.

Reasons for disclosure to child

Table 18: Reasons for Disclosure to Child by Family Type

		Embryo donation		Adoptive		IVF			
		N	%	N	%	N	%	χ^2	*p*
To avoid: disclosure	Yes	5	71.4	20	71.4	9	32.1	9.66	< .01
	No	2	28.6	8	28.6	19	67.9		
Child has right: to know	Yes	4	57.1	15	53.6	12	42.9	.84	n.s.
	No	3	42.9	13	46.4	16	57.1		
No reason : not to	Yes	2	28.6	4	14.3	16	57.1	11.46	<.01
	No	5	71.4	24	85.7	12	42.9		
Other reasons:	Yes	3	42.9	15	53.6	8	28.6	3.77	n.s.
	No	4	57.1	13	46.4	20	71.4		

To avoid accidental disclosure

The most common reason given by disclosing parents for the decision to disclose is a fear that otherwise the child may accidentally discover the circumstances of their birth at a later date and find it difficult to cope with. This reason was cited significantly more frequently by embryo donation parents (71%, n = 5) and adoptive

parents (71%, n = 20), both of whom lacked a genetic link with the child, than it was by IVF parents (32%, n = 9), $\chi^2(2, N = 63) = 9.66, p < .01$, as shown above in Table 18. Parents in all three groups were concerned that since other family members and friends had been told, the child could find out from a source other than themselves and then feel upset that they had not been honest with them:

"[Husband]'s family knows about the treatment, my family know about the treatment, so in effect it could be an innocent comment to (child) and then he's going to have the option to turn to me and say 'but you didn't tell me'." (embryo donation mother).

"The worst thing of all I think would be for him to suddenly learn that from someone else in his later years, to find out that there's this whole past and heritage that he knows nothing about and that we've kept away from him." (adoptive father).

"I wouldn't want anyone else to ever say anything to him or put some kind of seed of doubt in his mind and then have to come to us and ask us what Grandma meant or what Nana meant." (IVF mother)

Many of the adoptive parents referred to their knowledge of adoptees who had found out in later life, and the damage this late disclosure had caused:

"I've heard a story on close hand of a girl who discovered in the playground she was adopted, her parents never told her, and she ran away from that family because they weren't her real parents." (adoptive father)

"I actually went to a school with a girl who was adopted as well and never found out she was adopted until she was 16 and it had absolutely devastating consequences." (adoptive mother)

Two embryo donation parents and 3 IVF parents drew parallels between their situation and adoption in recognising the potential for harm of accidental discovery:

"Like people who adopt children, they're advised to try to be open about it and I don't want to sort of drop on them a bombshell." (embryo donation mother)

"That's the same sort of thing, if you've got adopted children, you really have got to tell them that you are adopted..., so I think you've got to be open with children nowadays." (IVF mother)

One embryo donation mother was concerned that her children should be aware of the donor conception whilst she and her husband were still alive to talk it through with them:

"Because (husband)'s 13 years older than me, I'd hate for them to find out after he died or something, and they couldn't discuss it with him. Because I think it would affect their memory of that relationship."

Right to know

Approximately half of all disclosing parents (49%) stated that the child had a right to know the truth. This was given as a reason for disclosure by 57% of embryo donation parents (n = 4), 54% of adoptive parents (n = 15), and 43% of IVF parents (n = 12). Responses concerning the child's right to know fell into two categories. Some parents felt that the child had a right to know since the information was part of their life story, whether from a medical or a psychological perspective:

"If something was to happen later in life and they had a medical problem that wasn't hereditary from us but could be hereditary from their donors, they might question as to why. And I feel they should know in advance." (embryo donation mother)

"Somehow she's got to make sense of her identity...it's to do with seeking and trying to understand their slot in the world, you couldn't hold back key bits of information." (adoptive father)

"I always feel it's part of his life, it's part of his creation." (IVF mother)

For other parents, the feeling was more that children generally have a right to honesty from their parents, including the information about how they were born.

"I do believe in being honest, no matter how much you don't like the truth, it's always best to be upfront." (embryo donation mother)

"We've always sort of been honest with them, you try and teach your children values of being honest, and hiding something like that's not fair." (adoptive mother)

"Our whole focus on bringing them up would be on honesty, I want them to be able to come back and know that there's trust in the house." (IVF father)

No reason not to

Twenty-nine per cent of embryo donation parents (n = 2), 14% of adoptive parents (n = 4) and 57% of IVF parents (n = 16) reported that they couldn't see any reason why they would not tell their child. This reason was given more frequently by the IVF parents than by the other two groups, $\chi^2(2, N = 63) = 11.46, p < .01$. For some parents, the method of family formation was seen as nothing to be ashamed of and therefore there was no need to keep it secret:

"I don't see why it should be a secret, I wouldn't think of it as anything to be concerned about." (embryo donation mother)

"I don't see any need to hide anything, there is no negative side to it, so why wouldn't we tell them?" (adoptive mother)

"There's no real difference, he might as well know, there's no big deal about it." (IVF mother)

Some IVF parents referred to the fact that treatment of this kind is becoming more common and thus there is not the stigma attached that perhaps existed previously:

"It's not such a taboo thing as maybe it would have been when I was born." (IVF mother)

"Would it mean anything, in 5 or 10 years time, it could be a very common occurrence couldn't it?" (IVF father)

Other reasons for disclosure

Forty-three per cent of embryo donation parents (n = 3), 54% of adoptive parents (n = 15) and 29% of IVF parents (n = 8) gave other reasons for their decision to disclose to the child. For embryo donation and IVF parents, this tended to be due to feeling very positive about the infertility treatment and wanting the child to appreciate how much they had been wanted:

"I was so amazed and I think it's so amazing. (embryo donation mother)"

"We're actually more proud of it than ashamed of it, I think it will be quite nice for them because they'll know we really chose to have them, I think I'd feel quite proud to tell them." (IVF mother).

Several adoptive parents reported that they had been encouraged towards disclosure by the adoption agency or the social workers:

"I think it was what we were told to do during our preparation course."

"I think you have to be [open] to get past the social services...because that is the regime now."

Approaches to disclosure

The responses of the 63 disclosing parents (7 embryo donation, 28 adoptive, 28 IVF) were examined to ascertain what method they had used or planned to use to disclose the circumstances of the child's birth.

Parents who had already disclosed

Some parents had started the disclosure process from a very early age using age-appropriate language, which they planned to elaborate on as the child's cognitive abilities develop.

"We talk about the 'magic sparks' that I got and that I had 3 magic sparks and she's my one magic spark baby." (embryo donation mother)

"I have actually started saying 'you're my special adopted boy' just so he gets familiar with the word." (adoptive mother).

"We haven't used all the words, but we've said that we had to have some help having them and we had to see some special doctors." (IVF mother).

Several of the adoptive parents had used the child's life-story book (an album collated by the social worker containing photographs of the child's early life, i.e. foster parents, adoptive parents, and sometimes birth parents), or children's books about adoption, as an aid to disclosure.

"We've got some books we'll look at and we have a photograph of her birth mum and we say 'this is the lady, you came out of her tummy'."

"Well he has this life-story book, so he'd be able to look through the pictures, and we read the book as we were going through the story."

"We've got a couple of books about animals being adopted and we try to read them to him."

The clinic where the IVF parents had been treated had recently held a party for all former patients and their children, and some of the IVF parents had taken this as an opportunity to introduce the topic of IVF to the child.

"When we went back to [clinic], we said 'this is where you came from, you were made here and we had help'."

"We actually went to the IVF party at [clinic] and I pointed at [clinic director] and I said 'that man helped because he took a bit of Daddy, took a bit of Mummy, mixed you together in a pot and put you in my tummy'."

Parents who were intending to disclose

Many parents from all three groups were waiting for the child to ask questions about natural conception before they disclosed their method of family creation.

"Something might happen at school and they might come home and ask the question and then we'll tackle it." (embryo donation mother)

"When they fully understand the birds and bees and have had all of it through school, so when they understand how it works naturally, then we'll probably say 'well actually, you two were a little bit different'." (IVF mother)

"When she asks the question 'Mummy, did I come from your tummy?', I'll probably say 'oh no, you didn't come from my tummy, you came from another mummy's tummy'." (adoptive mother)

As with parents who had already told, some adoptive parents were planning to use stories to familiarise the child with the concept of adoption.

"We'll tell her about the princess that was with one king and queen and then couldn't stay there so she came to live with another king and queen."

"Possibly the best way would be to explain it a little bit to her through books, reading about characters, but then let her ask questions and be willing to answer them"

One embryo donation mother and one IVF mother also mentioned using books as a disclosure aid. The IVF mother had purchased a book from the clinic called 'I'm a little Frosty' that explains how children are born from frozen embryos, whereas the embryo donation mother was hoping to adapt adoption stories to fit her situation.

"I was going to go and get a book from the library about adoption and about how you tell the children about they're adopted and see if I can get some ideas." (embryo donation mother)

CURRENT FEELINGS ABOUT INFERTILITY TREATMENT/ADOPTION

For mothers, there was no significant difference between the family types for the desire for more children. Overall, 62% of mothers interviewed were either unwilling or unable to have another child by any means, 13% were undecided, and 25% definitely wanted to have another child. Those who were either uncertain or wanted more children were asked if they would be willing to repeat the same process of family creation as before. Again, there was no significant difference between the groups, with 42% of mothers stating that they would repeat the infertility treatment or adoption, 25% undecided, and 33% unwilling to repeat the process.

Table 19: Comparison of Current Feelings about Infertility Treatment/Adoption by Family Type

	Embryo donation		Adoptive		IVF			
	N	%	N	%	N	%	χ^2	*p*
Want more children (mothers)	4	19.0	6	21.4	10	33.3	5.08	n.s.
Want more children (fathers)	2	13.3	3	14.3	6	30.0	19.47	< .005
Would recommend to others (mothers)	20	95.2	26	92.9	30	100	2.09	n.s.
Would recommend to others (fathers)	10	71.4	21	100.0	18	94.7	8.72	< .05

Neither was there any significant difference between the groups with regards to the extent to which mothers felt their parental competence had been affected by their method of achieving parenthood. The large majority of mothers in the entire sample, 90%, felt they had either no difficulties in parenting or no more difficulties than any other parent. Nine per cent of mothers felt that parenting had been made slightly more difficult as a result of the process they had gone through, and only one mother (an adoptive mother) reported experiencing severe difficulties in parenting due to adoption. When asked if they would recommend their method of family formation to others, 96% of mothers overall said that they definitely would, and 4% were undecided. None of the mothers stated that they would definitely not recommend the infertility

treatment/adoption process to others, and there was no difference between the groups (see Table 19).

Fathers' current feelings showed a somewhat different pattern. There was a significant difference between the groups for father's desire for another child, $\chi^2(4, N = 56) = 19.47, p < .005$, with the embryo donation and adoptive fathers having the least desire for more children. Only 13% of embryo donation fathers and 14% of adoptive fathers definitely wanted another child compared to 30% of IVF fathers, as shown in Table 19. However, among those who either wanted another child or were undecided, there was no difference between the family types in father's willingness to repeat the infertility treatment/adoption process. Nor was there a group difference for father's feelings about the effect of the process on their parenting competence. Overall, 98% of fathers felt their competence had not been affected by the method of family creation, with only one father (an adoptive father) feeling that parenting had been made slightly more difficult by adoption. Unlike mothers, there was a significant difference between the family types for fathers' willingness to recommend the process of family formation to other infertile couples, $\chi^2(2, N = 54) = 8.72, p < .05$. The embryo donation fathers were the most reluctant to recommend to others, with 71% of embryo donation fathers definitely willing to recommend embryo donation, compared to 95% of IVF fathers and 100% of adoptive fathers willing to recommend IVF and adoption, respectively.

SUMMARY

Several differences were found in parents' reports of their experiences of the infertility treatment or adoption process. Embryo donation parents had endured a significantly longer period of infertility before becoming parents than either adoptive or IVF parents, even taking into account the older age of the embryo donation mothers. In terms of the

diagnosis of infertility given, almost half of the embryo donation parents reported that there were both male and female infertility problems, a higher proportion than in the other two groups. Embryo donation parents and IVF parents were more likely to have been recommended their course of action by doctors than were adoptive parents, perhaps not surprisingly since these are both medical procedures. There was no significant group difference in whether the decision to go ahead with the treatment or the adoption had been a decision jointly made between the couple. However, there was a tendency for a completely joint decision to be made more often by the IVF couples, which may be due to one or other partner in the other two groups having some initial doubts about raising a non-genetic child.

With respect to couples' attitudes towards the genetic parents, embryo donation parents were generally not keen to receive more information about the donors than the available non-identifying information. A substantial proportion would have preferred complete anonymity of donors, with no information at all, and only a very small percentage were interested in accessing the identity of the donor. In contrast, the adoptive parents had a great deal of information about the birth parents, with the large majority maintaining some degree of contact with one or both birth parents. For both mothers and fathers, the adoptive group reported thinking about the genetic parents more frequently than did the embryo donation group. Adoptive couples were also more likely to discuss the birth parents together than embryo donation parents were to discuss the donors.

Embryo donation and IVF mothers showed higher levels of concern at the beginning of the pregnancy than did adoptive mothers when they had first been approved for adoption. These levels of concerns were also higher than those normally expected for women in the first stages of pregnancy. This may be due to increased fears

of miscarriage or of the child being born with congenital problems due to the problems in conceiving, which are not relevant in the same way for adoptive parents. However, the assisted reproduction mothers did not report feeling the same elevated levels of concerns towards the end of pregnancy, suggesting that concerns decrease as the pregnancy progresses successfully. Furthermore, once the child was present in the family, there was no difference between family types for parents' levels of positive feelings regarding their parental role.

Regarding couples' disclosure of the method of family creation, embryo donation parents were far less likely to tell their family or friends than were adoptive or IVF parents. The reasons given by non-disclosing couples centred around protecting the child and the father from differential treatment by the rest of the family, or around feeling that the family would be disapproving of their actions. In contrast, the majority of disclosing couples positively wanted to share the experience with their families. With respect to the children themselves, again the embryo donation parents were less willing to tell their child about the circumstances of their birth. Here, the non-disclosing parents were concerned that disclosure would distress the child or would negatively affect relationships within the family. Parents who had told their child or were intending to tell them often reported that they were concerned about accidental disclosure occurring otherwise. Many parents also felt that the child had a right to know his or her origins.

Mothers showed no difference between the family types in their desire for more children, their evaluation of how their route to becoming mothers had affected their parenting competence, or their willingness to recommend their method of family creation to others. Differences were found for fathers whereby IVF fathers were more likely to state that they wanted another child than were embryo donation fathers or adoptive fathers, although this may be due to the IVF mothers being younger and

therefore better able to try for more children. Fathers in the three family types did not differ in their perceptions of the effect of the infertility treatment or adoption process on their competence as parents. However, embryo donation fathers reported that they would be more reluctant to recommend the process to others than did adoptive or IVF fathers.

CHAPTER 8

DISCUSSION

CONCLUSIONS

The aim of this study was to examine the experience of parenting in families with a child conceived by embryo donation in comparison with both adoptive families and IVF families. The results suggest that in some aspects embryo donation families resemble adoptive families and/or IVF families, whilst in other aspects embryo donation families differ from the other two family types. Since the findings have been described in detail in the preceding two chapters, only those directly relating to the research questions and hypotheses, or that are considered to need elaboration, will be discussed in this section.

Parent-child relationships

Quality of parenting

It was hypothesised that embryo donation parents would exhibit a higher quality of parenting than the adoptive parents because of their experience of pregnancy and childbirth, and thus the opportunity allowed to them to bond to the child prenatally. However, no differences were found between the embryo donation and adoptive parents for any of the quality of parenting variables, including warmth, parent-child interaction, maternal sensitivity, and parental control. This suggests that the experience of pregnancy does not appear to be advantageous for parents in families with a non-genetic child, and that prenatal bonding is not crucial for the later development of positive parenting. In line with this finding, previous studies of infant-adopted children in early childhood have found adoptive parents to show good levels of affection and warmth towards their children, and no dysfunction in parent-child relationships as compared to non-adoptive parents (Hoopes, 1982; Plomin & DeFries, 1985). Problems in adoptive families can manifest as children grow older, particularly with late-adopted children

(Brodzinsky & Pinderhughes, 2002). From the current study, however, there is no evidence that the experience of pregnancy enhances the nature of relationships formed between parents and children at this young age.

The prediction that the absence of a genetic link between the parents and the child in embryo donation families would result in less positive parenting as compared to IVF families, was also not supported by the results. Similar to the comparison with adoptive families, no differences were found between the embryo donation parents and the IVF parents for any of the variables relating to the quality of parenting, suggesting that a genetic bond between parents and children is not essential for good parent-child relationships. The positive parenting observed in the embryo donation families replicates findings from previous research on families created by assisted reproduction. Parents of assisted reproduction children have been found to provide high quality of parenting in terms of warmth and interaction during the early childhood years (Gibson, Ungerer, McMahon et al., 2000; Golombok et al., 1996; van Balen, 1996). Importantly in regard to the embryo donation families, there is no evidence from previous research of negative effects on parenting quality of the lack of a genetic link to one parent in donor insemination families or egg donation families (Brewaeys, 2001; Golombok et al., 1999, 2004). The current findings suggest that embryo donation families are like other assisted reproduction families in this respect. The desire of embryo donation couples to become parents, and the efforts they have made to achieve this goal, seems to result in a strong commitment to parenthood that overcomes any potential problems in developing positive parent-child relationships arising from the absence of genetic links.

Both mothers and fathers in all three groups were rated as exhibiting above average levels of expressed warmth and high quality parent-child interaction with a good degree of affection between parents and children, using a criterion-based measure.

Similarly, mothers from all three family types obtained above average ratings of sensitive responding to their child. Thus, to the extent that sensitive, warm parenting is important in terms of children's security of attachment (De Wolff & van IJzendoorn, 1997), parents in all family types, regardless of the presence or absence of genetic and/or gestational links to the child, appeared to be promoting the formation of secure attachment relationships. In addition, parents in all three groups were generally providing appropriate levels of discipline, with parents taking charge of control issues such as the child's bedtime, and only rarely having to engage in major battles with the child. This combination of high warmth and firm control has been associated with positive social adjustment for children (Baumrind, 1989).

Emotional over-involvement and child vulnerability

Due to the experience of pregnancy, it was predicted that embryo donation parents would show greater emotional over-involvement and perceive their child as more vulnerable than would the adoptive parents. This was found to be the case as regards emotional over-involvement, with both embryo donation mothers and fathers being more over-involved with their children than the adoptive mothers and fathers. Tendencies towards over-involved parenting of young children, such as more encouragement of dependency on parents and increased parental protectiveness, have been detected previously in adoptive parents (Hoopes, 1982), and have been attributed to the difficulties encountered in the experience of infertility and the adoption process. However, the finding that embryo donation parents are more over-involved than adoptive parents suggests that emotional over-involvement is also related to the experience of high-tech reproductive procedures, and to having carried the child during the pregnancy, and the bonds formed during that time. Thus, for embryo donation parents, these factors, combined with the experience of infertility, result in higher

emotional over-involvement than for adoptive parents. This explanation is supported by the finding that the mean level of concerns for embryo donation mothers at the start of the pregnancy was higher than the level usually found for expectant mothers on this rating scale. Hence, from the beginning of the pregnancy, the embryo donation mothers are exhibiting raised levels of concerns about their child, which appears to carry over into over-concerned parenting behaviour once the child is born. Alternatively it is possible that the lack of emotional over-involvement by the current sample of adoptive parents was a consequence of the courses they attended in preparation for being accepted as adopters, which had included sessions on parenting training, and may have encouraged them to allow their child age-appropriate autonomy.

Despite the differences identified in emotional over-involvement, embryo donation mothers did not perceive their child as more vulnerable than did adoptive mothers, contrary to the pattern hypothesised. It has often been assumed that over-involved or over-protective parenting, and parental perceptions of child vulnerability are synonymous. However, it has been shown that parental overprotective behaviour is a separate and distinct trait from perceptions of increased child vulnerability (Thomasgard, Shonkoff, Metz, & Edelbrock, 1995). The results from the current study suggest that, unlike levels of emotional over-involvement, maternal perceptions of child vulnerability are not related to the experience of pregnancy or infertility treatment.

The finding that embryo donation mothers considered their partners to take less of the childcare load than did adoptive mothers may possibly be related to the higher emotional over-involvement of embryo donation mothers as compared to adoptive mothers. If the embryo donation mothers are particularly reluctant to engage in activities unrelated to the child, then it may be difficult for embryo donation fathers to make the contribution that they would otherwise like to. Likewise, the tendency of

embryo donation fathers to be less involved in discipline than adoptive fathers may reflect the extent to which the mother allows and encourages the father's input. On the other hand, the increased contribution to parenting made by adoptive fathers may be a result of the adoption preparation process.

It was also predicted that embryo donation parents would be less emotionally over-involved with their children than IVF parents, due to the absence of a genetic link between the parents and the child. However, this was not found to be the case. There was no difference in the emotional over-involvement of embryo donation mothers and IVF mothers, whereas embryo donation fathers actually showed more emotional over-involvement than IVF fathers. Therefore, higher emotional over-involvement does not seem to be associated with the presence of genetic relationships between parents and their children. Interestingly, IVF mothers reported the same increased levels of concern at the start of the pregnancy as did embryo donation mothers. Thus, for mothers who have conceived through assisted reproduction, it appears that the stress of infertility treatment combined with the concerns raised during pregnancy, contributes to the level of over-involvement with the child. No differences between embryo donation and IVF mothers were found for the mothers' reports of the fathers' contributions to parenting, supporting the possibility raised in relation to the comparison with adoptive families, that higher emotional over-involvement of mothers is associated with a perception of lower contribution to parenting by fathers.

Although there was no difference between the embryo donation mothers and the IVF mothers with respect to levels of emotional over-involvement, the embryo donation mothers did display a tendency to view their child as more vulnerable than did the IVF mothers. Maternal perceptions of embryo donation children as especially vulnerable may result not from the mothers having gone through assisted reproduction and the

pregnancy, but from the absence of genetic links, including having little knowledge about the donors' medical history. This would also explain why perceptions of child vulnerability do not differ between embryo donation mothers and adoptive mothers, both of whom lack these genetic relationships with their children.

Previous studies have observed tendencies towards over-involved or over-protective parenting in mothers, but not fathers, of children conceived through assisted reproduction (Golombok et al., 1996; Hahn & DiPietro, 2001). However, embryo donation fathers were rated as significantly more over-involved with their children than either IVF fathers or adoptive fathers. This is in line with the fact that embryo donation couples had experienced a longer period of infertility prior to becoming parents than IVF or adoptive couples. Thus, once the much longed-for child arrives, embryo donation fathers may be particularly vulnerable to developing over-protective or over-anxious parenting attitudes. It seems that different processes may be at work in the formation of over-involved parenting styles for fathers and mothers.

Emotional over-involvement can be seen as a negative parenting trait, since it may produce children who are very dependent on their parents, do not develop autonomy appropriate to their age, and have elevated levels of anxiety (Thomasgard & Metz, 1993). Also, family life may become centred around the child, putting pressure on him or her. It is important to note, however, that previous studies of assisted reproduction children have not found any evidence that parental over-protectiveness is related to higher levels of child psychological problems (Golombok, Brewaeys et al., 2002; van Balen, 1998). Furthermore, the mean ratings of emotional over-involvement for the embryo donation mothers and fathers in the present study were not high, and represented moderate over-involvement rather than pathological levels. It appears that

these parents, who had such difficulties conceiving, viewed their children as 'special' and wanted to spend as much time with them as possible.

With respect to how emotional over-involvement relates to other aspects of family life, the exploratory regression analyses found that the more dissatisfied embryo donation mothers were with the state of their marriage, the less emotionally over-involved they were with their child. This follows the findings of previous research showing that the quality of parenting is related to the quality of the marital relationship, with parents in less satisfying marriages tending to be less emotionally involved with their children (e.g., Erel & Burman, 1995). However, in the current study, embryo donation mothers with lower levels of marital satisfaction were exhibiting normal levels of emotional involvement rather than becoming under-involved with their child. Further research is necessary before conclusions can be drawn on this issue.

Defensive responding

An unpredicted result was that embryo donation mothers were more likely to respond defensively when asked questions about their child and family life than were adoptive or IVF mothers. Embryo donation fathers showed similarly increased levels of defensive responding compared to adoptive fathers, although not compared to IVF fathers. The trait of defensive responding may have negative consequences for children in that it could be indicative of a non-communicative family environment in which issues are not discussed openly. Several possible explanations for this finding present themselves. Greater defensive responding may be a result of the social stigma felt to be attached to embryo donation. Whereas adoption and IVF are seen as common routes to parenthood nowadays, donor conception is still relatively unusual. Alternatively, it is possible that embryo donation parents are generally more defensive and private, and more reluctant to discuss personal matters, which could explain why they are less likely

to choose adoption as a route to parenthood. This would also account for the finding that embryo donation mothers were less likely to share their problems with their family or friends.

Another possibility is suggested by a study of parenting attitudes in families with 5-year-old IVF children, which also assessed levels of defensive responding (McMahon, Gibson, Leslie, Cohen, & Tennant, 2003). IVF parents as a group did not report higher levels of defensive responding than naturally conceived parents. However, for IVF mothers, levels of defensive responding were related to the number of IVF treatment cycles women had experienced. Higher levels of treatment predicted greater defensive responding. Although the total number of treatment cycles undergone by the embryo donation parents in the current study, including failed IVF cycles with their own gametes, was not recorded, it is likely that this was more than the number experienced by the IVF parents, or attempted by those adoptive parents who tried IVF first. From this perspective, the high levels of defensive responding in embryo donation parents may represent a reluctance to admit to problems in parenting, or a feeling that they have no right to feel angry or frustrated with their child, after such a struggle to conceive (McMahon et al., 2003).

Child development

The prediction that embryo donation families would show more positive outcomes in relation to child adjustment than adoptive families was supported by the finding that a higher proportion of the adopted children were rated by their mothers as on or above the borderline for conduct problems. At 56%, this proportion was also higher than would be found in a community sample (Goodman, 1997). However, since no differences were found in the quality of parenting between embryo donation families and adoptive families, this increased incidence of problems in adopted children may be due not to

differences in parent-child relationships but to other factors associated with adoption, such as the separation from the birth parents, genetic factors, or the awareness of being adopted. Whilst adopted infants have been found to show no difference in temperament from non-adopted infants (Carey et al., 1974), elevated rates of behavioural problems have been observed in adopted children aged 5-11 years (Brand & Brinich, 1999; Brodzinsky, Schechter et al., 1984). Bearing in mind that the adopted children in the current sample were aged between 2 and 5 years, it may be that they were just moving into the phase at which adoptees are at increased risk for conduct problems compared to non-adoptees. Alternatively, due to their training in potential difficulties with adopted children, adoptive parents may be more sensitive to identifying child behaviours as a problem than are embryo donation or IVF parents. The proportion of adopted children rated as obtaining total deviance scores above normal levels did not differ from the other two groups, and the proportion of adopted children rated as exhibiting peer problems was actually lower than that of embryo donation children or IVF children. This pattern of adoptees having more positive peer adjustment, despite elevated rates of behavioural problems, has been found previously (Stams, Juffer, Rispens, & Hoksbergen, 2000), and thus provides good validation of the measures used in the present study. Overall, in line with previous research, problems in adopted children's social and emotional adjustment at this age seem to be confined to the domain of conduct problems.

The fact that embryo donation children are genetically unrelated to both parents did not appear to have an effect on child outcomes, with no differences in the rates of emotional or behavioural problems found between the embryo donation children and the IVF children. Since the quality of parenting in assisted reproduction families is high, and assisted reproduction parents do not generally show psychological problems, it is

perhaps not surprising that the majority of studies have found no increase in social or emotional problems in children conceived through assisted reproduction (Colpin et al., 1995; Golombok et al., 1999; Kovacs et al., 1993; Montgomery et al., 1999). The children conceived through embryo donation in the present study seem to be following this same pattern. The proportion of embryo donation children scoring above cut-off for the SDQ total deviance score is similar to that expected in a community sample (Goodman, 1997), indicating that embryo donation does not in itself impact on children's levels of emotional and behavioural problems. The implication is that genetic relationships between parents and children are not essential for children's healthy psychological adjustment. In addition, despite concerns about the potentially negative effects of over-involved parenting and high levels of defensive responding seen in embryo donation families, the children do not seem to be adversely affected by these factors at this stage.

Parental marital and psychological state

In contrast to the pattern predicted, embryo donation parents did not report higher levels of marital dissatisfaction than adoptive parents, suggesting that the experience of embryo donation does not necessarily place more stress on the marital relationship than the adoption process. Neither was there any difference in marital satisfaction between embryo donation and IVF parents. Therefore, the lack of genetic links to the child does not appear to be creating additional problems for the couples beyond the stresses of infertility and its treatment. Contrary to the concerns expressed about the potential negative effects of infertility on marital functioning, studies have consistently shown the marital adjustment of adoptive parents to be as high or higher than that of biological parents (Hoopes, 1982; Humphrey, 1975). Furthermore, assisted reproduction parents also report average to high levels of marital satisfaction (Amuzu et al., 1990; Colpin et

al., 1995; Golombok et al., 1999; Leeton & Backwell, 1982). In the current study, the marital relationships, as measured by the mean scores on the GRIMS, for both mothers and fathers in all three groups fell into the ranges defined as "very good" or "good" (Rust et al., 1988). Embryo donation, therefore, does not seem to adversely impact on the couple's marriage to any greater extent than adoption or IVF. If anything, the impressions formed from embryo donation couples' spontaneous comments during the interview were that the process had brought the couple closer together. Of course, it may be that, as was suggested earlier with reference to adoptive parents, only those couples with stable, satisfying marriages to begin with are able to make the relationship endure the stressful experience of embryo donation treatment.

Regarding the psychological well-being of parents, contrary to the hypotheses, embryo donation parents did not report a higher incidence of problems than either the adoptive parents or the IVF parents. The levels of parental depression and anxiety for the embryo donation, adoption, and IVF groups in the present study all fell within the normal range. This echoes past research where elevated rates of psychological problems have not been observed in either adoptive parents or assisted reproduction parents (Golombok et al., 1996; Hoopes, 1982; Plomin & DeFries, 1985). Thus, embryo donation does not appear to present greater emotional difficulties for parents than either adoption or IVF. Embryo donation parents resemble other couples who have not been able to conceive naturally, with no evidence of persisting emotional distress arising from the stress of the preceding period of infertility. As with marital satisfaction, two possible explanations suggest themselves: either the pleasure in the achievement of parenthood after so long trying to have a child eliminates the anxieties raised by infertility and its treatment, or only psychologically well-adjusted individuals make it through the process.

Disclosure and openness

The findings concerning higher levels of emotional over-involvement and defensive responding in embryo donation parents are in line with the greater secrecy of embryo donation parents with regard to disclosure of the method of family creation. Significantly fewer embryo donation parents than adoptive or IVF parents had told their family about the child's origins, with non-disclosing mothers reporting that they wished to protect the child from distress, or protect themselves from others' disapproval. This may reflect parents' feelings of stigma surrounding the use of donor conception. Two mothers wished to protect the father from others knowing that he was infertile. These women were willing to discuss their own fertility problems and tell the family that IVF had been used, but not that donor sperm was involved, suggesting that for these mothers, female infertility was seen as more socially acceptable than male infertility.

With regard to the decision on disclosure to the child of their donor conception, the embryo donation parents in the current study were more inclined towards non-disclosure than either the adoptive or the IVF parents, with only 33% of embryo donation parents having told or planning to tell the child. In contrast, all of the adoptive parents and over 90% of the IVF parents had told their child about the circumstances of the birth, or were planning to tell in the future. In this respect embryo donation parents are following the pattern seen in earlier studies of donor insemination parents with children born between 1980 and 1990 (Nachtigall et al., 1997), where 30% of parents reported telling or an intention to do so, and egg donation parents with children born before 1991 (Murray & Golombok, 2003), where 29% of parents were intending to tell their child in the future. However, a recent study examining donor conception parents of 9-12 month old infants conceived between 1999 and 2001 has found that 46% of donor insemination parents and 56% of egg donation parents planned to disclose to their child

(Golombok, Lycett et al., 2004). It appears that embryo donation parents, who both lack a genetic link with the child, may be even more private about this issue than are donor conception parents in families where one parent has a genetic link with the child.

When the reasons for the decision not to tell the child about the embryo donation were examined, the most common reason given by parents was to protect the child either from the distress of discovering that he/she is genetically unrelated to both parents, or from the upset of not being able to discover any information about the donor. The same reasoning has been found consistently in non-disclosing donor insemination and egg donation parents in previous studies (Nachtigall et al., 1997; Lindblad et al., 2000; Murray & Golombok, 2003). This may be particularly salient for embryo donation parents since donor insemination and egg donation involve one parent who is still genetically linked to the child, therefore half of the child's genetic heritage is known, whereas in embryo donation there is no genetic relationship and thus no information at all on the genetic background of the child.

Another common reason for non-disclosure in previous studies was the protection of the non-genetic parent and their relationship with the child (Cook et al., 1995; Golombok, Lycett et al., 2004; Murray & Golombok, 2003). For embryo donation families, both parents are non-genetic and therefore the fear is that disclosure would lead to both parents being rejected by the child. As mentioned above, this complete absence of genetic relationships may contribute to the comparatively high rate of non-disclosure of embryo donation parents. Donor insemination parents have often reported that disclosure is unnecessary, reasoning that the social relationship between father and child is more relevant than the biological relationship (Golombok, Lycett et al., 2004; Lindblad et al., 2000). Egg donation parents report feeling that there is no need to tell, since the mother is the biological mother in terms of carrying the child and giving birth

(Murray & Golombok, 2003). The embryo donation parents cited both of these aspects as rendering disclosure unnecessary. Overall, embryo donation parents' reasons for non-disclosure seem to be very similar to those given by other donor conception parents.

Non-disclosure of the donor conception may also be linked to the embryo donation parents' view of the donors as relatively unimportant. This was indicated by the lower frequency with which embryo donors thought about or discussed the donors, and also by the finding that those who did not talk about the donors with their partner at all (62% of couples) stated that this was because the issue was irrelevant to their lives. Embryo donation parents were generally not curious as to the identity of the donors, with only 10% wanting access to identifying information. Conversely, the adoptive parents acknowledged the relevance of information about the birth parents for themselves and for the children. All except one of the adoptive parents thought about the birth mother at times, and all adoptive couples discussed the birth parents on occasion. Parents who were in contact with the birth mother talked about their plans to share the letters they had received from her with the child in the future, and often spontaneously mentioned that if the child wished to meet the birth mother later in life, they would support any attempts to do so. Overall therefore, as hypothesised, the role of the donors is considered less important by embryo donation parents than is the role of the birth parents by adoptive parents.

It is noteworthy that the reasons given for non-disclosure by embryo donation parents to some extent reflect differences between the experience of embryo donation and that of adoption or IVF. For some embryo donation parents, the decision not to disclose arose from the experience of pregnancy and birth and the presence of the father throughout the process, which is not relevant to adoptive parents. Compared to IVF parents, embryo donation parents have the added issue of the absence of a genetic

relationship between the parents and the child. Furthermore, unlike both adoptive and IVF parents, embryo donation parents have no information to give the child about their genetic heritage. From this perspective, it has been argued that anonymity of donors supports secrecy, with parents reasoning that to tell the child about the donor conception would only cause frustration since the child will not be able to trace the donor (Daniels & Taylor, 1993). Interestingly, as noted previously, the vast majority of embryo donation parents did not favour the option of identifiable donors. Of the two sets of parents (~10%) who would have liked access to the donor identity, one had already told the child about the donor conception and the other intended to tell the child in the future. This finding will be discussed in more detail later in reference to policy implications.

Considering those parents who had decided to be open with their child, the reason most frequently cited by both the embryo donation and the adoptive parents was that they wished to avoid disclosure from someone other than the parents. This fear was based on the fact that all of the adoptive parents and over 85% of the embryo donation parents had disclosed to family or friends, a higher proportion than found in previous studies of donor conception families. For example, in Murray and Golombok's (2003) study, 65% of egg donation couples had told a family member, and in Brewaeys' (2001) review of studies of donor insemination families, approximately 50% of all couples had disclosed the facts of the donor insemination to someone in the family. Thus, despite lower rates of disclosure to the child, embryo donation parents show relatively high rates of disclosure to others. For adoptive parents, the concern about accidental disclosure was exacerbated by parents' awareness of adoptees who had discovered their adoption by chance and had been very distressed by this revelation. IVF parents were

not as concerned about the possibility of accidental disclosure, probably because they were the genetic parents of the child.

Almost half of the disclosing parents in all three groups felt that the child had a right to know his or her origins, an argument used to support disclosure by many professionals working in the area of assisted reproduction (Blyth, 2002; Daniels, 1995). This has previously been found to be the most common reason for disclosure in donor conception families (Golombok, Lycett et al., 2004). In addition, many parents felt that there was no reason not to tell the child, particularly in the IVF group where nearly 60% of parents cited this reason, perhaps reflecting the fact that as IVF is becoming increasingly common there is no shame attached to having used this treatment. As with non-disclosure, the embryo donation parents' reasons for disclosure echo those given by other types of donor conception parents (Golombok et al., in press).

With respect to the telling process, the adoptive parents in the current study followed the pattern seen by Brodzinsky et al. (1998), with most parents introducing the idea of adoption at between 2 and 4 years. Those who had not yet told were planning to do so at a mean age of around 4 ½ years. At this age, the child may know the word 'adopted' but has little comprehension of what it entails (Brodzinsky, Singer et al., 1984). Disclosure is therefore not a one-off event but a process whereby information will be added as the child's cognitive abilities develop. The embryo donation and IVF parents who had already disclosed had taken similar approaches, introducing terms such as 'magic spark baby' or 'special fertility boy'. Although the child is unlikely to understand the implications of these terms, they are a basis on which the parents can build the child's knowledge. Of those parents who were intending to tell their child, the embryo donation parents and IVF parents were planning to tell at a significantly older age than the adoptive parents. This may be because some embryo donation and IVF

parents believed that an explanation of the complicated medical procedures involved would be too complex for a younger child. The advantage that adoptive parents have over the other family types is the increased availability of disclosure aids, such as the child's life-story book or other books about adoption, which enable them to explain adoption in child-friendly terms. Also, the adoptive parents had received advice on disclosure from social workers, and are aware that they can contact post-adoption services for support with this issue if necessary. Although not knowing how to tell the child was not frequently given as a reason for non-disclosure by embryo donation or IVF parents, the absence of accepted scripts for disclosure and the lack of post-treatment support may affect the age at which parents plan to tell.

As found in previous studies of donor conception families (Golombok et al., 1999), non-disclosure does not seem to negatively affect embryo donation families in terms of parent-child relationships or children's adjustment. However, the children in the present study were young so there remains the possibility that problems will develop as they grow older, and perhaps become aware that there is a secret in the family (Papp, 1993). As mentioned previously, there is a very real risk that the child will discover the facts of their conception at a later stage from another source. Adoption research shows that from about 8 years of age, children begin to comprehend the relevance of genetic relationships in families and show some ambivalence about being adopted, which may contribute to the increased risk of adjustment problems in adopted children (Brodzinsky, Singer et al., 1984; Singer et al., 1982). Embryo donation children who become aware of the donor conception as they grow older may experience similar problems.

It is also worth noting that the concerns surrounding disclosure voiced by embryo donation parents are not necessarily valid. A recent study of a small number of

donor insemination parents who had told their child about their conception reported that, rather than being distressed by this information, the children generally reacted with either curiosity or disinterest (Lycett, Daniels, Curson, & Golombok, in press). Similarly, studies in New Zealand by Rumball and Adair (1999), and in the US by Scheib, Riordan and Rubin (2003) found that disclosing donor insemination parents largely reported that their children had responded either positively or neutrally upon learning about their conception.

On the other hand, as mentioned earlier, embryo donation families were characterised by warm, affectionate parent-child relationships accompanied by good parental control, a pattern that is associated with positive child psychological adjustment (Baumrind, 1989). Also, embryo donation parents showed no evidence of raised levels of depression or anxiety, or of increased risks of marital difficulties. Since low levels of parental psychiatric disorder and marital conflict are conducive to healthy child psychological development (Cummings & Davies, 1994; Wilson & Gottman, 2002; Zahn-Waxler et al., 2002), associated problems in psychological adjustment would not necessarily be expected for embryo donation children later in life.

EMBRYO DONATION VS. ADOPTION

Since the main similarity between embryo donation and adoption is the lack of genetic relationships between parents and children, and the main difference between them is the presence of the gestational link in embryo donation (see Chapter 4), the experiences of the two types of families were examined in relation to these issues.

Genetic relationships

Although in both embryo donation and adoption, the child has a set of genetic parents with whom they do not live, in the current study adoptive parents viewed these

relationships as important to family life, whereas embryo donation parents did not. Embryo donation parents rarely talked about the donors, did not generally want information about the donors and, in the main, did not feel the need to inform the child of their existence. In common with the attitudes of some donors, embryo donation parents seemed to view the donation on a par with blood or organ donation (Soderstrom-Antilla et al., 2001). They were grateful to the donors for allowing them the chance to have a child but their feelings towards the donors did not go any further than that. In contrast, adoptive parents often talked about the birth parents, particularly the birth mother. Those who were in contact with the birth mother (all except two couples) were keen to let her know that the child was well and happy, acknowledging how difficult it must have been for her to relinquish her child. This recognition of the relevance of the birth parents did not seem to undermine the quality of parenting in the adoptive families. In fact, contrary to the proposition suggested by evolutionary psychology theory (Bjorklund et al., 2002), neither the adoptive families nor the embryo donation families showed any evidence of reduced investment in their child as a consequence of the lack of genetic relationships.

Gestational relationship

From a psychological perspective, it was proposed that both parents and children might benefit from the gestational link in embryo donation as compared to adoption (Eisenberg & Schenker, 1998). This did not seem to be the case, with no more positive parenting found in embryo donation families than in adoptive families. It may be that, as suggested previously, gestation gives embryo donation parents an initial psychological advantage, but by the time the child is 2 years old (in the situation where the adopted children were placed at less than 12 months), the adoptive parents have equally bonded to their child.

Socially, the gestational relationship does create differences in the experiences of embryo donation and adoption. Although the majority of embryo donation parents had told someone about the donor conception, they had generally not told all their family and friends since they were able to present the pregnancy as "natural conception" if they wished, an option not available to adoptive parents. Embryo donation parents were also far more likely to keep the non-genetic relationship secret from the child, resembling other donor conception families rather than emulating the full disclosure model of the adoptive families. Whether withholding this information from embryo donation children will have an impact on them as they grow older remains to be seen.

The question of whether those embryo donation children who are told about the donor conception will feel the same 'history of rejection' as adopted children are purported to also remains open at this stage. The adopted parents certainly perceived this as important, talking of the need to make their child aware that their birth mother did care about them but was simply unable to look after them. This topic was not discussed by embryo donation parents, although that does not mean it will not become relevant as the children come to understand what it means to have been conceived using donated embryos.

Overall, the gestational link present in embryo donation and absent in adoption does not appear to be affecting the families with respect to quality of parenting or children's psychological development. Where it is having an impact is on the parents' perceptions of the processes; embryo donation parents are to some extent able to forget that they even used donor conception, whereas adoptive parents include the fact of the adoption as part of the family history.

THEORETICAL AND CLINICAL IMPLICATIONS

In addition to the significance of the findings of the present study for increasing knowledge about different types of families created through assisted reproduction, it is important to consider what studies of this type can tell us about family functioning in general. The separation of genetic, gestational, and social parenting in some assisted reproduction families allows an examination of how these factors may affect parent-child relationships. Research on stepfamilies, where the child is raised by one parent with whom they lack a genetic link, has highlighted the importance of taking account of the biological relatedness of parent and child. In one study, both mothers and fathers reported more positive relationships with their own biological children than with their step-children, a finding supported by the children's own accounts of the relationships (Dunn, Davies, O'Connor, & Sturgess, 2000). Other researchers have found similarly reduced levels of positive parent-child relationships in stepfamilies (Hetherington & Clingempeel, 1992; Hetherington et al., 1999), suggesting that the issue of 'ownness' influences parents' feelings towards children. In terms of child outcomes, children in stepparent households were at greater risk for adjustment problems than children in families with two biological parents (Dunn et al., 1998). However, analyses showed that children's psychological problems were related to other family factors such as parent-child relationships, maternal depression and socio-economic disadvantages, rather than to being in a stepfamily per se.

Since embryo donation parents do not show less positive parenting than genetically related IVF parents, and nor do embryo donation children show increased psychological maladjustment compared to IVF children, it may be that the aspects in which embryo donation families differ from stepfamilies are crucial with respect to the effects on parenting and child development. Parents of children conceived through

embryo donation have actively chosen to have a genetically unrelated child, whereas stepparents have been forced into this position as a result of wishing to marry their partner. Moreover, in a stepfamily, there has been a biological parent whom the stepparent is replacing to some extent, a complication not encountered in the same way in embryo donation families. In addition, it has been found in both stepfamilies and adoptive families that the age of the child at family transition has a significant impact on their adjustment (Brodzinsky et al., 1998; Hetherington, Bridges, & Insabella, 1998). It appears that the later children enter into the new family situation, the greater their risk of developing emotional or behavioural problems. Embryo donation children do not experience these potentially adverse factors of separation from their initial caregivers and re-attachment to new parents, which may explain the positive outcomes. Similar conclusions have been drawn from other studies of donor conception families (Golombok et al., 1999).

Evolutionary psychology theory argues that parents invest in children in order to ensure the continuance of their own genes, and predicts that fathers in particular are most likely to invest 'when they are sure that the child is genetically their own' (Bjorklund et al., 2002). The suggestion from this and previous research on assisted reproduction families, pointing to positive relationships between parents and children, is that, for humans, the psychological and social rewards of parenting may be equally, if not more, important than the evolutionary benefits. It appears that the desire to become a parent can outweigh the potential drawbacks of genetic unrelatedness.

The relevance of the experience of pregnancy and childbirth for the development of mother-child relationships can also be investigated using the findings from embryo donation parents. Although associations have been found between prenatal attachment and postnatal attachment styles (Muller, 1996), the lack of differences in maternal

warmth and sensitivity between embryo donation and adoptive mothers indicate that prenatal attachment is not an essential prerequisite for mother-child bonding. This is supported by previous studies of adoptive families, where early-adopted infants did not show higher rates of insecure attachment styles than non-adopted infants (Singer et al., 1985). Further support comes from research on surrogacy families, where mothers who had not carried the pregnancy actually exhibited greater warmth and attachment-related behaviour towards their infants than a comparison group of natural conception parents (Golombok, Murray et al., 2004). For adoptive mothers and surrogacy mothers, the lengths to which they have gone to have a child indicates their commitment to motherhood. It is possible that their inability to carry a pregnancy themselves is compensated for by other aspects, such as the nurturing role of the mother or the opportunity to raise the much-wanted child with their partner. The psychological concept of motherhood is thus not a single entity, but comprises several components, of which gestation is only one.

In terms of clinical implications of the findings, the concerns raised about the consequences for parenting and child development of conceiving children through the use of donated embryos appear to be unfounded. As with other assisted reproduction families (Golombok & MacCallum, 2003), embryo donation parents appear to have good relationships with their children and are not at increased risk of marital and psychological problems. With respect to the children themselves, there is no evidence of a higher incidence of emotional or behavioural problems. Nevertheless, there may be consequences for the children later in life as a result of the increased emotional over-involvement, defensive responding or secrecy within the family. For example, if the embryo donation parents' emotional over-involvement persists as the children move through childhood and into adolescence, the children may develop low levels of

independence and self-reliance. The facilitation of age-appropriate autonomy by parents is seen as an important factor in healthy adolescent psychological adjustment, and a lack of autonomy could result in problems with social and emotional development (Collins, 1990). Family therapy could be necessary in such situations to address the issue of enabling the parents to 'let go' of the child.

Where embryo donation parents have not disclosed the circumstances of the conception to the child, there remains the possibility that the child will somehow find out at a later stage. Such a discovery could undermine the bonds of trust within the family and lead to difficulties in family relationships, possibly necessitating therapeutic intervention (Turner & Coyle, 2000). Those embryo donation children who are made aware of their donor conception by their parents at a young age may also experience difficulties in late childhood and early adolescence as they begin the process of identity formation. Clinicians treating children conceived through embryo donation should be aware that these children may need to accomplish similar tasks to those faced by adopted children with respect to the awareness of being a donor offspring and incorporating this awareness into their concept of self-identity. It has been suggested that, as with adoptees, donor offspring will need to create a 'family narrative' in order to re-evaluate their family relationships (Turner & Coyle, 2000). Whilst there is no reason for expecting any clinical problems for the majority of embryo donation families, when such problems do occur, the donor conception should be considered as a possible contributing factor.

METHODOLOGICAL ISSUES

The most obvious methodological weakness of the current study is the small magnitude of the sample of embryo donation families. To some extent, this was unavoidable since

the use of treatment with donated embryos is still relatively uncommon compared to other forms of assisted reproduction. Not surprisingly, most infertile couples prefer to attempt IVF or ICSI using their own gametes, and may give up if this does not work, with embryo donation being a last resort only utilised by those who are very determined to conceive a child. The exact numbers of children currently born each year in the UK who were conceived through embryo donation are not possible to ascertain since the HFEA classifies them together with children born through egg donation. However, the numbers are small, e.g., between 1991 and 1998, approximately 350 children were born as a result of this method, an average of 50 per year (HFEA, personal communication).

The three participating clinics comprised centres in Cambridge, Manchester and Sheffield, ensuring that the families in the sample were dispersed across different regions of the country in an attempt to recruit as representative a sample as possible. The response rate for these families was high when considering all those who replied (72%). When including those families who did not reply or who could not be traced, the lower response rate of 57% is still comparable with those of other types of families created by third-party reproduction in previous studies. For example, Klock et al. (1994) obtained a response rate of 50% with donor insemination families, and Golombok et al. (2004) obtained a response rate of 61% in a study of surrogacy families, which reflects the concerns of these types of families regarding secrecy and negative attitudes towards some types of assisted reproduction. Nevertheless, the lower response rate in the embryo donation families as compared to the adoptive or IVF families may have resulted in sampling bias influencing the findings of the study if parents of embryo donation children who were experiencing difficulties declined to participate. Since the HFEA policy on confidentiality states that no details about a patient can be passed on to researchers without the patient's consent, it was not possible to examine in detail

whether non-participating parents differed from those who agreed to take part. The information that was available on non-participants, e.g., from conversations with patients who telephoned to request further information about the study before declining, suggested that the refusal stemmed from a desire not to mark the family as 'different' in any way and to keep the child's genetic origins secret, rather than from problems the family was experiencing. Similar conclusions have been drawn previously regarding the non-participation of some donor insemination parents in research (Golombok et al., 1995). From this perspective, it is encouraging that many embryo donation parents who were not planning to tell their child about the donor conception still agreed to be interviewed.

Although small sample sizes inevitably lead to a reduction in the statistical power of any analyses conducted, and thus may result in some group differences not being detected, the study was still considered worthwhile since no other research has yet been carried out on families with children conceived using donated embryos. Given the sample sizes, the magnitude of the effect sizes of those differences that were identified was reassuring. For all except one of the findings, the effect size was greater than 0.5, the size described by Cohen (1988) as 'moderate', meaning 'large enough to be visible to the naked eye'. Many effect sizes were greater than 0.8, corresponding to a 'large' or 'grossly perceptible' effect (Cohen, 1988). These magnitudes suggest that the differences were substantively as well as statistically significant.

In any investigation using parental self-report, particularly with those families who are concerned about negative attitudes surrounding their method of family creation such as donor conception, one must be aware of the potential for social desirability bias since these parents are more likely to try to present themselves and their children in the best possible light. This may partly account for the elevated levels of defensive

responding seen in the embryo donation families. The use of multiple measures (standardised interviews and questionnaires) and more than one informant (mothers and fathers) goes some way towards combating this problem. Confidence in the findings can be inspired by the fact that similar patterns of findings were obtained from the data from both mothers and fathers. Information from respondents outside the family, for example, nursery school teachers or childminders, would have been useful in this context but this was not possible since not all the children were in professional childcare and many parents would not have agreed to external sources being contacted for fear of questions as to the subject of the research.

Although the effect of social desirability cannot be ruled out, the interview with the mother lasted between 1 and 2 hours and was designed to minimize such socially desirable responding, with detailed questioning about many different areas of family functioning. The variables derived from the interview were rated according to strictly defined coding criteria by a highly trained interviewer with several years experience working on studies of this type. Ratings depended not only on the verbal content of the parents' responses but also non-verbal aspects such as tone of voice and facial expressions. In addition, positive differences in parent-child relationships were not identified between the embryo donation families and the other family types as might have been expected if the embryo donation couples were trying to present a picture of themselves as especially positive parents.

The nature of the interview process, and the fact that parents were questioned about their experiences of the process of becoming parents, meant that it was impossible for the interviewer to be 'blind' to family type, raising the possibility of interviewer bias influencing the results. However, as mentioned above, the researcher had extensive experience of objective interviewing of parents in non-traditional families, and detailed

coding criteria were utilised. Although one researcher conducted all interviews, inter-rater reliabilities derived from a concurrently running study involving the same researcher and the same interview were generally good (Golombok et al., 2004). Moreover, some of the hypotheses of the study were not supported by the findings, implying that the differences identified were not simply ensuing from the expectations of the interviewer. If interviewer bias had been operating, it would most likely have resulted in more negative ratings for the adoptive families. In fact, the only finding that was negative in respect of adoptive families was the higher proportion of adopted children with conduct problems, a rating made by the parents themselves.

A further limitation of the study is the lack of observational assessment of the family environment or of parent-child relationships. However, previous experience with donor insemination and egg donation parents indicate that, because of their concerns about maintaining secrecy about the nature of the child's conception, the embryo donation parents would have been reluctant to allow assessment of this kind, reducing both the response rate and the sample size. In addition, time constraints would have made this difficult since the families all lived some distance from each other and from the research centre so observation would have had to be made in the home. Similarly, it would have been preferable for children's social and emotional development to be measured directly by the researcher rather than relying on parental reports. This was not attempted since it was felt that some parents would be unlikely to be willing for their child to be evaluated by a psychologist, an assumption borne out by several couples who agreed to take part only with the assurance that the researcher would visit when the child was absent or asleep. In consequence, the focus of the study is on parenting experiences, with only one questionnaire rating of child development. However, the measure of child adjustment used, the SDQ, is well established as a behavioural

screening questionnaire, discriminates well between psychiatric and non-psychiatric cases, and has been widely used with children from different family types (Dunn et al., 1998; Goodman, 1997; Goodman, Ford, Simmons, Gatward, & Meltzer, 2000).

POLICY IMPLICATIONS

One of the most contentious areas of policy regarding medically assisted conception using donor gametes is the issue of whether recipients and/or offspring should be allowed access to the identity of the donor(s). Internationally, laws regarding donor identity vary. Although the majority of countries that have regulation of assisted reproduction endorse anonymous gamete donation, there has been something of a trend towards releasing donor identity to offspring over the last 20 years after Sweden became the first country to abolish donor anonymity in 1985. Since then, Austria, Switzerland, and the Netherlands have followed suit (Frith, 2001). In addition, two Australian states have passed legislation allowing access to donor identity (Blyth, 1998), clinics in New Zealand generally now only accept donors who are willing to be identified (Daniels, Lewis, & Curson, 1997), and in the United States, clinics such as the Sperm Bank of California have begun to offer the options of both anonymous and non-anonymous donation (Raboy, 1993). The present law in the UK declares that identifying information on donors must be collected by the HFEA but only non-identifying information may be disclosed to recipients and offspring. Following a public consultation, the UK Government recently announced that new legislation will come into force from April 2005, allowing donor offspring access to the identity of donors on reaching the age of 18. This legislation will not be applied retrospectively so donor offspring conceived before April 2005 will not have the same access.

When considering the provision of information about gamete or embryo donors, the views and experiences of couples who have undergone assisted reproduction using donated gametes are highly relevant. In the current study, embryo donation parents were given a choice of three options regarding the optimum level of information available about donors; complete donor anonymity, limited non-identifying donor information only, or identifiable donors. Whilst approximately half of the embryo donation parents (52%) were satisfied with receiving non-identifying information about the donors, 38% would have preferred complete donor anonymity, and only 10% wanted the option of identifiable donors to be available. Examples of the type of non-identifying information desired are physical characteristics, medical history and demographic data, such as occupation. These findings are similar to those from a study of egg donation and donor insemination parents, where the majority of parents opted for the choice of detailed non-identifying donor information, and just 14% of donor insemination parents and 23% of egg donation parents favoured donor-identity release (Golombok, Lycett et al., 2004). Thus, only a minority of parents with children conceived using donor gametes would advocate access to donor identity and the proportion of embryo donation parents preferring identifiable donors is comparable to or smaller than that of other donor conception parents.

According donor offspring the legal right to the identity of their genetic parents has no meaning if the offspring are not informed of the circumstances of their conception. Two opposing predictions have been made about the likely consequences on parental disclosure of the removal of donor anonymity (Pennings, 1997). Firstly, anonymity can be seen as supporting secrecy about the donor conception. Parents in the current study and in previous research (e.g. Cook et al., 1995) cite the lack of available genetic information as contributing to their decision not to tell the child. As they have

no further details to share with the child, parents feel that to know that there is a donor but not be able to locate him or her would cause the child unnecessary confusion and frustration. From this view, non-anonymous donation would create a culture more conducive to parents telling children. In support of this, the small number of embryo donation parents who were in favour of donor identity release were also inclined towards disclosure to the child.

The alternative position is that parents would actually be less likely to disclose to the child if donors were identifiable, due to the threat the parents feel the donor presents to family cohesion and parent-child relationships. This threat may be especially pronounced for embryo donation parents where the donors are generally a married couple who may themselves have children who will be the full genetic siblings of the embryo donation child. Unlike the situation in donor insemination or egg donation, the embryo donation child would locate not only one genetic parent, but a full genetic 'family'. Embryo donation parents' concerns about this outcome may be contributing to their preference for non-identifiable donors.

From the parents' perspective, the optimal strategy would seem to be that of the 'double track' policy (Pennings, 1997). Under this system, both donor and recipient can choose the option of anonymity or identity-release. Thus, those parents who feel strongly that their child has a right to know their donor would opt for an identifiable donor, whereas others could continue to opt for anonymous donors. It should be noted, however, that from the child's perspective, this system would not help children who wish to trace their donor but whose parents have chosen a non-identifiable donor. A double track system has been utilised in Iceland (Frith, 2001) and in some centres in the US and the Netherlands (Pennings, 1997). The forthcoming UK legislation does not offer this option, with open-identity being mandatory. It is possible that rather than

creating a more open climate surrounding donor conception, this will have the opposite consequence of discouraging parents from disclosure. Some couples may even be deterred from having treatment with donor gametes, not wanting the involvement of the donor in their child's life.

Whichever policy is adopted regarding identity release, if the idea is to promote openness about donor conception, parents may benefit from counselling to allow them to explore the issues raised by their disclosure decision (ESHRE, 2002). Current UK practice is to offer voluntary counselling during the treatment process, but not all patients take up this offer. Compulsory counselling to some degree would ensure that all couples are aware of the benefits and disadvantages of disclosure vs. non-disclosure. The provision of guidelines on the timing and method of disclosure would also be helpful to assisted reproduction parents, many of whom in the present study felt they could not share the details of the conception until the child had a full understanding of natural conception. Post-treatment counselling services would also facilitate the disclosure process, allowing couples to view sharing the information about the conception as an ongoing process dependent upon the child's developmental stage, as is seen in adoptive families (Brodzinsky, Singer et al., 1984; Daniels & Thorn, 2001).

A further policy issue regarding embryo donation children relates to the parent selection process. As discussed earlier, some mental health workers suggest that embryo donation requires the same safeguards as adoption whilst others argue that embryo donation should be treated in the same way as other forms of assisted reproduction (Bernstein et al., 1996; Robertson, 1995). From an ethical viewpoint the magnitude of the disparity in the criteria applied to embryo donation parents and to adoptive parents seems difficult to justify, due to the similarities between the two procedures (Widdows & MacCallum, 2002). In both situations, parents are raising a child who has other

genetic parents and thus, if psychosocial factors are primary in selecting adoptive parents, they should also play a part in the screening of embryo donation parents. The stipulation in the Human Fertilisation and Embryology Act (1990) regarding the welfare of the child does necessitate taking social factors into account when vetting would-be embryo donation patients. At present, social criteria are not enforced in a systematic way and professionals trained in making psychological or social judgements are largely not involved. Despite this, the findings of the current study indicate that embryo donation families are functioning well and that the children are not at risk for problems in psychological adjustment. This suggests that there are no psychological grounds for further screening of embryo donation recipients. Furthermore, adopted children often come from difficult backgrounds having experienced abuse and/or neglect, necessitating the screening of adoptive parents for their ability to cope with any ensuing child problems. This issue is not relevant for embryo donation families. The HFEA is currently reassessing the 'welfare of the child' clause of the HFE Act and it is to be hoped that the result will be a clearer definition of what is encompassed by this somewhat vague phrase.

DIRECTIONS FOR FUTURE RESEARCH

As the first sample worldwide of families with a child conceived through embryo donation to be studied from a psychological viewpoint, it would be valuable to follow up these families in the future. As the children grow older, issues involved in dealing with the method of family creation are likely to change. For example, at this young age, the children's cognitive limitations mean that even those who are told about the circumstances of their birth will not yet comprehend the meaning of this knowledge. As discussed earlier, adoption research shows that by eight years of age, most adopted

children experience some ambivalence about being adopted as they begin to gain the insight that adoption first involves relinquishment. Therefore, it would be interesting to revisit the families to investigate whether this growing awareness is observed in embryo donation children, and how it has affected the children themselves or the relationships within the family. Seeing the families as the children grow older would also allow an examination of whether those parents who had not currently disclosed the circumstances of the child's birth, but were intending to do so, had yet followed through this intention. In addition, the consequences of secrecy vs. openness about the child's genetic origins for child psychological outcomes could be investigated. It is possible that parents' attitudes towards disclosure will alter according to both the child's age and the current social climate regarding the use of donor gametes and embryos in conception. The new UK law in 2005 concerning donor identity could attract media attention and result in a shift in social attitudes, perhaps encouraging parents who were not inclined towards disclosure at the time of study to change their minds.

A further follow-up of the families should be conducted after the children reach adolescence. It is at this stage of development that issues of identity formation assume greater importance and parent-child conflict becomes more frequent (Coleman & Hendry, 1999). Early adolescence is also the time when adopted children show the most markedly greater incidence of behavioural problems in comparison with their non-adopted counterparts (Bohman & Sigvardsson, 1990; Brand & Brinich, 1999). Thus, difficulties may arise for adolescents conceived through embryo donation to the extent that the method of conception interferes with the quality of parenting provided, and with the adolescents' concepts of self-esteem and self-competence. At adolescence, the children would be old enough to be interviewed themselves about their relationships with their parents, giving a further source of information. In disclosing families,

adolescents from all three family types could be compared as to their concepts of and feelings about the circumstances of their birth. One possible criticism of the current study is that the children are too young for difficulties arising from the method of family creation to have emerged. Monitoring the progress of the families throughout childhood and beyond would enable deeper understanding of the effects of being conceived through embryo donation.

To some degree, the study findings have been discussed with the assumption that any variations between family types are a result of the processes of family creation experienced. An alternative hypothesis is that the couples in the three family types possess different characteristics before they begin the infertility treatment or adoption process, and thus the differences found later reflect these characteristics. For example, the high defensive responding and low disclosure of donor conception in the embryo donation families, along with the embryo donation mothers' increased reluctance to discuss personal matters with family and friends, may be indicative of a general attribute of privacy and secrecy in embryo donation parents. Parental characteristics may be informing which process of family creation they opt for, insofar as couples who highly value their privacy might prefer embryo donation to adoption. Unlike adoption, embryo donation does not require the intrusiveness of a social worker's assessment and the pregnancy allows parents to keep the fact of the treatment to themselves. Further research could attempt to disentangle whether the differences between embryo donation and adoptive parents are the result of the processes undergone, or whether they existed prior to parenthood. One way of achieving this would be to interview prospective embryo donation patients and prospective adopters at the start of each procedure, and compare the two groups, e.g., on measures of openness. These subjects could then be

reassessed at different time-points throughout the procedures to ascertain any potential changes resulting from their experiences.

Since this is the first study of embryo donation families, the findings need replication. More children have now been born through embryo donation, enabling a larger sample to be examined, which would increase the power of the analyses and the generalisability of the findings. Recruiting a new group of embryo donation parents for research would also allow an investigation into whether the donor-identity release legislation has an effect on the type of couples opting for this method of family creation. As previously discussed, couples who are strongly against permitting access to donor identity may be deterred from embryo donation treatment once the law is changed. Those who select this method of conception in the future may be more inclined towards disclosure than is the current sample of embryo donation families. Further research on embryo donation families has implications for increasing understanding of the importance of genetic and gestational relationships between parents and children. To some extent, these families can be seen as offering a 'natural experiment' with a complete separation of genetics from environment, including the prenatal environment. Thus, different aspects of parenting that usually occur together, including genetic, gestational, and social contributions, can be teased apart.

GENERAL CONCLUSIONS

The development of the technologies of IVF and embryo freezing has created a new route to parenthood. Infertile couples can conceive using an embryo created by another couple, and thus raise a non-genetically related child without undergoing the lengthy and intrusive procedure of adoption. Concerns have been raised regarding the psychological effects on parents and children of creating a family in this manner. Some

of these concerns are general to all families created by methods other than natural conception, such as the potential for dysfunctional parenting patterns to develop as a result of the parents' experience of infertility. Other considerations are more specific to embryo donation families, including the complete absence of information with which to provide the child about their genetic background. From the evidence gathered for this study, such concerns appear unfounded. Parents of children conceived using donated embryos appear to form positive warm relationships with their children, despite the lack of genetic links. Furthermore, the parents in these families do not seem to suffer lasting ill-effects on their own psychological well-being. With respect to the children themselves, there is no indication of problems in socioemotional development.

The question of whether the experience of conceiving a child through embryo donation more closely resembles infant adoption or other assisted reproductive methods has also been debated. To explore this issue, embryo donation families were compared with adoptive families and IVF families. In terms of the psychological aspects of parenting and child development, families in all three groups were functioning well. They were generally characterised by stable marriages, psychologically healthy parents, a high quality of parenting, and well-adjusted children. Where differences were identified between the groups, these reflected a greater degree of emotional over-involvement with the child by embryo donation parents and by IVF mothers, along with higher levels of defensive responding by embryo donation parents. The increased length of the period of infertility for embryo donation parents may be a contributing factor, along with the stress of pregnancy, and the possibility that different types of people opt for embryo donation than opt for adoption or IVF. For children, the only consequence of the method of family creation demonstrated was the increased risk of

conduct problems in adopted children, following the pattern of previous adoption research.

Parents' attitudes towards and experiences of the process of infertility treatment or adoption varied to a greater extent between family types. Embryo donation parents behaved more similarly to families with children conceived through other forms of donor conception than they did to adoptive parents. They were more secretive about their method of family creation and were less likely to consider the role of the genetic parents as having any significance for themselves or their children. It is not possible to tease out from the current data whether these differences arose as a result of parents' experiences of the procedures, or whether they reflect pre-existing parental attributes that influenced their choice of route to parenthood. Despite the similarities in psychological consequences for parents and children of embryo donation and adoption, it seems that parents do perceive the processes in quite dissimilar ways.

The most striking distinction between embryo donation and adoption is the presence of the gestational link in embryo donation, which gives rise to differences from legal, psychological, social and practical perspectives. Possibly the assessment and screening procedures in place for adoptive parents are partly responsible for the high quality of parenting seen in these families where the gestational link is absent, since only those couples who are capable of overcoming this potential disadvantage are accepted to adopt. The gestational link may also contribute to the differing parental perceptions in that it allows embryo donation parents to feel the child is 'theirs' to a greater extent than adoptive parents. Nevertheless, there is no support from the evidence available for the notion that prenatal attachment of the parents to the child results in better family functioning after the child is born.

Neither are theoretical predictions that parents will form less positive relationships with children to whom they are not genetically related supported by the findings from the present study. Embryo donation and adoptive parents, both of whom are raising non-genetic children, do not exhibit decreased levels of warmth or sensitivity towards their children as compared to genetically related IVF parents. It appears that it is the desire to become a parent and the subsequent commitment to parenting shown by these couples that is important, rather than the biological relationships between parents and children.

The embryo donation parents' attitudes towards disclosure of the donor conception contrast sharply with the prevailing opinions of social policy makers that openness is most beneficial for children. Non-disclosure did not seem to have a negative effect on the functioning of families with children aged up to 5 years old, but it remains to be seen how these children will fare as they grow up. Whether such attitudes will be influenced by changes in legislation is also an issue that would merit investigation. The current study was designed to be exploratory in nature and further research is necessary in this area. In particular, recruitment of a larger sample of embryo donation families, if possible, would increase the generalisability of the findings.

The findings of the present study suggest that what seems to matter most for children is not the family structure, i.e., whether parents and their children are genetically or gestationally related or not, but the processes that are occurring within the family. The keys to successful parenting in all families include provision of high levels of warmth combined with appropriate discipline, best accomplished by psychologically stable parents who are in satisfying marital relationships. Families where parents are raising a non-genetic child face additional tasks, such as overcoming the parents' desire for their own biological child, and consideration of the significance of the child's

genetic heritage. When parents manage to meet these challenges, the outcomes are beneficial both for their experience of parenting and for the child's psychological development.

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APPENDIX 1

RECRUITMENT LETTER

[Clinic Headed Paper]

Dear

Our clinic is currently involved in a study of families whose children were conceived through treatment with donated embryos and I am writing to everyone whose child was born in this way to invite them to take part in the research. The study is being conducted at City University, London, under the supervision of Professor Susan Golombok, who is renowned for her important work on the development of children conceived by assisted reproduction. We are interested in your experience of pregnancy and childbirth and of bringing up a family.

If you may be interested in taking part, you will be contacted by Fiona MacCallum, a researcher at City University, who will give you more information about the study. If you are then willing to participate, she will arrange a convenient time for you to be interviewed. The interview will take about 1½ hours of your time, and can take place in your own home if you wish. Alternatively, you might prefer to visit the interviewer, and if so your travelling expenses will be paid. I would like to stress that all of the information will be treated with the strictest confidence and will be used for statistical purposes only. Your name will not be used.

By interviewing parents about their experiences, it is hoped that couples attending our clinic in the future can be better informed and prepared. I do hope you will agree to participate but you are, of course, under no obligation to do so, and would be free to withdraw at any time. Please complete the enclosed reply card indicating whether or not you are happy to be contacted about the research and return it to us in the stamped addressed envelope. If you do not wish to take part your details will not be passed on to the researcher and you will not be contacted again.

With many thanks,

Clinic Director

APPENDIX 2

INTERVIEW SCHEDULE

HOUSEHOLD STRUCTURE

I'd like to begin by getting a few details about your family and who lives here with you.
(Obtain number of adults, number of children and relationships to mother)

Name	Sex	D.O.B.	Age	Relationship/ Parentage	Method of conception

(PROBE: Were any of your children conceived by assisted reproduction, such as IVF, donor insemination or egg donation?

Are any of your children adopted or fostered?

Do you have any children who don't live with you?)

Do you mind telling me how old you are? (get d.o.b)

Can I just check, is (partner) (child's) father?

IF NOT: Who is?

Number of siblings in household

___

Current partner
Not child's father 0
Child's father 1
No partner 9

Mother's relationship with child's father
Married/cohabiting.....1
Separated/divorced.....2
Father died 3

OCCUPATION/TRAINING

Are you working now - I mean a job outside the home?

IF YES: Is that full-time or part-time?

How old was (child) when you went back to work?

What were your reasons for returning to work?

IF NO: Have you worked in the past?

What is your occupation?

Have you had any further training for anything since you left school?

Does your partner work?

IF YES: Full-time or part-time?

IF NO: Has he worked in the past?

What is his occupation?

Has he had any further training since leaving school?

How would you describe your ethnic identity?

How would you describe your partner's ethnic identity?

Working status
Not currently working.....0
Working part-time.....1
Working full-time 2

Mother: ___

Partner: ___

Age of child at return

___ **weeks**
Not applicable 99

Reasons for return to work
Not working 9
Financial.....1
Career.....2
Social/contact.....3
Intellectual/stimulational.....4
Other (specify) 5

Occupation
Professional/managerial.....1
Skilled non-manual 2
Skilled manual.....3
Partly skilled or unskilled....4
Not applicable 5

Mother: ___

Partner: ___

Further training
None.....0
Apprenticeship 1
Non-professional training....2
Professional non-graduate...3
Graduate.....4

Mother: ___

Partner: ___

Ethnic identity
Caucasian 1
Indian/Pakistani/
Bangladeshi.....2
African/Afro-Caribbean.....3
Middle Eastern 4
Far Eastern 5
South American/Hispanic ...6
Other 7

Mother: ___

Partner: ___

CONCEPTION

When did you decide you would like to have a baby?

Decision baby

___yrs ago

When did you discover that there was a problem?

Problem discovered

___months later

Did you find out what the problem was?

Diagnosis

Male problem 1
Female problem 2
Male + female problem 3
Unexplained 4

EXPERIENCE OF EMBRYO DONATION

Now I'd like to ask you about your experiences of infertility treatment.

First of all, could you tell me why you opted for embryo donation rather than any other infertility treatment?

Why ED?

No 0
Yes 1

Female partner infertility __

Male partner infertility __

Female partner carrier of genetic disease __

Male partner carrier of genetic disease __

Mother wanted pregnancy __

Failed IVF treatments __

Reduced cost compared to IVF treatment __

Other (specify) __

Did you consider applying for adoption? (PROBE)

Experience of embryo donation (cont.)

What first caused you to consider embryo donation as an option for you?

Consider ED

Media coverage 1
Suggested by clinician..... 2
Suggested by friend/relative3
Other (please specify)..... 4

Was it a joint decision to try this method?

Was one of you more keen than the other at first?

Joint decision ED

Male decision 1
More male than female..... 2
Joint..... 3
More female than male..... 4
Female decision..... 5

How about by the time you went for treatment?

At beginning: ___

At treatment: ___

Did you have any failed attempts before you conceived (child)?

No. of failed attempts

___

Infertility treatment can be very expensive, how did you cope financially?

(PROBE: Did you have to change your lifestyle in any way? Did you have to borrow money?)

Financial burden

None, well off..... 0
None - NHS paid..... 1
Some..... 2
Moderate 3
High..... 4

DETAILS ABOUT DONORS

Can I just ask, do you know if the embryo was donated by a couple or by two separate donors?

What do you know about the donors?

(IF KNOWN: Who is it?)

Before (child) was born, did you think about the donors?

How often?

And what about now, do you think about the donors?

How often?

Donor

Couple 1
Separate egg & sperm 2
N/A 9

Donor info

None 1
Physical characs only 2
Physical + some demographic info 3
Physical, demographic + treatment outcome 4
Physical, demographic + pen picture 5
Known donor 6
N/A 9

Couple: ___

Male: ___

Female: ___

Think about donor

Never 1
Rarely 2
Occasionally 3
Frequently 4
N/A 9

Before birth:
Couple: ___

Male: ___

Female: ___

Currently:
Couple: ___

Male: ___

Female: ___

Details about donors (cont.)

Before (child) was born, did you talk about the donors with (partner)?

How often?

(PROBE: any difficulties between mother and father about the donors)

Talk about donors

Never 1
Rarely 2
Occasionally 3
Frequently 4
N/A 9

Before birth:
Couple: ___

Male: ___

Female: ___

Currently:
Couple: ___

Male: ___

Female: ___

And what about now, do you talk about the donor(s) with (partner)?

How often?

IF NEVER TALK: (PROBE: reasons why not, e.g. mother doesn't want to, no need to/not important)

Reasons not talk

Father decided 1
Mother decided 2
Joint decision 3
Not important/no point 4
N/A 9

Details about donors (cont.)

ASK ALL:

As you are probably aware, the majority of fertility clinics in the UK use anonymous donors. If it was up to you to decide, what would you choose out of the following three options:

1. The donors are completely anonymous;

2. Some limited non-identifying information about donors is available for the parents;

3. The identity of the donors can be disclosed to the parents and/or the child.

(NOTE REASONS FOR CHOICE)

Information about donors

Remain anonymous 1
Some non- identifying information 2
Disclosure of identity 3
Don't know/no pref. 9

CHILD'S BIRTH AND SOCIAL HISTORY

I'd like to ask you some questions about the health and behaviour of (child), just to see how s/he has developed and is getting on, but first of all may I go over a few things about his/her birth?

How did you feel when you first found out you were pregnant?

(PROBE: apprehension, fear, happiness, etc.)

Concerns about pregnancy at start

Happy 4
Mild apprehension 3
Mixed 2
High anxiety 1

Mother: ___

How did your partner feel?

Partner: ___

Child's birth (cont.)

Did your feelings change during the pregnancy?

Concerns about pregnancy at end

Happy 4
Mild apprehension 3
Mixed 2
High anxiety 1

Did his feelings change during the pregnancy?

Mother: ___

Partner: ___

Could you tell me about the pregnancy, did you have any problems?

IF YES: (PROBE: type and severity of difficulty)

Difficulties in pregnancy

No difficulties 0
Minor difficulties 1
Moderate difficulties 2
Major difficulties 3

Were there any problems for your baby during the pregnancy?

IF YES: (PROBE: type and severity of difficulty)

Place of birth

Was s/he born in hospital or at home?

Hospital 1
Home 2
Other 3

Gestation

Was s/he early, or late or on time?

___**weeks**

Child's birth (cont.)

Was the birth easy or difficult?

(PROBE: induction, caesarean, use of forceps, or other difficulty)

Birth complications

None 0
Minor complications 1
Moderate complications 2
Major complications 3

IF CAESAREAN: Did you choose to have a caesarean or was it an emergency?

Caesarean

None 0
Elective 1
Emergency 2
Not applicable 9

Was your partner present at the birth?

IF NO: Did you want him there?

Partner present at birth

Chose not to 0
Not wanted by mother 1
Present at least some of the time 2

What did (child) weigh at birth?

Birthweight

.....lb.....oz

or.....kg

MAJOR HEALTH PROBLEMS AND CARE PLACEMENTS

After (child) was born, did s/he need to be in an incubator or have any special care?

Special care
___**days**

For how long?

Since then, have you ever had any health problems with (child)?

(PROBE: If major or chronic problems)

Child in hospital ever

No 0
Yes 1

IF YES: Has s/he ever had to go into hospital for 7 days or longer?

(PROBE: Specific reasons for hospitalisation)

Reasons for hospitalisation

Infections 1
Operations 2
Accidents/injury 3
Not applicable 9

How old was s/he then?

Age of child (1st time)
___**months**
Not applicable 99

How long did s/he spend in hospital in total?

Duration of stay (1st time)
___**weeks**
Not applicable 99

Age of child (2nd time)
___**months**
Not applicable 99

Duration of stay (2nd time)
___**weeks**
Not applicable 99

Have you ever had any other particular worries about his/her development?

(PROBE: Type and level of problem)

Major health problems and care placements (cont.)

Was s/he born with any physical disabilities?

IF YES: What were they?

Congenital abnormalities

None 0
Minor, no disfigurement or impaired function 1
Major, disfigurement or impaired function 2

NOTE ANY CONGENITAL ABNORMALITIES.

Has s/he ever been looked after by someone else for 1 month or longer?

Child looked after by others

No 0
Yes 1

Why was that?

(PROBE: Mother's illness, family problems)

Reasons for care

Parental medical 1
Marital/parenting 2
Other 7
Not applicable 9

Who looked after him/her?

Person caring for child

Father in home 1
Kin at home 2
Kin outside home 3
Other 7
Not applicable 9

PARENTAL ROLE

How did you feel about having him/her home in the first few weeks after his/her birth?

Were there any conflicts for you over, say, work or looking after the rest of the family?

And how about by the time s/he was one year old?

Mother's feelings on parent role

Happy 5
Happy + role strain 4
Ambivalent 3
Resigned 2
Rejecting 1

In first month ☐

After a year ☐

How did your partner feel about having him/her home in the first few weeks after his/her birth?

And how about by the time s/he was one?

Partner's feelings on parent role

Happy 5
Happy + role strain 4
Ambivalent 3
Resigned 2
Rejecting 1

In first month ☐

After a year ☐

PARENTAL DESCRIPTION OF THE CHILD

I'd like to go on now and talk about how (child) is getting on, and the pleasures and problems you are having in bringing him/her up.

But first it would be a great help if you could tell me in your own words what s/he is like, so that I can get a picture of him/her in my mind before we go on.

May I ask you to think about just three things and say something about (child) for a couple of minutes on each of these?

WHAT DOES (CHILD) LOOK LIKE?

WHAT IS HIS/HER PERSONALITY LIKE?

WHAT IS S/HE LIKE TO LIVE WITH?

RELATIONSHIP WITH MOTHER

How do you get along with (child)?

Is s/he easy to be affectionate with?

In what ways does s/he show affection towards you?

Do you enjoy each other's company?

Most children enjoy playing and showing their toys to others; in what ways do you play together?

How often do you do this?

What does s/he enjoy doing most with you?

(PROBE: whether activity jointly engaged upon by mother and child, whether mother supervises, etc.)

Is playing with (child) something you enjoy?

How much do you enjoy it?

Do you always enjoy it?

Overt warmth in relationship

Little or none 0
Some 1
Moderate 2
Marked 3

Mother to child ___

Child to mother ___

Type of play showed by mother and child

None 0
1-2 per week 1
3-6 per week 2
Daily 3
> daily 4

Imaginative/symbolic e.g., pretend play ___

Constructional e.g., puzzles/games ___

Drawing/writing/reading/ listening to stories ___

Watching TV/videos together ___

Rough and tumble ___

Household activities ___

Other (specify) ___

Mother's enjoyment of play

Little or none 0
Some 1
Moderate 2
A great deal 3

RELATIONSHIP WITH FATHER

RATE SEPERATED FATHERS ONLY IF THE CHILD IS SEEN AT LEAST WEEKLY

How would you describe (father's) relationship with (child)?

Do they show affection towards each other? In what ways?

Do they enjoy each other's company?

In what ways do they play together?

How often do they do this?

What does (child) enjoy doing most with (father)?

(PROBE: whether activity jointly engaged upon by father and child, whether father supervises, etc.)

Is playing with (child) something (father)enjoys?

How much do you think he enjoys it?

Do you think he always enjoys it?

Overt warmth in relationship

Little or none 0
Some 1
Moderate 2
Marked 3

Father to child ___

Child to father ___

Type of play showed by father and child

None 0
1-2 per week 1
3-6 per week 2
Daily 3
> daily 4

Imaginative/symbolic
e.g., pretend play ___

Constructional
e.g., puzzles/games ___

Drawing/writing/reading/
listening to stories ___

Watching TV/videos
together ___

Rough and tumble ___

Household activities ___

Other (specify) ___

Father's enjoyment of play

Little or none 0
Some 1
Moderate 2
A great deal 3

BEDTIME

One thing some parents find difficult is getting their children into a routine for bedtime.

What time does (child) usually go to bed?

Does s/he have a set bedtime?

IF YES: Does s/he actually go then?

Is it difficult?

IF NO: Who decides when s/he goes?

ASK ALL: How do you settle him/her down?

Does s/he have a story? Or any other regular ritual at night?

Is bedtime a difficult or easy time?

What kinds of delaying tactics does s/he use?

How much of a battle is bedtime for you?

Control of bedtime

Controlled by child 1
Some parental control 2
Parents: flexible 3
Parents: flexible (w/e) 4
Parents inflexible 5

Ease of bedtime

No difficulty 0
Minor reluctance only 1
Significant resistance 2
Resistance & disruption 3
Major battles 4

DISCIPLINARY INTERACTIONS

Most children of this age have battles with their parents over something. What things in (child's) behaviour cause you most worry or irritation at home?

How often does this happen?

When did it last happen?

What did s/he do?

How did you react at first?

What happened then?

Is that what usually happens?

Does it ever end differently?

Has it ever got more serious than that?

Have you ever needed to smack him/her?

Frequency of dispute (in past 3 months)

..... ____

Level of battle

No confrontations 0
Minor episode (5 mins) 1
Moderate 2
Major 3

PARTNER'S CONTRIBUTION TO PARENTING

Bringing up children can be hard work at the best of time – what part does your husband/partner play in helping you with him/her?

When (control issue) happens, what does (partner) do?

Does it happen when he's here?

Would you tell him about it when he got home?

What would he do then?

Does he have any particular battles with (child) himself?

What happens between them?

Do you and he try to work together as far as discipline is concerned? Do you discuss discipline issues?

Do you ever disagree about how to handle things?

Partner's help in control

No partner 9
Exacerbates issues 1
Passive/unhelpful 2
Helps in extremis 3
Helps when asked 4
General backup 5
Active support 6
Takes the major load 7

Parental coordination over control

No partner 9
Active uncoordination 0
Passive uncoordination 1
Routine 2
Some joint policy 3
Coordinated action 4

Partner's contribution to parenting (cont.)

Do you feel you can rely on him to help you deal with (child), or do you sometimes feel its all being left to you?

General reliability in parenting support

No partner 9
No support 0
Unreliable 1
Low 2
Moderate 3
Very reliable 4

Does he always do what he's said he will with regard to (child) or does he sometimes let you down?

Are there ways in which he takes the load off you, for example, in looking after (child) if you're busy or when you want to go out?

Load taking

No partner 9
None 0
Minor 1
Some/average 2
Active load taking 3
Major parenting load 4

DAY CARE

Has (child) ever been regularly looked after by anyone else during the day?

For example, a childminder or nanny?

Or any relatives or friends?

Has s/he ever gone to a day nursery or crèche?

How about playgroups or nursery school?

Roughly how many hours in a week does s/he spend with them?

How old was s/he when this started?

Was (child) looked after anyone else before that?

How many different people?

N.B. To rate care experiences, they must have lasted as long as one continuous month.

Age started daycare

__

Not applicable..... 99

Hours per week in day care

__

Not applicable..... 99

Day care

None 0
In own home relatives 1
In own home, others 2
Outside home, relatives 3
Outside home, others 4
Day nursery/crèche..... 5
4 & 5..... 6
Playgroup..... 7
Nursery school..... 8

Current placement

__

Not applicable..... 99

Previous placement (rate longest)

__

Not applicable..... 99

No. of day care placements

__

Not applicable..... 99

FAMILY CONTACTS

I'd just like to ask a few questions about your family and friends.

How much contact have you had with any of your relatives in the past 3 months?

Are your parents still alive?

How do your parents feel about (child)?

What about your siblings?

Are your husband's parents still alive?

How do your husband's parents feel about (child)?

What about his siblings?

Contacts with relatives

Frequency (in past 3 months)

___

Relatives' feelings towards child

Not applicable..... 9
Happy..... 1
Ambivalent..... 2
Resigned..... 3
Rejecting..... 4

Maternal grandmother: ___

Maternal grandfather: ___

Paternal grandmother: ___

Paternal grandfather: ___

Maternal siblings: ___

Paternal siblings: ___

FRIENDS

How often have you had contact with a friend in the last month or so?

How do your friends feel about (child)?

Contact with friends

Frequency (in past 3 months)

___

Friends' feelings towards child

Generally positive
and accepting..... 1
Some ambivalence..... 2
Some rejection..... 3
Not applicable..... 9

SOURCES OF SUPPORT

Is there anyone you can turn to for help or advice about (child)?

For example, can you talk to your family?

What about your husband's family?

How about your friends?

Are you a member of a parent support group? Can you talk to them about (child)?

How much practical help do you get from relatives or friends with bringing up (child)?

For example, babysitting? (unpaid)

Or looking after the children for you?

Or giving you clothes/toys?

Emotional support from others

Cannot discuss problems 0
Discuss some problems 1
Discuss all problems 2
Not applicable 9

Own kin: ___

Spouse's kin: ___

Friends: ___

Support group/
Other: ___

Practical help from others

None 0
Some but insufficient 1
Occasional when needed 2
Regular needed help 3
Not applicable 9

Own kin: ___

Spouse's kin: ___

Friends: ___

Support group/
Other: ___

TELLING OTHERS ABOUT CONCEPTION

I'd like to turn now to how you feel about telling others about how (child) was conceived.

Before (child) was born, did you and your husband discuss what you were going to tell people?

Discussion about telling

None 0
Some 1
Much 2

Did you agree?

Agreement about telling

No 0
Yes 1
Not applicable 9

Do you still agree about what to tell now that (child's) born?

Before birth: ___

Currently: ___

Have you told anyone at all?

Told anyone

No 0
Yes 1

Telling family

Can I just check, have you told any of your family about the way in which (child) was conceived?

Telling family

Not told/plan not to 0
Plan to tell 1
Told after birth 2
Told after conception 3
Told before conception 4
Not applicable 9

Have you told your parents?

Maternal grandparents: ___

Paternal grandparents: ___

How about your brothers or sisters?

One or more maternal sib: ___

One or more paternal sib: ___

Have you told your husband's family?

Other children: ___

Telling about conception (cont.)

IF YES: When did you tell them?

What made you decide to tell them?

What have you told them about it?

Did you tell them everything or did you leave some details out?

What was their reaction when you first told them?

How do they feel about it now?

IF NO: Do you plan to tell any of your family at any time?

Why have you decided not to tell them?

Reasons for telling

No 0
Yes 1
Not applicable 2

Wanted to share: ___

No reason not to: ___

To avoid disclosure: ___

Had to/ no choice: ___

Other (specify): ___

Discussion

None 0
Some 1
Full 2

Family's reaction

Negative 1
Neutral/mixed 2
Positive 3

When first told: ___

Currently: ___

Reasons against telling family

No 0
Yes 1
Not applicable 2

To protect child: ___

To protect mother: ___

To protect father: ___

To avoid disapproval: ___

No need to tell: ___

Don't know what to tell: ___

Other (specify): ___

Telling friends

Have you told any of your friends about how (child) was conceived?

Telling friends

None 0
One friend 1
A few friends 2
Many friends 3

Have you told all your close friends or only a couple?

TELLING CHILD

Have you told (child) about the way s/he was conceived?

IF NO: Do you plan to tell him/her?

IF YES OR UNCERTAIN: What do you plan to tell him/her?

Telling child

Plans not to tell 1
Uncertain 2
Plans to tell 3
Already told 4

Age plan to tell

___yrs
Not applicable 99

At what age do you think you'll tell him/her?

Telling child (cont.)

What made you decide to tell him/her?

Reasons for telling

No 0
Yes 1
N/A 2

Child has right to know: ___

To avoid disclosure: ___

No reason not to: ___

Other (specify): ___

IF NO OR UNCERTAIN: Do you think you'll ever change your mind about telling him/her?

What made you decide not to tell him/her?

(PROBE: reasons for telling/not telling, concerns about telling/not telling)

Reasons for not telling

No 0
Yes 1
N/A 2

To protect child: ___

To protect mother: ___

To protect father: ___

To maintain family rels: ___

To maintain outside rels: ___

No need to tell: ___

Don't know what to tell: ___

MARRIAGE & PREVIOUS RELATIONSHIPS

Now I'd like to concentrate on the time(s) during which you have been married/lived with someone.

1st MARRIAGE/COHABITATION

Before you were married to/living with (partner), were you married to anyone else? Did you live with anyone else?

IF NO: go to current marital/cohabiting relationship – page 30

IF YES: How long were you together?

Duration of 1st marriage/ cohabitation

___years
Not applicable..... 99

Did you live with/marry anyone else after (1st spouse/cohabitee) and before (current partner)?

IF NO: go to current marital/cohabiting relationship – page 30

IF YES: How long were you together?

Duration of 2nd marriage/ cohabitation

___years
Not applicable..... 99

Duration of 3rd marriage/ cohabitation

___years
Not applicable..... 99

REPEAT ONCE MORE IF NECESSARY

What about your partner?

Mother's previous relationships

None 0
Cohabitation, not marriage . 1
One marriage 2
Two or more cohabitations or marriages 3

Is this his first marriage/cohabitation?

Partner's previous relationships

None 0
Cohabitation, not marriage . 1
One marriage 2
Two or more cohabitations or marriages 3

(Obtain number of marriages/cohabitations lasting > 6 months)

CURRENT MARRIAGE/COHABITATION
(Rate here if longer than 6 months)

How old were you when you got married to/started living with (current partner)?

So you've been married/living together for (x) years.

How old was he when you first lived with him/got married?

How long had you been going out before you got married/started to live together?

CURRENT MARRIAGE/ COHABITATION

Age of mother at marriage/ cohabitation
___ years

Age of spouse/cohabitee at start
___years

Time going out prior to marriage/cohabitation

___months

Duration of current marriage/ cohabitation
___months

Current marriage/cohabitation (cont.)

In general, how do you get on?

Are there any things you positively enjoy doing together?

Mutual enjoyment

None 4
Some 3
Quite a lot 2
A great deal 1

Such as going out to the cinema, or to visit family and friends?

What about at home?

How often do you do that?

Do you talk to each other about things that are on your mind?

Confiding

All important matters discussed adequately 1
Majority of important matters discussed adequately 2
Some (a minority of) important matters adequately discussed 3
Important matters mentioned but not adequately discussed 4
No communication about matters of importance 5

What about things that are bothering you, any problems or difficulties?

Like worries over the children?

Or worries or problems with relatives?

Or worries with your health?

Current marriage/cohabitation (cont.)

Most couples have arguments or fall out from time to time.

How often does that happen to the two of you?

(PROBE: I mean a serious falling out where you end up shouting at each other or not speaking to each other)

Arguments

None, or occasional 0
Some, less than 4/year 1
4-12/year 2
More than 12/year 3

MARITAL/COHABITING RELATIONSHIPS LEVEL

What usually happens?

Marriage/cohabitation positive source of support and enjoyment 1
Good marital/cohabitation history 2
Overall satisfactory history, but some problems 3
Major marital/cohabiting problems, but some significant functioning 4
Major problems, and limited functioning 5
History dominated by discord/breakdown, or failure to establish relationships 6

When was the last time?

What happened then?

Has it ever got more serious than that?

What happened there?

Has it ever got physical?

IF YES: (PROBE: throwing things, pushing, hitting, etc.)

Have either of you ever been (seriously) injured?

MOTHER'S HEALTH

Finally I would like to ask you a few things about your health.

What has your own health been like since (child) was born?

Have you had to see your family doctor for worrying, depression, nervous troubles or any other psychological problems?
IF YES: (Obtain details of nature, severity and duration of problem - PROBE: 'baby blues')

Have you had any kind of regular prescription for worrying, depression, nervous troubles or any other psychological problems?

What about sleeping tablets?

Before (child) was born, did you ever go to your doctor or a clinic or see a specialist for worries, depression, nervous troubles or any other psychological problems?

IF YES: (Obtain details of nature, severity and duration of problem)

Were you ever on any kind of regular prescription for worrying, depression, nervous troubles or any other psychological problems?

How much do you smoke?

How much do you drink?

Mother's psychiatric contacts since child born

None 0
GP 1
Out-patient 2
In-patient 3

Mother's psychiatric contacts before child born

None 0
GP 1
Out-patient 2
In-patient 3

Mother's sedatives or stimulants since child born (prescribed)

No 0
Yes 1

Mother's sedatives or stimulants before child born (prescribed)

No 0
Yes 1

No. of cigarettes per day

—

No. of units of alcohol per week

—

FEELINGS ABOUT MOTHERHOOD

You've told me a lot about your experience of being a mother –
Would you like to have any more children?

Desire for more children

No 0
Uncertain 1
Yes 2
Unable 9

IF YES OR UNCERTAIN: Would you consider having embryo donation again?

Would you recommend embryo donation to other people in your situation?

Desire to repeat embryo donation

No 0
Uncertain 1
Yes – using frozen embryos 2
Yes – only if same donors 3
Yes 4
Not applicable 9

Would you say that overall you're finding bringing up (child) easy or difficult?

Do you think as the mother of a child conceived by embryo donation, you've had any more or less difficulties than other mothers?

Perceived competence as mother

No difficulties 0
Some, but not more than most 1
Definite difficulties, more than most 2
A lot of difficulties 3

How much enjoyment do you get out of him/her?

(PROBE: What have been the best times?)

Enjoyment in motherhood

None 0
Some 1
Much 2
A great deal 3

OVERALL RATINGS

EXPRESSED WARMTH

None 0
Little 1
Some 2
Moderate 3
Moderately high 4
High 5
Not rateable 9

EMOTIONAL OVER-INVOLVEMENT

Little or none 0
Some 1
Moderate 2
Enmeshed 3
Not rateable 9

EMOTIONAL UNDER-INVOLVEMENT

Little or none 0
Some 1
Moderate 2
Detached/dismissive 3
Not rateable 9

DEFENSIVE RESPONDING

Not at all defensive 0
A little defensive 1
Moderately defensive .. 2
Very defensive 3
Extremely defensive 4
Not rateable 9

OVERALL FATHERING QUALITY

Very poor 0
Poor 1
Moderate 2
Good 3
Very good 4
Not rateable 9

OVERALL MOTHERING QUALITY

Very poor 0
Poor 1
Moderate 2
Good 3
Very good 4
Not rateable 9

SENSITIVE RESPONDING

None 0
Somewhat sensitive 1
Average sensitivity 2
Above average 3
Very sensitive responding 4

APPENDIX 3

QUESTIONNAIRE BOOKLET

QUESTIONNAIRE 1

DIRECTIONS: Below is a list of concerns parents may have about their children. Please read each statement and decide how true it is of your concerns about your child.

		Definitely true	Mostly true	Mostly false	Definitely false
1.	In general, my child seems less healthy than other children of the same age	1	2	3	4
2.	I often think about calling the doctor about my child	1	2	3	4
3.	When there is something going around, my child usually catches it	1	2	3	4
4.	My child seems to have more accidents and injuries than other children	1	2	3	4
5.	My child usually has a healthy appetite	1	2	3	4
6.	Sometimes I get concerned that my child doesn't look as healthy as he/she should	1	2	3	4
7.	My child usually gets stomach pains or other sorts of pains	1	2	3	4
8.	I often have to keep my child in because of health reasons	1	2	3	4
9.	My child seems to have as much energy as other children of the same age	1	2	3	4
10.	My child gets more colds than other children of the same age	1	2	3	4
11.	I get concerned about circles under my child's eyes	1	2	3	4
12.	I often check on my child at night to make sure that he/she is OK	1	2	3	4
13.	I sometimes worry that my child will die	1	2	3	4
14.	I feel anxious about leaving my child with a babysitter or at day care	1	2	3	4
15.	I am sometimes unsure about my ability to care for my child as well as I should	1	2	3	4
16.	I feel guilty when I have to punish my child	1	2	3	4

QUESTIONNAIRE 2

DIRECTIONS: In answering the questions on the next two pages, please think about your child. The questions ask you to mark an answer which best describes your feelings. While you may not find an answer which exactly states your feelings, please mark the answer which comes closest to describing how you feel.

YOUR FIRST REACTION TO EACH QUESTION SHOULD BE YOUR ANSWER.

SA = Strongly Agree	A = Agree	NS = Not Sure	D = Disagree	SD = Strongly Disagree

1	I often have the feeling that I cannot handle things very well	SA	A	NS	D	SD
2	I find myself giving up more of my life to meet my children's needs than I expected	SA	A	NS	D	SD
3	I feel trapped by my responsibilities as a parent	SA	A	NS	D	SD
4	Since having this child, I have been unable to do new and different things	SA	A	NS	D	SD
5	Since having a child, I feel that I am almost never able to do things that I like to do	SA	A	NS	D	SD
6	I am unhappy with the last purchase of clothing I made for myself.	SA	A	NS	D	SD
7	There are quite a few things that bother me about my life.	SA	A	NS	D	SD
8	Having a child has caused more problems than I expected in my relationship with my spouse (male/female friend).	SA	A	NS	D	SD
9	I feel alone and without friends	SA	A	NS	D	SD
10	When I go to a party, I usually expect not to enjoy myself	SA	A	NS	D	SD
11	I am not as interested in people as I used to be.	SA	A	NS	D	SD
12	I don't enjoy things as I used to.	SA	A	NS	D	SD
13	My child rarely does things for me that make me feel good.	SA	A	NS	D	SD
14	Most times I feel that my child does not like me and does not want to be close to me	SA	A	NS	D	SD
15	My child smiles at me much less than I expected	SA	A	NS	D	SD
16	When I do things for my child, I get the feeling that my efforts are not appreciated very much	SA	A	NS	D	SD
17	When playing, my child doesn't often giggle or laugh	SA	A	NS	D	SD
18	My child doesn't seem to learn as quickly as most children	SA	A	NS	D	SD
19	My child doesn't seem to smile as much as most children	SA	A	NS	D	SD
20	My child is not able to do as much as I expected.	SA	A	NS	D	SD
21	It takes a long time and it is very hard for my child to get used to new things	SA	A	NS	D	SD

22 **For the next statement, choose your response from the choice "1" to "5" below.**

I feel that I am:
1. not very good at being a parent
2. a person who has some trouble being a parent
3. an average parent
4. a better than average parent
5. a very good parent

1 2 3 4 5

23 I expected to have closer and warmer feelings for my child than I do and this bothers me. **SA A NS D SD**

24 Sometimes my child does things that bother me just to be mean **SA A NS D SD**

25 My child seems to cry or fuss more often than most children. **SA A NS D SD**

26 My child generally wakes up in a bad mood **SA A NS D SD**

27 I feel that my child is very moody and easily upset. **SA A NS D SD**

28 My child does a few things which bother me a great deal. **SA A NS D SD**

29 My child reacts very strongly when something happens that my child doesn't like **SA A NS D SD**

30 My child gets upset easily over the smallest thing. **SA A NS D SD**

31 My child's sleeping or eating schedule was much harder to establish than I expected **SA A NS D SD**

For the next statement, choose your response from the choices
32 **"1" to "5" below.**

I have found that getting my child to do something or stop doing something is: **1 2 3 4 5**

1. much harder than I expected
2. somewhat harder than I expected
3. about as hard as I expected
4. somewhat easier than I expected
5. much easier than I expected

For the next statement, choose your response from the choices
"10+" to "1-3."

33 Think carefully and count the number of things which your child does that bother you. For example: dawdles, refuses to listen, overactive, cries, interrupts, fights, whines, etc. **10+ 8-9 6-7 4-5 1-3**

34 There are some things my child does that really bother me a lot. **SA A NS D SD**

35 My child turned out to be more of a problem than I had expected. **SA A NS D SD**

36 My child makes more demands on me than most children. **SA A NS D SD**

QUESTIONNAIRE 3

DIRECTIONS: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you **generally** feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally feel.

	Almost Never	Some-times	Often	Almost Always
1. I feel pleasant.....	1	2	3	4
2. I feel nervous and restless.....	1	2	3	4
3. I feel satisfied with myself.....	1	2	3	4
4. I wish I could be as happy as others seem to be.....	1	2	3	4
5. I feel like a failure.....	1	2	3	4
6. I feel rested.....	1	2	3	4
7. I am 'calm, cool, and collected'.....	1	2	3	4
6. I feel that difficulties are piling up so that I cannot overcome them.....	1	2	3	4
7. I worry too much over something that really doesn't matter.....	1	2	3	4
10. I am happy.....	1	2	3	4
11. I have disturbing thoughts.....	1	2	3	4
12. I lack self-confidence.....	1	2	3	4
13. I feel secure.....	1	2	3	4
14. I make decisions easily.....	1	2	3	4
15. I feel inadequate.....	1	2	3	4
16. I am content.....	1	2	3	4
17. Some unimportant thought runs through my mind and bothers me.....	1	2	3	4
18. I take disappointments so keenly that I can't put them out of my mind.....	1	2	3	4
19. I am a steady person.....	1	2	3	4
20. I get in a state of tension or turmoil as I think over recent concerns and interests.....	1	2	3	4

QUESTIONNAIRE 4

DIRECTIONS: We would like to know how you are feeling. Please **UNDERLINE** the answer which comes closest to how you have felt **IN THE PAST SEVEN DAYS,** not just how you feel today.

Here is an example, already completed.

I have felt happy:
Yes, all of the time
Yes, most of the time
No, not very often
No, not at all

This would mean: "I have felt happy most of the time" during the past week. Please complete the other questions in the same way.

In the past 7 days:

1. **I have been able to laugh and see the funny side of things:**
   As much as I always could
   Not quite so much now
   Definitely not so much now
   Not at all

2. **I have looked forward with enjoyment to things:**
   As much as I ever did
   Rather less than I used to
   Definitely less than I used to
   Hardly at all

3. **I have blamed myself unnecessarily when things went wrong:**
   Yes, most of the time
   Yes, some of the time
   Not very often
   No, never

4. **I have been anxious or worried for no good reason:**
   No, not at all
   Hardly ever
   Yes, sometimes
   Yes, very often

5. **I have felt scared or panicky for no very good reason:**
   Yes, quite a lot
   Yes, sometimes
   No, not much
   No, not at all

6. **Things have been getting on top of me:**
   Yes, most of the time I haven't been able to cope at all
   Yes, sometimes I haven't been coping as well as usual
   No, most of the time I have coped quite well
   No, I have been coping as well as ever

7. **I have been so unhappy that I have had difficulty sleeping:**
   Yes, most of the time
   Yes, sometimes
   Not very often
   No, not at all

8. **I have been sad or miserable:**
   Yes, most of the time
   Yes, quite often
   Not very often
   No, not at all

9. **I have been so unhappy that I have been crying:**
   Yes, most of the time
   Yes, quite often
   Only occasionally
   No, never

10. **The thought of harming myself has occurred to me:**
    Yes, quite often
    Sometimes
    Hardly ever
    Never

QUESTIONNAIRE 5

The following questions will ask you about your relationship with your partner.

DIRECTIONS: Each statement is followed by a series of possible responses: Strongly Disagree (SD), Disagree (D), Agree (A), Strongly Agree (SA). Read each statement carefully and decide which response best describes how you feel about your relationship with your partner, then circle the corresponding response.

Please respond to every statement: if none of the responses seems **completely** accurate, circle the one you feel is **most** appropriate. Do not spend too long on each question. Please answer this questionnaire without discussing any of the statements with your partner. In order for us to obtain valid information it is important for you to be as honest and as accurate as possible. All information will be treated in the strictest confidence.

1. My partner is usually sensitive to and aware of my needs.....	**SD**	**D**	**A**	**SA**
2. I really appreciate my partner's sense of humour.....	**SD**	**D**	**A**	**SA**
1. My partner doesn't seem to listen to me any more.....	**SD**	**D**	**A**	**SA**
4. My partner has never been disloyal to me.....	**SD**	**D**	**A**	**SA**
5. I would be willing to give up my friends if it meant saving our relationship.....	**SD**	**D**	**A**	**SA**
6. I am dissatisfied with our relationship.....	**SD**	**D**	**A**	**SA**
7. I wish my partner was not so lazy and didn't keep putting things off.....	**SD**	**D**	**A**	**SA**
8. I sometimes feel lonely even when I am with my partner.....	**SD**	**D**	**A**	**SA**
9. If my partner left me, life would not be worth living.....	**SD**	**D**	**A**	**SA**
8. We can 'agree to disagree' with each other.....	**SD**	**D**	**A**	**SA**
9. It is useless carrying on with a marriage beyond a certain point.....	**SD**	**D**	**A**	**SA**
12. We both seem to like the same things.....	**SD**	**D**	**A**	**SA**
13. I find it difficult to show my partner that I am feeling affectionate...	**SD**	**D**	**A**	**SA**
14. I never have second thoughts about our relationship.....	**SD**	**D**	**A**	**SA**
15. I enjoy just sitting and talking to my partner.....	**SD**	**D**	**A**	**SA**
16. I find the idea of spending the rest of my life with my partner rather boring.....	**SD**	**D**	**A**	**SA**
17. There is always plenty of 'give and take' in our relationship.....	**SD**	**D**	**A**	**SA**
18. We become competitive when we have to make decisions.....	**SD**	**D**	**A**	**SA**
19. I no longer feel I can really trust my partner.....	**SD**	**D**	**A**	**SA**
20. Our relationship is still full of joy and excitement.....	**SD**	**D**	**A**	**SA**
21. One of us is continually talking and the other is usually silent.....	**SD**	**D**	**A**	**SA**
22. Our relationship is continually evolving.....	**SD**	**D**	**A**	**SA**
23. Marriage is really more about security and money than about love...	**SD**	**D**	**A**	**SA**
24. I wish there was more warmth and affection between us.....	**SD**	**D**	**A**	**SA**
25. I am totally committed to my relationship with my partner.....	**SD**	**D**	**A**	**SA**
26. Our relationship is sometimes strained because my partner is always correcting me.....	**SD**	**D**	**A**	**SA**
27. I suspect we may be on the brink of separation.....	**SD**	**D**	**A**	**SA**
28. We can always make up quickly after an argument.....	**SD**	**D**	**A**	**SA**