

Fathers' influences on children's development: The evidence from two-parent families

Charlie Lewis

Lancaster University, UK

Michael E. Lamb

National Institutes of Health, USA

Although it is often assumed that men have an important influence on their children's development, the supportive evidence can be difficult to locate and summarize. In this paper, we analyse the evidence with respect to four emergent themes. First, men often appear to interact with their children less sensitively than mothers do, and many children thus appear to form closer attachments to their mothers than to their fathers. Second, the data also indicate that fathers may play specific and important roles, with men in some cultures having clearly defined roles as playmates to their children. Third, paternal play styles predict later socio-emotional development while paternal involvement seems to predict adult adjustment better than maternal involvement does. Such evidence suggests, fourth, that we need appropriate measures of fatherhood that are not simply borrowed from the study of motherhood.

Thirty years ago, fathers were described as 'forgotten contributors to child development' (Lamb, 1975). Since then, men have been in and out of the research focus, but there is now a large database with which to assess the roles of men in families. For the past 15 years, more than 700 articles on fathers have been cited each year in the *Psychological Abstracts* database. Although we assess current research on the nature and importance of father-child relationships in this paper, therefore, we must acknowledge from the outset that a brief review can only sketch the broad outlines particularly as the study of fatherhood has become so complex and multi disciplinary. Readers are referred elsewhere for more complete summaries of the recent research (Day & Lamb, in press; Lamb, in press; Tamis-LeMonda & Cabrera, 2002). In the interest of simplicity and brevity, we confine our analysis to research on two-parent households.

We argue here that, when two parents live with their children, fathers contribute to their children's development in important ways. Not only should we take men into account when studying families [as do the other papers in this special edition], but we should also consider

that fathers might make contributions to their children's development that are unique. The four sections in this paper attempt to construct such a case. We begin by charting what we know about the ways in which fathers and children interact with one another, attempting to answer old questions about the propensity of men to form close relationships with their children, and whether 'fathering' is equivalent to 'mothering'. The evidence suggests that mothers and fathers are largely similar in their interaction styles although mothers still seem to have an edge over most fathers. In the second section, we explore three factors that appear to explain why mothers appear to be more sensitive and skilful. Not only do we need to examine the characteristics of each parent, but we also have to consider the network of relationships within which father-child interactions are framed. In the final two sections, we examine the differences between men and women as parents. The third explores a traditional area of research, parent-infant attachments, to suggest that mothers might have a greater long-term influence on their children whereas the final section highlights an emerging trend in the literature on fathers – longitudinal data analyses of family relationships – which allows us to pinpoint paternal influences which have thus far been hard to identify and quantify.

Father-child and mother-child relationships compared

In this section we chart the development of father-child relationships, noting that, whatever the area of study – from interactions with newborn babies to relationships with teenagers – the evidence suggests that paternal styles closely resemble maternal styles. However, two other factors need to be taken into account: a general trend for mothers to be more sensitive to their children and clear cultural variations in both maternal and paternal styles of parenting.

Fathers' and mothers' interactions with newborns

Mothers' and fathers' experiences of pregnancy are necessarily different (Lewis, 1986) and the evidence suggests that this differentiation continues after childbirth. In the early months of parenthood, mothers experience more life changes and get more satisfaction from their new roles than fathers do (Dulude, Wright, & Belanger, 2000). However, fathers interact with newborn infants much like mothers do (Rödholm & Larsson, 1982), for example providing sufficient warmth for neonates (Christensson, 1996). In keeping with such displays of nurturant attentiveness to their newborns, new fathers show similar changes in hormonal levels (decreased levels of testosterone and estradiol and increased levels of prolactin and cortisol) around the birth of their infants (Storey, Walsh, Quinton, & Wynne-Edwards, 2000).

Men quickly learn about the uniqueness of their own children, but the evidence suggests that mothers soon become more perceptive. For example, American and Israeli fathers are able to recognise their infants by touching their hands after only 60 minutes of exposure, even when blindfolded and denied olfactory access (Bader & Phillips, 1999; Kaitz, Shiri, Danziger, Hershko, & Eidelman, 1994). Kaitz, Chriki, Bear-Scharf, Nir, and Eidelman (2000) found that fathers could not recognise their newborn infants by touching their faces, however, whereas mothers could do so, perhaps because the mothers had spent twice as much time with their infants prior to testing than the fathers had (respectively 12.6 hours vs. 6.8 hours, on average). Although early research showed few differences between the care giving styles of American fathers and mothers during feeding (Parke & Sawin, 1977), Kaitz et al. (2000) reported that Israeli mothers soothed their newborns more effectively than new fathers did, regardless of parity.

Interactions with infants: Distinctive paternal and maternal styles?

Throughout development, mothers and fathers continue to have similar styles, although mothers appear to have a slight advantage over fathers. Many researchers have reported no differences between levels of maternal and paternal sensitivity during the first year, however. In

the face-to-face and still-face paradigms, for example, mothers and fathers appeared to be equally sensitive to their 4-month-olds who in turn showed equivalent patterns of affect and self-regulation with both parents (Braungart-Rieker, Garwood, Powers, & Notaro, 1998). Both parents are sufficiently sensitive to developmental changes in their children's abilities and preferences in order to adjust their play and stimulation patterns accordingly (Crawley & Sherrod, 1984; Notaro & Volling, 1999). Similarly, no differences in the sensitivity and responsiveness of mothers and fathers with their one-year-olds were evident while the parents were instructed to complete questionnaires (Notaro & Volling, 1999). Fathers appear highly attuned to their toddlers' interests during play. However, their styles may be subtly different from those of mothers. Labrell (1994) reported that fathers tended to tease their children and that this had disruptive effects. Likewise, Israeli fathers' expectations of cognitive maturity and social autonomy in their 6-month-olds were lower than those of mothers (Mansbach & Greenbaum, 1999).

Fathers are consistently involved in play instead of care taking (Clarke-Stewart, 1978; Lamb, 1976b; Rendina & Dickerscheid, 1976) and from early in life, fathers and mothers appear to be differentiated in terms of their play and communicative styles. Such patterns were identified in Yogman's (1981) analyses of face-to-face interaction with 2- to 25-week-old infants: Fathers produced staccato bursts of stimulation, particularly by patting the baby's arms, whereas mothers tended to be more rhythmic, containing and smoothly modulated in their styles. Frascarolo-Moutinot (1994) and Labrell (1994) reported that French and Swiss fathers were also more intrusive than mothers were, however. Mothers are more likely to hold their 7- to 13-month-old infants in the course of caretaking, whereas fathers are more likely to do so while playing or in response to infants' requests to be held (Belsky, 1979; Lamb, 1976b,c). It is thus not surprising that infants sometimes respond more positively to being held by their fathers than by their mothers (Lamb, 1976a,c). These differences seemed to anticipate later ones. American fathers tend to engage in more physically stimulating and unpredictable play throughout the infancy period (e.g., Clarke-Stewart, 1978; Dickson, Walker, & Fogel, 1997; Lamb, 1977c), even though rough and tumble play becomes less prominent as children grow older (Crawley & Sherrod, 1984). Paternal play styles also elicit more positive reactions from infants, so that young children tend to select their fathers for play when they have the choice of partner (Clarke-Stewart, 1978; Lamb, 1977c). Researchers agree that most of the differences between mothers and fathers are not large, however.

Fathers and mothers both adjust their speech in interaction with infants, using slower diction with shorter phrases, more imitation, and more redundancy (Kokkinaki & Kugiumutakis, 2000; Lewis et al., 1996; Rondal, 1980) than when talking to adults. Since Gleason's (1975) seminal paper, however, it has been assumed that men are slightly less attuned to their children's linguistic levels. Warren-Leubecker and Bohannon (1984) nevertheless reported that fathers increased their pitch and frequency range even more than mothers did when speaking to two-year-olds. Similarly, infant-directed singing has more exaggerated features than simulated singing or normal singing (Trehub, Unyk, Kamenetsky, Hill, trainor, Henderson, & Saraza, 1997; Trehub, Hill, & Kamenetsky, 1997) but the exaggerated speaking style of fathers does not seem to have the same impact on infants that paternal play styles do. While they do discriminate between men's voices, 4-month-olds do not prefer their fathers' voices (Ward & Cooper, 1999), perhaps because their everyday exposure to paternal language is often very limited (Korman & Lewis, 2001).

Cultural variations in paternal styles

For the past 20 years, researchers have debated whether fathers have a biological tendency to specialise in play or whether such an association is culturally prescribed. The evidence is complex. Most findings appear to support the claim that men have a distinctive interaction style. The 'preference' for physical play over care taking occurs even when men profess a belief that parents should share child-care responsibilities (Hyde & Texidor, 1988). In addition, differences between maternal and paternal styles have been found in France, Switzerland, and Italy (Best, House, Barnard, & Spicker, 1994; Frascarolo-Moutinot, 1994;

Labrell, 1996), in India, regardless of whether or not mothers are employed (Roopnarine, Talukder, Jain, Joshi, & Srivastav, 1992), and in African-American (Hossain, Field, Pickens, Malphurs, & Del Valle, 1997; Hossain & Roopnarine, 1994) and Hispanic-American households (Hossain et al., 1997).

However, parental differentiation is not so clear in many other cultures. Aka (hunter gatherer) (Hewlett, 1987), German (Best et al., 1994) and Swedish (Lamb, Frodi, Frodi, & Hwang, 1982), fathers are not notably more playful than mothers. Indeed Taiwanese fathers report that they seldom play with their children (Sun & Roopnarine, 1996), and men on Israeli kibbutzim do not play with their 8- and 16-month-olds more than mothers do, despite the traditional division of parental responsibilities (Sagi, Lamb, Shoham, Dvir, & Lewkowicz, 1985). There is evidence to suggest that we should treat families from different sections of society in different ways. For example, in Greece men in rural communities are significantly less involved in play and child care than those in urban communities (Maridaki-Kassotaki, 2000). Zaouche-Gaudron, Ricaud, and Beaumatin (1998) claim that French fathers who differentiated between maternal and paternal roles tended to have a more positive impact on their children's development than those whose roles were less distinctive, however. As we will suggest later, it is possible that fathers have more impact on their children when they are different from their partners.

Fathering in childhood and adolescence: Plus ça change, plus c'est pareil!

The patterns reported in infancy continue into childhood and adolescence. Mothers appear to engage in more frequent interactions (especially interactions involving care taking and routine family tasks) with children than fathers do through middle childhood and adolescence. Most father-child interactions continue to involve play, recreation, and goal-oriented actions and tasks (see Lamb, 1997; Montemayor & Brownlee, 1987; Russell & Russell, 1987). Mothers and fathers are equivalently involved in activities related to their children's scholastic and extracurricular performance and achievement (Youniss & Smollar, 1985), however, and both parents frequently engage in nurturant care taking in middle childhood (Russell & Russell, 1987), particularly over the increasing amounts of homework (Solomon, Warin, & Lewis, 2002). As in infancy, data from a range of cultures show that mothers continue to spend more time with their children than fathers do (Collins & Russell, 1991) although Collins and Russell commented that, when observed together, mothers and fathers initiate activities with equal frequency (Noller, 1980) and react quite similarly to their children's play and cognitive styles (Bronstein, 1984). There is continuity within individual patterns of paternal closeness over time within middle childhood, suggesting that there are discernible parental styles in this period (e.g., Herman & McHale, 1993).

Whatever factors influence fathers' tendencies to be more or less involved in interactions with their children, there appears to be substantial stability within fathers, at least during the period from birth through the first 30 months (Hwang & Lamb, 1997; Lamb, Hwang, Broberg, Bookstein, Hult, & Frodi, 1988; Nugent, 1987; Pruett & Litzenburger, 1992). Lamb, Chuang, and Hwang (in press) reported that the amount of time that Swedish fathers spent interacting with their children diminished over the course of childhood, although the amount of time that they were accessible (both awake and in the home) paradoxically increased as the children moved from infancy into childhood and adolescence. Stability over this period was quite low in this study.

The relationships between fathers and their adolescent children have been documented (e.g., Holmbeck, Paikoff, & Brooks-Gunn, 1995; Shulman & Seiffge-Krenke, 1997), although, as Hosley and Montemayor (1997) suggest, this research literature is relatively atheoretical and descriptive. Research comparing mothers and fathers suggests that there are few differences between mothers' and fathers' interaction styles (Russell & Saebel, 1997; Silverberg, Tennenbaum, & Jacob, 1992), despite major changes in a range of developmental areas, although fathers tend to be more engaged with their sons, have less contact with daughters, and generally have more distant relationships with their children than mothers do

(Hosley & Montemayor, 1997; Montemayor & Brownlee, 1987; Youniss & Ketterlinus, 1987). At the same time, adolescents in North America (Hosley & Montemayor, 1997) and Britain (Langford, Lewis, Solomon, & Warin, 2001) consistently report being closer to their mothers than to their fathers. Although further work is needed to explore why such patterns are discernible in different cultures, two possible explanations have been advanced. First, the link between men and playful activities may become irrelevant (at best) and an embarrassment to their teenage children, so if this is the predominant paternal style it may lose its effect in maintaining the child's attention and favour (Langford et al., 2001). Secondly, men are associated in a number of cultures with disciplinary functions. For example, Korean daughters see their fathers as distant and controlling (Rohner & Pettengill, 1985). For these reasons, one might expect men to be less central in their adolescents' lives. Daughters report being relatively uninfluenced by their fathers (Larson & Richards, 1994) and even sons feel closer to mothers than to fathers (Langford et al., 2001; Youniss & Smoller, 1985).

What makes fathers different from mothers?

Many interrelated factors explain why fathering and mothering are distinctly different and here we focus, in turn, on the three most important possible reasons: paternal sensitivity, systemic factors within the family, and the links between the family system and outside factors.

Paternal sensitivity

Because differences between mothers and fathers have long been reported (e.g., Lamb, 1976a), it has often been suggested that mothers and fathers have different propensities for parenting. Any differences might be caused by biological differences between the sexes, although this seems unlikely given the cross-cultural differences described above. An explanation that takes into account the interaction between biology and culture seems more likely. For example, there was an association between paternal reactivity to infant signals and the magnitude of the hormonal changes experienced by new fathers in the study by Storey et al. (2000). Belsky, Gilstrap, and Rovine (1984) reported that individual differences in paternal engagement with their 1-, 3-, and 9-month-old infants were quite stable over time, especially between 3 and 9 months, and it is obviously important to determine why fathers differ in their sensitivity and engagement. Even in the early days of parenting, fathers' propensity to adjust to their children's behavioral styles might influence their reactivity.

Sensitivity is clearly related to a number of psychological factors as well. Men's recollections of their own childhood relationships are correlated with their paternal sensitivity: Researchers have shown that men who reported loving and secure relationships with their parents were more sensitive and involved than fathers with less positive memories (Cowan, Cohn, Cowan, & Pearson, 1996). Men's perceived psychological well-being is also related to their paternal sensitivity (Broom, 1994), and some research suggests that depressed fathers are less 'intrusive' in their interactional styles with one-year-olds (McElwain & Volling, 1999; for contradictory evidence see Field, Hossain, & Malphurs, 1999). Men appear to react to the needs of their infants and partners: When mothers are depressed postnatally, infants have more positive interactions with their non-depressed fathers (Hossain, Field, Gonzalez, Malphurs, & Del Valle, 1994). As we suggest below, paternal responsiveness also appears closely related to the amount of paternal responsibility for infant care and this in itself is determined by factors within the family. The lesson is that caretaking experience appears to facilitate parental responsiveness (Donate-Bartfield & Passman, 1985; Zelazo, Kotelchuck, Barber, & David, 1977). For example, fathers who become involved when infants are hospitalised interact more positively and appear to be less distressed by their infants' ill-health (Darke & Goldberg, 1994). This may explain why impoverished fathers who live with their infants appear more sensitive than those who do not (Brophy-Herb, Gibbons, Omar, & Schiffman, 1999).

Fathering in the family system

A major reason why fathering became a central focus of concern in the 1970's is that any understanding of individuals within families must take into account the network of family relationships – even those that do not directly involve these individuals (e.g., Lamb, 1975). Since that time, researchers have shown that fathers not only influence children by interacting with them, but also affect maternal behavior, while mothers influence paternal behaviour and involvement (for reviews, see Cummings & O'Reilly, 1997; Lamb, 1997b) and that children are active agents in their own social development (Bell, 1968). Indeed, the marital relationship is a good barometer of parent-child relationships throughout development. Men are consistently more involved in interactions with their infants (Beitel & Parke, 1998; Grych & Clark, 1999) and toddlers (Goldberg & Easterbrooks, 1984) when both parents are supportive of the others' involvement and when they are highly engaged in interaction with their partners (Belsky, Gilstrap, & Rovine, 1984). At the same time, Lundy (2002) reported that marital dissatisfaction adversely affected paternal synchrony and thus the security of infant-father attachment. This link between spousal and parent-child support is found in different cultures. For example, Japanese mothers of securely attached infants reported greater levels of spousal support than did the mothers of insecurely attached infants (Durrett, Otaki, & Richards, 1984).

However, there is strong evidence that mothers and fathers may not influence one another in identical ways. Two studies (Belsky, Gilstrap, & Rovine, 1984; Lamb & Elster, 1985) suggested that fathers' interactions with their infants are influenced by the current quality of spousal interaction much more than mothers' behaviour is. In addition, recent reports have suggested that mothers affect paternal involvement by 'gatekeeping' or stage managing family relationships (Allen & Hawkins, 1999).

Linking family interactions into the wider social system

Strong cultural differences in play and interaction styles were identified above. In this section, we review literature showing that both parents' involvement in activities beyond the nuclear family affect paternal interactions with their children. The extensive literature on parental employment illustrates how complex are the links between the family and the wider culture and, thus, the magnitude of these external influences upon fathering.

In advanced industrial cultures, dual earner families have become the norm and thus the psychological patterns associated with this family form are of increasing importance. Maternal employment is directly related to paternal involvement in the care of infants (Hyde, Essex, & Horton, 1993; Lamb et al., 1988), preschoolers (Berry & Rao, 1997) and school-age children (Crouter, Helms-Erikson, Updegraff, & McHale, 1999). These studies show that involved fathers know more about their children's daily experiences, but parental employment patterns have more profound influences than changes in child care. For a start, men do not spend as much time in childcare as they reduce their work hours although they maintain their commitments to leisure activities (Crouter, Perry-Jenkins, Houston, & McHale, 1987; Gottfried, Gottfried, & Bathurst, 1988; McHale & Huston, 1984). Perhaps as a result, Crouter and her colleagues (1987) reported that, at least in dual-earner families, increased paternal involvement in child care was often at the expense of marital happiness.

In infancy, there is good evidence that additional strains are apparent in dual earner families. Four-month-old boys in one study acted more negatively with their fathers when their mothers were employed (Braungart-Rieker, Courtney, & Garwood, 1999). At the same time, fathers and mothers both reported feeling anxious about leaving their babies and toddlers in someone else's care (Deater-Deckard, Scarr, McCartney, & Eisenberg, 1994; Hock & Lutz, 1998). In addition, Braungart-Rieker et al. (1999) found that men in dual-earner families were less sensitive to their four-month-old sons than men with unemployed wives and that the boys were more likely to become insecurely attached to their fathers than to their mothers. Likewise, fathers with wives who were not committed to the work force full-time appeared to be more sensitive to their infants when they were highly involved in child care (Grych &

Clark, 1999). By contrast, working mothers stimulated their infants more than nonworking mothers did, and they were far more active than their husbands were (Pedersen, Cain, Zaslow, & Anderson, 1982). As expected, fathers with nonworking wives played with their infants more than mothers did, but this pattern was reversed in families with working mothers. Similarly, Field, Vega-Lahr, Goldstein, and Scafidi (1987) reported that employed mothers were much more active in face-to-face interactions with their infants than employed fathers were.

Father-child relationships in dual earner families become more positive beyond infancy. Crouter et al.'s (1999) research suggests that the signs of distress in father-infant relationships are not evident beyond infancy: Indeed, men in dual earner families appear to have closer relationships with their children (see also Berry & Rao, 1997), although a report from the NICHD Early Child Care Study (2000) noted that the link between employment and the quality of child-father interaction was moderated by the men's attitudes and ages, with younger fathers and those more committed to equal parenting having more sensitive play styles. Cultural patterns of parental employment are also influential. In New Delhi, for example, a strong 'traditional' culture appears to ensure that men in dual earner families are indistinguishable from fathers in single earner families (Suppal & Roopnarine, 1999).

Do fathers influence their children's emotional development?

Infant-mother and -father attachments compared

The closeness of mother- and father-child relationships has been examined in detail, and attachment theory is at the centre of this area of research. It holds that parental sensitivity determines the security of attachments and thus of the child's subsequent psychological adjustment (Ainsworth Blehar, Waters, & Wall, 1978). Some studies yield contradictory results. For example, Rosen and Rothbaum (1993) observed that measures of both maternal and paternal behaviour were weakly associated with attachment security while Notaro and Volling (1999) found no significant associations between assessments of mother- and father-infant attachment in the Strange Situation and parental responsiveness in a brief contemporaneous session. These results replicated an earlier study with 6 and 9 month olds (Volling & Belsky, 1992). In another study, however, the sensitivity of fathers in a free-play session was correlated with near contemporaneous assessments of infant-father attachment (Goosens & Van IJzendoorn, 1990). A subsequent meta analysis revealed a statistically significant link between paternal sensitivity and the security of infant-father attachment that was nevertheless substantially weaker than the predicted association between maternal sensitivity and the security of infant-mother attachment (Van IJzendoorn & DeWolff, 1997).

That father-child attachments appear to be similar to those involving mothers is supported by the results of other studies on the origins of parent-child relationships. Van IJzendoorn (1995) reported an association between the security of infant-father attachment and these Dutch fathers' representations of their own childhood attachments. Steele, Steele, and Fonagy (1996) found that British fathers' recall of their childhood attachments predicted the security of their infants' attachments to them at age one, while mothers' recollections of their attachment to their own mothers during pregnancy predicted the security of their infants' attachments to them. Similarly, Cox, Owen, Henderson, and Margand (1992) reported that fathers who were more affectionate, spent more time with their 3-month-olds, and had more positive attitudes were more likely to have securely-attached infants 9 months later. Caldera, Huston, and O'Brien (1995) found that when fathers appeared more detached in a laboratory interaction, their infants were more likely to be insecure six months later, at 18 months.

Do mother-child attachments have more predictive power?

Infant-parent attachments are believed to affect the ways in which children came to understand their relationships with others by shaping the construction of internal working

models. Main and Weston (1981) found that the security of infant-father attachment was more weakly associated than the security of infant-mother attachment with the infants' responses to an unfamiliar person who was dressed as a clown. As maternal attachment and responses to the clown were assessed contemporaneously, six months before the paternal attachments, however, these findings were difficult to interpret. Lamb et al. (1982) reported that Swedish infants with secure attachments to their fathers were more sociable with strangers, but there was no association between the security of infant-mother attachment and sociability in their sample. At the same time, Belsky, Garduque, and Hrcir (1984) reported that attachments to both parents, but especially infant-mother attachments, were related to higher level cognitive skills in a sample of American toddlers. Sagi, Lamb, and Gardner (1986) found that infants on Israeli kibbutzim who were securely attached to either parent were more sociable with strangers than insecure-resistant infants.

However, other research suggests that the predictive power of infant-mother attachments is greater and more consistent than that of infant-father attachments. Main, Kaplan, and Cassidy's (1985) data suggest that earlier assessments of mother-child attachment have greater impact on children's attachment-related responses than earlier and concurrent assessments of child-father attachment. This pattern was replicated by Suess, Grossmann, and Sroufe (1992) in their analyses of the links between parent-infant attachment security and the quality of German children's later interaction with peers. Steele, Steele, Croft, and Fonagy (1999) found that six-year-olds' ability to read affective expressions in cartoons was predicted by the security of infant-mother attachments five years earlier, but not by infant-father attachments at 18 months or by these British parents' feelings of attachment during pregnancy. Although some studies show no links between parent-child attachments and later behaviour problems (Benzies, Harrison, & Magill-Evans, 1998), Verschueren and Marcoen (1999) found that child-mother attachments had a greater effect on the positive self perceptions of 5- and 6-year-olds than did child-father attachments, while child-father attachments better predicted behaviour problems.

The evidence thus suggests either that parents are indistinguishable in their influence on children or that maternal attachments are more influential. Contradictory findings may reflect the complexity of the patterns of influence. In both Benzies et al.'s (1998) and Verschueren and Marcoen's (1999) studies, for example, secure attachments with one parent partially offset the effects of insecure attachment to the other. Such findings complement previous data. Gable, Crnic, and Belsky (1994) reported strong links among the quality of parent-child relationships, marital quality, and child outcomes in a study of 2-year-olds. Children with negative emotionality early in the first year tended to become more positive when they had active, sensitive, and happily-married mothers, whereas some infants became more negative when their fathers were insensitive, uninvolved in their children's lives, and dissatisfied with their marriages (Belsky, Fish, & Isabella, 1991).

Evidently, attachments cannot be treated in isolation from other influences, particularly the relationship between the parents and the children's individual characteristics. For example, Easterbrooks and Goldberg (1984) found that children's adaptation was related to both the amount of paternal involvement and, more importantly, the quality or sensitivity of their fathers' interactional styles. According to Fagot and Kavanaugh (1993) and Suess et al. (1992), parents found interactions with insecurely attached infants to be less pleasant, and thus tended to become less involved in interactions, particularly with insecurely attached boys. This might account for the greater number of behaviour problems that boys had. Interestingly, fathers had unusually high levels of interaction with insecure - avoidant girls in Fagot and Kavanaugh's study, whereas these girls received the fewest instructions from their mothers.

Do patricentric measures reveal clearer paternal influences?

At first glance, it appears that fathers simply have less impact on their children than mothers do. For example, Hunter, McCarthy, MacTurk, and Vietze (1987) found stability in the qualities of both mother- and father-infant interaction in play sessions over time, but only

maternal style was associated with the child's later cognitive performance. However, there are links between paternal styles and the child's IQ performance (Wachs, Uzgriris, & Hunt, 1971; Yogman, Kindlon, & Earls, 1995), boys' mastery motivation (YarrowMacTurk, Vietze, McCarthy, Klein, & McQuiston, 1984), and children's later language development (Magill-Evans & Harrison, 1999). Some types of paternal 'input' seem easy to account for. For example, Finnish fathers who read more often to their 14- and 24-month-old infants had children who were later more interested in books (Lyytinen, Laakso, & Poikkeus, 1998). Other patterns of influence are less easy to explain. In France, for instance, Labrell (1990) reported that paternal scaffolding of the children's activities promoted independent problem solving by 18-month-olds, but symbolic activity in two and three-year-olds was related to maternal but not paternal distancing strategies (Labrell, Deleau, & Juhel, 2000).

Interestingly, studies in a variety of cultures show that children as young as preschoolers clearly differentiate between the roles of mothers and fathers. For example, Reid, Tate, and Berman (1989) found that preschoolers asked to pose for a photograph as a parent with a small baby acted in sex-stereotypical ways: Compared to posing as 'themselves', boys moved further away when posing as 'daddy' while girls moved closer to the baby when posing as 'mummy'. Similarly, Raag and Rackliff (1998) asked preschoolers about their parents' preferences for a range of sex-neutral and sex-stereotyped toys. More boys than girls, especially those who had chosen sex-stereotypical toys to play with, said that their fathers would consider cross-sex toy play to be 'bad'. Thus, fathers were believed by sons but not daughters to have more restrictive rules of conduct than mothers. Even preschool children seem to have very stereotypical opinions of parental roles. Domestic work is widely described as the mother's prerogative while bread-winning is seen as the province of fathers throughout the school years (Hartley, 1960; Langford et al., 2001), and these beliefs persist in industrial cultures into adolescence (Goldman & Goldman, 1983).

These belief systems appear to be influenced by the family's contact with the outside world, notably parental employment patterns (Gottfried, Gottfried, & Bathurst, 2002). For example, Hoffman and Youngblade (1999) attempted to tease apart parental influences by examining 369 households with different parental employment patterns. They found that the fathers' involvement in routine child-care predicted better school attainment in the children. The daughters also held fewer stereotypical views about adult sex-roles when their fathers were more involved. Thus fathers may play an important part in mediating between the family and the outside world. Parke, Dennis, Flynn, Morris, Killian, McDowell, and Wilde (in press) recently summarized the sizeable evidence that fathers and mothers have distinct influences on the development of peer relationships and social skills.

How longitudinal research teases apart the maternal and paternal influences

Longitudinal research over the past 20 years has identified clear paternal influences, particularly on the psychosocial adjustment of adolescents. Earlier paternal involvement predicts adult children's feelings of satisfaction in spousal relationships and self-reported parenting skills (Burns & Dunlop, 1998; Franz, McClelland, & Weinberger, 1991). Likewise, fathers' hostility towards their 16-year olds and the extent to which they undermined their teenagers' autonomy during interaction predicted the degree of hostility and low ego-resiliency reported in the 'children' by close friends at age 25 (Allen, Hauser, O'Conner, & Bell, 2002). Similar assessment of teenager-mother hostility also predicted adjustment at age 25. Lewis, Newson, and Newson (1982) found that the reported involvement of British fathers in two-parent households at ages 7 and 11 predicted the child's performance in national examinations at age 16 as well as whether or not they had a criminal record by age 21. In their analyses of data from the U.K. National Child Development Study, furthermore, Flouri and Buchanan (2002a,b) found positive correlations between patterns of paternal involvement and later indices (until the 'children' were 33 years of age) of psychosocial adjustment, even when possible mediators (e.g., family structure, gender, maternal involvement, parental mental health, and parental SES) were taken into account. Maternally reported father-involvement at age 7

predicted self-reported closeness to father at 16 and lower levels of police contact as reported by the mothers and teachers (Flouri & Buchanan, 2002a). This in turn predicted marital satisfaction and diminished psychological distress at age 33 (Flouri & Buchanan, 2002b), whereas self-reported closeness to mother at age 16 predicted only marital satisfaction seventeen years later. Results like these suggest that, in the long term, patterns of father-child closeness might be crucial predictors of adult psychosocial adjustment. The origins of such patterns are still to be explored in depth and require longitudinal studies that are sensitive to the range of possible paternal influences and represent the greater and more diverse patterns of involvement by contemporary fathers than of those fathers studied in the earlier longitudinal studies.

Some emerging research is exploring the possible reasons why such dynamic links between paternal 'input' and child 'output' might be apparent when researchers explore parent-child relationships in their full complexity and diversity. For example, Grossmann, Grossmann, Fremmer-Bombik, Kindler, Scheurer-Englisch, and Zimmermann (2002) compared the influences of early attachments and parent-child sensitivity in play on later development. They found that the security of infant-mother attachment better predicted the children's feelings of security at age 6 and 10 than did the security of infant-father attachment. By age 10, however, the father's sensitivity in free play at age 2 also predicted security and by 16 years only this measure of father-toddler play (and not early parent-infant attachments) significantly predicted adjustment. Such data need replicating but they suggest the need to examine key features of paternal behaviour, such as play, when seeking to identify the extent to which fathers affect their children's development.

Conclusion

In this paper, we have argued that fathers in two-parent households indeed affect their children's development in diverse and significant ways. Building on popular measures and hypotheses, researchers have conducted many studies over the last thirty years suggesting that mothers tend to demonstrate more skill in interacting with their children and that maternal closeness appears to have more obvious effects on their children. Men are less available to, interact less, and care for their children less, and thus the apparent maternal advantage seems to reflect these different parental roles. By contrast, the evidence summarized in the final section of this paper suggests that measures favouring fathers, like the sensitivity of their play, and research that examines the development of relationships into adulthood reveal more impressive paternal influences. Perhaps further research guided by patricentric themes may yet teach us a great deal about the nature of fathering and its influence on children (Hawkins & Dollahite, 1997; Warin, Solomon, Lewis, & Langford, 1999).

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Malgré on pense que les pères ont une influence importante sur le développement de leurs enfants, les evidences qui le rattachent peuvent être difficiles de trouver et d'expliquer. Dans cet étude, on analyse l'évidence concernant quatre conclusions importantes. En premier, les pères font apparemment une interaction avec leurs enfants avec moins de sensibilité que les mères, et donc beaucoup d'enfants forment apparemment une relation plus proche avec leurs mères que leurs pères. En second, les renseignements indiquent aussi que les pères peuvent jouer de rôles spécifiques et importantes, avec des gens placés en quelques cultures avec des rôles bien tracés comme copains de leurs enfants. En troisième, les styles d'action des pères prévoient plus tard le développement socio- émotionnel, tandis que l'engagement paternel paraît prévoir l'ajustement adulte mieux que l'engagement maternel l'en fait. Une évidence comme ça suggère, en quatrième, qu'on a besoin de mesures parentaux appropriés qui ne soient pas seulement prêtés des études sur la maternité.

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Charlie Lewis. Centre for Research in Human Development, Department of Psychology, Lancaster University, LA1 4YF, UK; E-mail: c.lewis@lancaster.ac.uk

Current theme of research:

Family interactions. Role fathers in their children's lives. Social and cognitive factors in development in preschool children.

Most relevant publications in the field of Psychology of Education:

- Freeman, N.H., Antonucci, C., & Lewis, C. (2000). Representation of the cardinality principle: early conception of error in a counterfactual test. *Cognition*, 74, 71-89.
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Michael E. Lamb. National Institute of Child Health and Human Development, National Institutes of Health, Department of Health and Human Services, Bethesda, MD, USA

Current theme of research:

Social and emotional development, especially in infancy and early childhood. Parent-child relationships; and children's testimony.

Most relevant publications in the field of Psychology of Education:

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