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# The Association Between Parental Play Styles And Sibling Interaction In The Play Situation

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## ABSTRACT

The Association Between Parental Play Styles
and Sibling Interaction in the Play Situation

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The present study focused on the association between parental play styles and sibling interaction in the play situation. Thirty same-sex preschool- and school-aged sibling dyads where the firstborn was between 4 and 9 years of age and the secondborn was between 2 and 7 years of age were observed in the home. Participants were asked to complete a puzzle which required the cooperation of both children. Subjects were observed alone, together with their mother, and together with their father. Prosocial and agonistic sibling-directed behaviors were recorded. Parent-child- and child-parent- directed behaviors were coded as positive or negative. Siblings interacted significantly more prosocially and agonistically when by themselves than when with their mother. Paternal positive behavior toward the children was associated with sibling prosocial behavior when the siblings were together with their father. Paternal negative behavior toward the children was associated with sibling agonistic behavior both when siblings were alone and together with their father. Maternal behavior did not correlate significantly with sibling behavior. The results of this study provide insight into the association between paternal play styles with their children and subsequent sibling interaction.

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The most thanks is due my husband, Sammy Richler, whose name once again deserves to be placed next to mine on the title page for the amount and quality of time and effort put into this project on my behalf. Only he really knows how much this project means to me.

This research is dedicated to my children, Daniel, Yair, and Rachel. The importance of the parents' role in sibling interaction has taken on new relevance. My accomplishment is that much more meaningful because of you.

## TABLE OF CONTENTS

## LIST OF TABLES

The study of sibling relationships in the early childhood years includes a wealth of literature which focuses on three broad areas: characteristics of the sibling relationship, sibling constellation variables, and the influence of the family on sibling relationships. In examining the sibling literature, it is clear that research in this area has focused on the nature of the relationship between brothers and sisters as well as the influence and role of the mother on the sibling relationship. What is noticeably missing from this literature is the role that the father plays in influencing his children's relationship and in what ways his role is different from and similar to the mother's role. These questions need to be addressed as the importance of the father's role and place in his child's development becomes increasingly apparent.

The infant attachment literature is one area which has recently begun to focus on the importance of the father by addressing the infant's attachment to both parents. This literature will be reviewed and the findings will clearly point to the important role that the father plays in his infant's life as well as to the different features of the father-infant relationship compared to the mother-infant relationship. It is possible that the differences between fathers' and mothers' interaction style with their young children may, in turn, influence the interaction between the children themselves. The few studies to date that have addressed differences between mothers and fathers in fostering the sibling relationship will be discussed (Berghout-Austin, Summers, & Leffler, 1987; Brody, Stoneman, & McCoy, 1992; Volling & Belsky, 1992). Finally, the rationale for the present study will be developed and the findings discussed.

## Characteristics of the Sibling Relationship

Dunn (1983) differentiates between reciprocal and complementary features of the sibling relationship. Reciprocity refers to the familiarity, intimacy, and shared interests between children which typifies the peer relationship. Complementarity, on the other hand, is characterized by behavior between two individuals who differ in competencies and interests. For example, older siblings are typically the leaders in interactions with their younger siblings while younger siblings engage in more imitative behavior. Both features are characteristic of the interaction between siblings. The research which follows clearly reveals the reciprocal features of the sibling relationship.

**Reciprocal features.** Siblings create reciprocal experiences for each other in imitative, toy-mediated, and rough games. For example, Lamb (1978a) reported that preschoolers were more likely than their infant siblings to offer toys, hit, and take toys. The infants were more likely to monitor their siblings and their activities, to imitate, to accept toys, and to pick up toys abandoned by the older sibling. Abramovitch, Corter, and Lando (1979) studied same-sex sibling dyads and found that older siblings initiated agonistic and prosocial behavior more often than younger siblings, whereas younger siblings imitated older siblings more often than the reverse and complied with their older sibling's aggression. These results were replicated with mixed-sex sibling dyads (Abramovitch, Corter, & Pepler, 1980) as well as with same-sex sibling dyads (Abramovitch, Pepler, & Corter, 1982; Pepler, Abramovitch, & Corter, 1981). Indeed, these patterns have been replicated for older children as well. For instance, Buhrmester and Furman (1990) found that in

their study of adolescent and middle childhood youngsters, the children perceived older siblings as more domineering and nurturing than younger siblings.

In Lamb's (1981) laboratory-based study, it was found that both infants and their preschool-aged siblings directed much more social behavior to their parents than to each other. Baskett and Johnson (1982) also observed a greater number and variety of child behaviors in interactions with parents as compared to siblings. However, the home-based studies found just the opposite; for example, Abramovitch et al. (1979, 1980, 1982) reported higher levels of interaction between siblings than between children and parents. This discrepancy in findings was attributed to the unfamiliar setting of the laboratory which may have resulted in the children's seeking comfort from their parents in an unfamiliar environment.

Stability in siblings' behavior over time has been reported by many researchers. Lamb (1978b) observed infants, their mothers, fathers, and preschool-aged siblings in a laboratory when the secondborns were 12- and 18-months-old. He reported that preschooler's behavior at time one predicted the infant's behavior 6 months later moderately well, and infants' behavior at 12 months was an excellent predictor of how their siblings would relate to them 6 months later. Thus, the more sociable infants were at time one, the more sociable behavior they elicited from their preschool-aged siblings at time two. Dunn and Kendrick (1982) observed changes that occurred in sibling interaction when infants were 8 versus 14 months old. They found that preschoolers who were accepting of and friendly to their infant siblings after the birth were more likely to behave prosocially to the infants at 14 months of age as compared to preschoolers who were hostile to their siblings after their birth.

**Complementary features.** Common examples of complementary features of the sibling relationship include teaching and caregiving. For example, Stewart and Marvin (1984) investigated the relationship between an older child's perspective-taking ability and their caregiving of a younger sibling. The authors replicated the findings of Stewart (1983) and reported that half the preschool-aged children were active in providing comfort to their younger sibling when their mother left the room. They also reported that the perspective-takers (children capable of making nonegocentric inferences about another's point of view) were more likely than the egocentric children to direct caregiving to their younger sibling. Additionally, mothers seemed implicitly able to recognize if their children were perspective-takers and asked those children for caregiving help. However, Howe and Ross (1990) found no association between the child's ability to perspective-take and to provide caretaking for their distressed sibling. The authors indicate that one explanation for the failure to replicate Stewart and Marvin's (1984) findings was that fewer children in the Howe and Ross (1990) study were distressed in the laboratory setting.

To summarize, research on the characteristics of the sibling relationship shows a high level of interaction between siblings, stability in sibling behavior over time, as well as a clear pattern of interaction between the children whereby older siblings initiate prosocial and agonistic behavior and engage in caretaking more often and younger siblings imitate older ones more often than the reverse.

## Sibling Constellation Variables

Sibling constellation variables are the second area of research in the broad category of literature concerning sibling relationships. Research has examined the

influence of birth order, birth spacing, and sex of sibling dyad on the sibling relationship.

**Birth order.** As was previously discussed, birth order has an effect on the way that siblings interact with one another. Firstborns tend to lead interactions with their siblings, whereas secondborns are more likely to follow, imitate, and take over the toys of their older sibling (Abramovitch, Corter, Pepler, & Stanhope, 1986; Abramovitch et al., 1979; 1980; 1982; Pepler et al., 1981; Dunn & Kendrick, 1982; Lamb, 1978a). Even among school-aged children, researchers reported that older siblings assumed dominant roles while playing a popular board game with their younger sibling (Brody, Stoneman, & Mackinnon, 1982), whereas younger siblings accepted the managee role more often from the older sibling than vice versa (Stoneman, Brody, & Mackinnon, 1984). These authors concluded that there were clear role asymmetries between older and younger siblings; however, the same role asymmetries may exist between any mixed-age interactions. Cicirelli (1972) found that female siblings were more effective teachers than nonsiblings (or male siblings) in teaching the trapezoid concept to their younger siblings. These findings appear to indicate that birth order does influence certain roles that siblings take on in interacting with each other.

**Birth spacing.** Research on birth spacing and sex of the sibling dyad is much less conclusive than research on birth order (Abramovitch et al., 1979; 1980; 1982; Lamb, 1978a). In determining the effects that birth spacing have on the relationship between siblings, researchers have typically divided their samples into large intervals (usually between 2 1/2 to 4 years) and small age intervals (usually between 1 to 2 years) between the siblings. Abramovitch et al. (1979; 1980; 1982)

as well as Corter, Abramovitch, and Pepler (1983) report that the interval between siblings did not effect aggressive, cooperative, or imitative behavior for same- or mixed-sex dyads. Pepler et al. (1981) also found that interval had no effect on prosocial and agonistic behaviors. These findings were replicated by Dunn and Kendrick (1981) who reported that interval did not influence social interaction between siblings. In contrast, in middle childhood, birth space does appear to have some effect on sibling interactions. For instance, Minnett, Vandell, and Santrock (1983) found that 7-8- year-olds displayed more aggression with a closely spaced sibling than a widely spaced sibling. These children were also more likely to show positive behaviors, affection, and high activity with a widely spaced sibling than with a closely spaced sibling.

**Sex of sibling dyad.** Researchers have also been interested in whether the sex composition of the sibling dyad has an effect on sibling behavior; however, generally the findings were not conclusive. Lamb (1978a) reported no sex differences in infants' behavior, but preschool-aged older sisters directed more social behaviors to their siblings than did brothers, while older boys touched their siblings more often than did older girls. Similarly, Abramovitch et al. (1979) found that sex of dyad influenced agonistic and prosocial behavior, but not imitation. Males were found to be more physically aggressive, while older females exhibited more prosocial behavior than any other group (Abramovitch et al., 1980; 1982). This finding was consistent with Cicirelli's (1976) finding that children were more likely to receive and accept help from an older sister than an older brother. However, in a follow-up to the Abramovitch et al. (1979) study, Pepler et al. (1981) reported no difference between older girls and older boys in imitating

prosocial behavior. Similarly, in their final follow-up, Abramovitch et al. (1986) found few effects of sex of child or sex-composition of dyad.

Dunn and Kendrick (1981) reported that positive social behavior was exhibited more frequently by same-sex dyads and negative behavior more frequently by firstborns in opposite-sex dyads when the second child was 14 months old. The authors offer three possibilities to explain their findings. The first explanation was that the older child recognized the gender of the baby and was more interested in socializing with the sibling if they shared the same gender. The second explanation was that by 14-months-old, the baby was becoming conscious of his or her own gender and was more interested in interacting with an older sibling of the same gender. The final interpretation the authors offered was that the same-sex dyads enjoyed similar activities. The authors also noted that mothers of different-sex siblings played more with their infants than did mothers of same-sex siblings. The authors speculate that it may have been the novelty of having a child of a different sex which resulted in the increased play levels between the mother and the infant in opposite sex-dyads. It is possible, then, that the older child in the mixed-sex dyads resented the increased maternal attention that their sibling was receiving, which resulted in more negative interactions between the two siblings. The findings of Dunn and Kendrick (1981), however, were not replicated by other research groups (Abramovitch et al., 1979; 1980; 1986; Lamb, 1978a; 1978b; Pepler et al., 1981).

In summary, birth order may play an important role in the asymmetry and complementarity in the sibling relationship in the early years; that is, firstborns tend to lead in interactions with their siblings, whereas secondborns tend to follow.

Most research on birth spacing indicates that the interval between siblings does not have an affect on the interaction between the siblings, particularly for younger children. The influence of sex of sibling dyad on sibling interaction has resulted in inconsistent findings where some researchers have found sex of dyad to influence some behaviors but not others, whereas other researchers have found few effects, if any.

## The Influence of the Family on the Sibling Relationship

Teti (1992) argues that sibling constellation variables may relate to the structural aspects of early sibling relationships, but they do not help predict the quality of the sibling relationship. The way parents interact with their children may have more to do with the quality of the sibling relationship than these constellation variables. For example, Stewart, Mobley, Van Tuyl, and Salvador (1987) found that firstborns' reactions to the birth of a sibling varied as a function of the sibling's age. When the infant was one month, the initial responses of the firstborn were imitations of baby or confrontations with mother or baby. Responses at 4 months were characterized by many anxiety behaviors and fewer imitations or confrontations. Responses when the baby was 8 and 12 months were primarily confrontations. What is interesting is that observational data showed that mothers dramatically decreased their interactions with their firstborns over time. The children may have been reacting negatively to their sibling out of jealousy as a result of the decreased maternal attention. Nadelman and Begun (1982) reported that, according to mother's report after the birth of a sibling, the girls increased their use of a pacifier or bottle, fussed more about bedtime, did not play as well

with other children, did not enjoy hearing talk about babies, and decreased their baby talk or playing baby as compared to before the birth of their sibling. Boys reacted to their sibling's birth by sitting or lying around the house doing nothing and by being more difficult to engage in conversation. Furthermore, Dunn and Kendrick (1980) argue that the regressive behaviors displayed by firstborns soon after their sibling's birth might better be considered a form of imitation rather than aggression. Firstborns may be using this strategy to re-obtain the lost interaction with their mother since mothers decrease the time spent with their firstborns after their second baby's birth. In conclusion, parents may play a role in the development of the quality of the sibling relationship.

Indeed, researchers have examined the mother's influence on the development of the sibling relationship. For example, Teti and Ablard (1989) examined the relationship between the affective quality of the infant-sibling relationship and the security of attachment of the infant and older sibling to the mother. They found that in the mother's presence, securely attached infants were less likely to protest and aggress against mother and sibling when the mother only played with the sibling. In mother's absence, the more secure siblings were more likely to respond with caregiving to infant distress than less secure siblings. The authors speculate that secure children may be more certain of their mother's emotional availability and, therefore, feel less threatened when their mother diverts her attention toward the other children. Moreover, Dunn and Kendrick (1980) and Howe and Ross (1990) found that maternal references to firstborns about the baby's feelings and needs were positively associated with friendly sibling relations.

Furthermore, Vandell and Wilson (1987) found that mother's interactional

experiences with their infants were related to the infant's subsequent interactions with their older sibling. Specifically, those infants who engaged in a higher proportion of long turn-taking sequences with their mothers at 6 months, later engaged in longer turn-taking with their older siblings. The frequency of the infant's social acts with their sibling was predicted by the infant's earlier social acts with their mother. The influence of the mother on the sibling relationship is also evident for older siblings. However, this could be evidence of the mother's or the child's behavior over time. For example, Bryant and Crockenberg (1980) observed firstborn elementary school-age daughters with their mothers and later-born sisters in a semi-naturalistic game-playing setting. They found that a mother's responsiveness to her children's expressed needs was associated with low levels of antisocial behavior and high levels of prosocial behavior between the children. Barnes and Berghout-Austin (1991) found that warmth and maternal responsiveness was positively associated with sibling behavior and interactions in middle childhood. Sibling behavior and interactions, in turn, had a direct impact on the firstborn's perceptions of self. It is clear that mothers may influence their children's relationship at various ages to a positive degree, however, research also shows that they may have a negative influence on the sibling relationship.

To illustrate, Dunn and Kendrick (1981) found that differences in sibling behavior were related to mother-infant interaction. Frequent mother-infant interaction and a high proportion of mother-child play were negatively related to positive sibling interaction. Abramovitch et al. (1982) reported evidence for more negative behavior on the part of siblings in mother's presence versus her absence. Corter et al. (1983) reported that mother's presence reduced the overall level of

sibling interaction, a finding replicated by Brody, Stoneman, and Burke (1987), and that sibling interaction was relatively more agonistic when mothers were present, whereas children were more prosocial when mothers were absent. These findings were replicated by Howe and Ross (1990) who found that maternal interaction with either child was negatively related to friendly sibling relations both at home and in a laboratory caretaking session. The authors speculate that if mothers interact to a high degree with their children, then the children do not have much opportunity to play on their own and develop a relationship. Stocker, Dunn, and Plomin (1989) found that differential maternal behavior to her two children was associated with sibling relationships that were conflictual. Volling and Belsky (1992) reported that insecure infant-mother attachment was related to sibling antagonism. Finally, Summers and Owens (1991) compared sibling interaction in mother or father present, both parents present, and both parents absent, settings. The older sibling was approximately 6 years old and the younger sibling was approximately 4 years old. They found that the younger sibling was significantly more agonistic when the mother was present than when both parents were present, however, this was not true for the older siblings. Children were found to be most dominant when alone and least dominant in the parent-together setting. The children were significantly more prosocial when both parents were present than in any other setting.

In conclusion, mothers clearly are important in the affective development of the sibling relationship. In this review of the research, however, it should be apparent that the influence of the father on the sibling relationship has not been adequately addressed. In the research reviewed thus far, mothers are typically

observed with their children to determine her influence on the sibling relationship. The reason for the traditional focus on mothers in exploring the parent-child relationship may be due to the fact that mothers predominantly assumed the task of childcare and were, therefore, seen as the focal point in the child's world (Sawin & Parke, 1979). Thus, the father's role and place in his children's development was perhaps viewed as minimal and therefore, ignored.

**The role of the father.** Nevertheless, two interesting findings point to the importance of investigating the father's role in the development of the sibling relationship. First, fathers appear to play an important role in the firstborn's adjustment to the birth of a baby. As early as 1961, Thomas, Birch, Chess, and Robbins reported that the birth of a sibling was not especially disturbing to preschoolers whose fathers were active in caretaking. Similarly, Dunn and Kendrick (1982) reported that in those families where the child had a close, intense relationship with the father, there was less conflict with the mother after the birth of a sibling as compared to those families where the child did not have a close relationship with the father. Second, Dunn and Kendrick (1982) reported that when mothers had intense and playful relationships with firstborn girls, but not with firstborn boys during the secondborn's perinatal period, older girls were significantly less likely to behave prosocially toward the infant at 14 months postpartum. They suggest that boys' reactions to the birth of a sibling and to their subsequent relationship may depend more on the relationship with their father.

The above findings point to the importance of investigating father's influence on the sibling relationship as well as that of the mother. Not only is it important to determine the father's role in the sibling relationship, but how his role

differs from or is similar to that of the mother's role. The infant interaction literature clearly shows that father-infant and mother-infant relationships are different. However, without further evidence we do not know if mothers and fathers play similar or different roles in fostering the sibling relationship.

**Differences Between Father- and Mother-Infant Interaction**

Ethological theory spurred much research and interest in the area of infant attachment and Bowlby (1969) and Ainsworth (1973) discussed infant-parent attachment from an evolutionary perspective. They believe that stress plays an important part in heightening the display of attachment behaviors of infants toward the primary attachment figure while inhibiting interaction with other figures. Researchers have set up a stress-inducing paradigm, termed the Strange Situation, to test these assumptions empirically (Ainsworth, Blehar, Waters, & Wall, 1978).

Ethological theory, until recently, promoted mother-centered research by assuming that the mother was the exclusive object of attachment in infancy. However, there are no obvious reasons why the father should not become a significant object of attachment for his infant. Many of the elements which play a role in developing mother-infant attachment can be shown to apply to the father as well. Fathers typically hold, feed, play, and generally care for their children in addition to mothers. The father has become an object of study in the attachment literature alongside mothers. What do fathers do with their children? Are father-infant interactions different from or similar to mother-infant interactions? In investigating the answers to these questions it will be established that although fathers spend comparatively less time with their children than do mothers, both fathers and mothers are significant figures to their children from an early age.

However, mothers and fathers do differ significantly in their interactions with their offspring. These differences will be discussed and it will be argued that these differences in mother-child and father-child interactions may in turn be associated with differences in sibling interaction.

**Quantity of time spent in caretaking.** An important factor which differentiates mother-infant and father-infant relationships is the quantity of time the parent spends in caretaking. Mothers have traditionally assumed home and child care tasks, whereas fathers have assumed the financial responsibility of the family (Thompson, 1983). With Dad away all day at work, little time was left for him to participate in child care duties. However, as more women entered the workplace, and therefore, increasing the numbers of dual-wage-earner families, one might expect an increase in the fathers' participation in domestic duties. Recent research has not supported this prediction. Allan (1985) reviewed the research on the division of domestic duties in the home and concluded that, overall, housework and childcare duties were not distributed evenly between husband and wife; the principal responsibility for these duties still fell on the wife.

**Quality of time spent with children.** If fathers do not spend their time in childcare duties, what then, do they do with their children? Kotelchuk (1976) and Lamb (1976b; 1977b) reported that in intact families, fathers spent proportionately more time playing with their infants than do mothers. In the Lamb (1976b; 1977b) studies, fathers most often held their babies to play with them, whereas mothers most often held their babies to perform caretaking (feeding, changing) and disciplinary (removing baby from a forbidden object) purposes. Lamb (1976b; 1977b) also coded the kinds of play interactions observed at home between babies

and their parents. Fathers played more physically active rough-and-tumble games with their infants, whereas mothers used more low-key conventional games such as peek-a-boo and toy-mediated games with their children. Thus, when mothers and fathers engage in play with their infants, they do so in different ways.

Lamb (1977b) concluded that the differences in the amount and quality of mother-infant and father-infant relationships reflect a difference in each parents' responsibility for the infant. Mothers, as traditional caregivers, were involved in meeting the baby's basic needs: feeding, comforting, and diapering. The father, as secondary caretaker, revolved more around physically stimulating play. Play was a more interactive context for infants with their fathers than with their mothers, and different kinds of play distinguished each parent for the infant. Therefore, infants start to develop expectations for each parent in different social contexts, a point which will be addressed next.

**Father-Infant Attachment**

What impact does this distinction between mother and father caregiving have on the infant? The different ways that each parent interacts with their baby help shape the baby's expectations for interaction with each parent as well as the baby's behavior toward them.

In a series of studies, Lamb (1976a; 1976c; 1977a; 1977b) compared mother- and father-infant relationships. He observed a group of infants with their fathers and mothers over the first two years of the infant's life in both home and laboratory settings. Lamb (1976a) examined both developmental changes in social responsiveness as well as differences in responding to each parent. In doing so, he distinguished between two types of behaviors exhibited by the infant. Attachment

behaviors included approaching, wanting to be close to, reaching, touching, seeking to be held, and fussing to an adult. He argued that these behaviors reflected an infant's emotional attachment to the parent. Affiliative behaviors included friendly actions such as vocalizing, smiling, looking, laughing, and offering a toy to an adult. These behaviors indicate a baby's friendly responsiveness to a partner regardless of whether or not an attachment relationship exists.

In his first series of home observations, Lamb (1977b) observed infants ranging in age from 7-13 months, with both their parents present. A female observer was also present, acting as a visitor to allow the child the choice of interacting with her or the parents. Infants were found to be attached to both parents, showing no preference for either parent in the display of attachment, although both parents were consistently differentiated from the "visitor". Infants were more responsive to their fathers than to either their mothers or the visitor on the affiliative measures. As the infants grew older, they became increasingly restrictive in their attachment behaviors, directing such interactions exclusively to their parents. Infants were, therefore, shown to be clearly attached to both parents during the first year, although fathers were the recipients of more friendly behaviors from their infants than were mothers.

In the second series of observations, Lamb (1977a) observed infants in their second year of life with their parents and the visitor in the home setting. This time the father was the recipient of a greater number of affiliative and attachment behaviors by the baby compared to the mother and the visitor. Both parents were preferred to the visitor on the attachment behavior measures, but the infants

directed more affiliative behaviors to the visitor than to either parent. Thus, fathers seem to be highly attractive social partners to their infants during the second year of life in a home environment, a finding replicated by Belsky (1979).

Both Lamb (1977a) and Belsky (1979) suggest that the infants' affiliative preference for the father may be due to the tendency for fathers to play with their infants in a more active and vigorous style than do mothers. That is, fathers are fun to play with, and babies have learned this by their second year of life.

Lamb (1976a; 1976c) also conducted similar experiments in a laboratory playroom which produced a less familiar, thus more stressful social context for the infant. In a sample of 20 12- month-old babies, Lamb (1976c) found that whether both parents were together with the infant or each parent alone with the baby, infants directed more affiliative behaviors to their fathers, but showed no preference for either parent in their attachment behaviors. However, a very interesting finding was noted when the stranger entered the room. There was no preference for either parent in the infants' affiliative behavior, but the infants displayed a clear preference for their mothers in the display of attachment behaviors. Infants touched, fussed toward, sought to be held by, reached for, and remained closer to their mothers than to their fathers. This same trend for maternal preference was observed in 18-month-old infants (Lamb, 1976a), as well as 10- to 16-month-olds (Cohen & Campos, 1974).

Lamb suggested that this change may have resulted from the increased stress of the fourth episode, when the stranger entered the room. Lamb (1976a; 1976c) noted a general increase in attachment behaviors of both parents during this period, which may also point to the fact that there was increasing stress on the

infant. Lamb interpreted the increase in mother-directed attachment behaviors as reflecting an infant preference for the attachment figure who regularly provided comforting in similar situations in the past: the mother. This preference was not evident in the home observations since, according to Lamb, home is a nonstressful environment for babies, even when strangers are present.

Other researchers have used similar laboratory situations to assess the attachment behaviors of infants, which produced similar results of infant attachment to both parents in a stress- inducing environment (Kotelchuk, 1976; Lester, Kotelchuk, Spelke, Sellers, & Klein, 1974; Ross, Kagan, Zelazo, & Kotelchuk, 1975; Spelke, Zelazo, Kagan, & Kotelchuk, 1973). These studies also indicated that the infants were less upset by the departure of fathers who interacted with their infants most at home (by self report). The authors concluded that perhaps these infants were better able to adapt to new situations, due to their fathers' high level of involvement. Indeed, a recent study by Fox, Kimmerly, and Schafer (1991) suggests that attachment is a joint product of mother and father. That is, security of attachment to one parent is dependent on security of attachment to the second parent. Perhaps infants with involved fathers are more secure.

In conclusion, the above research shows that fathers are preferred as play partners from a relatively early age, and mothers are preferred when infants are tired or stressed. These differences in parental preference are not surprising in view of the research which has indicated that infants typically encounter their fathers in exciting, vigorous games, and in contrast, infants typically encounter their mothers in a caretaking role: feeding, clothing, and comforting. Clearly, then,

infants are attached to both parents, albeit in different ways. Fathers and mothers also seem to use different interactional styles with their young children which influences the children's behavior toward them. Following from this, one can argue that these different interactional styles would influence the way that the siblings interact with one another. Indeed, research has suggested that there are links between parent-child and sibling- child relationships. Dunn (1988a) has pinpointed five different processes that link mother-child and sibling-child relationships that are evidenced in the literature.

First, as was previously discussed, Dunn and Kendrick (1982) found that the children who had a particularly negative reaction to the birth of a sibling and whose relationship with their mothers deteriorated, were, one year later very hostile to their younger sibling. Second, the same authors noted that firstborn girls who had a particularly close relationship with their mothers prior to the birth of a sibling, developed a hostile relationship with their sibling over the first year. Conversely, firstborn girls who did not have a good relationship with their mothers before the birth of a sibling, later developed a friendly relationship with their sibling over the first year. Similar patterns of findings were discovered for father-firstborn and later sibling relationships based on interviews rather than behavioral observations. Dunn (1988b) provides two explanations for the links between the family relationships. Firstly, that the children who had a close relationship with their mothers felt set aside by their siblings and, therefore, developed a hostile relationship with them. Secondly, that those children who had a poor relationship with their mothers developed a close relationship with their sibling, suggesting that their need for warmth and affection was met through the sibling relationship since

it was not available from their mothers.

Third, Dunn (1988a) suggests that the development of a hostile sibling relationship may also be related to a friendly relationship between mother and one of the children. For example, Howe and Ross (1990) found that a high amount of maternal play interaction with either child was associated with poor sibling relations. Dunn and Kendrick (1981) reported similar findings.

Fourth, Dunn (1988a) maintains that children notice the different degrees to which their mother interacts with them and their sibling, which in turn affects the sibling relationship. This is evidenced in the work of Bryant and Crockenberg (1980), who showed that in a game-playing situation, the mother behaved differently to each of her two daughters relative to the other which accounted for the siblings behavior to each other.

Finally, Dunn and Kendrick (1982) found that when mothers involved their oldest children in discussions about the feelings and actions of their sibling, a positive relationship between the children ensued. Additionally, Howe and Ross (1990) also found a high positive correlation between these two variables. Dunn (1988a) suggested that communication and discussion of other members of the family might influence positive relationships among those members.

In conclusion, these five findings illustrate the ways in which the mother-child relationship can, in turn, affect or is associated with the subsequent relationship between the siblings. By the same token, it may be expected that the father-child relationship would offer similar results since it was reported through interviews that firstborns who had close relationships with their fathers prior to the birth of a sibling, later developed a hostile relationship with their sibling over the

first year. The reverse was true for firstborns who did not have a good relationship with the father (Dunn & Kendrick, 1982).

However, based on the infant attachment literature, it might be that the father-child relationship and the mother-child relationship differentially influence the sibling relationship. Indeed, Belsky, Lerner, and Spanier (1984) argued that the father's influence on his children may be distinct from that of the mother because of the father's secondary caregiving role in our society. In fact, as described previously, infants have been shown to interact with their parents in different ways, directing more attachment behaviors to their mother, whereas more affiliative behaviors were directed toward their father (Lamb, 1976a; 1976c; 1977a; 1977b). Furthermore, parents were shown to interact with their infants in different ways. Fathers engaged in more vigorous, rough-and-tumble games in interacting with their children, whereas mothers used more quiet, toy-mediated games in interacting with their children (Lamb, 1976b; 1977b). Given such differences in the style of fathering as compared to mothering, it is possible that fathers exert a unique influence on the sibling relationship. However, it is also possible that they exert no special influence at all.

**Parental Differences in Fostering the Sibling Relationship**

Only a few studies to date have investigated how mothers and fathers differ in terms of fostering the sibling relationship. Specifically, Berghout-Austin et al. (1987) investigated how mothers and fathers differ in terms of the type of encouragement given to foster sibling awareness and interaction. Older siblings between 18 and 26 months, younger siblings between 4 and 8 weeks and their parents were videotaped during a semi-structured activity in the laboratory. The

father was observed alone with his children, the mother was observed alone with her children, and the family was observed together. The order of these observations were counterbalanced across families. All the utterances of parents and children were transcribed and analyzed. Categories were chosen to show the ways that each parent fostered the firstborn's awareness of baby and facilitated the interaction between the two. The authors reported that fathers gave their toddlers more directives to watch the infant than the mother alone, or the parents together. Fathers made more awareness statements about the infant to the toddler when he was alone with his children than when fathers were present with mothers. Fathers alone with toddler and a baby girl made more awareness statements than mothers or parents together or fathers alone with toddler and a baby boy. The father directed more interrogatives to the toddler regarding the baby than any other grouping.

The authors concluded that these findings point to the role of the father in directing and encouraging interactions between his children, especially when the infants are girls. Indeed, when fathers were alone with their offspring, they used more explicit directives to encourage play between their children or to encourage the older sibling to engage in affective or caregiving behavior toward the infant. The authors do caution, however, that since they observed the families so soon after the younger child's birth, the mother may have been experiencing postpartum effects which may have inhibited their communications with their children.

Two recent studies conducted by Brody et al. (1992) and Volling and Belsky (1992) investigate the links between both maternal- and paternal- child interaction and the sibling relationship. Both studies clearly conclude that both the

fathers' and the mothers' behavior toward their children are associated with the subsequent sibling relationship. Brody et al. (1992), in their longitudinal study involving 109 same-sex preschool and school-aged sibling dyads, go on to say that although rates of maternal and paternal direct and differential behaviors were similar, paternal behavior exerted a unique influence on the sibling relationship. Volling and Belsky (1992), in their longitudinal study of 30 preschool sibling dyads, report that conflictual mother-child interaction was associated with sibling antagonism whereas facilitative and affectionate fathering was associated with prosocial sibling interaction. Both studies point to the special influence that are associated with the fathers in regard to the sibling relationship and the importance of including paternal behavior measures as they relate to the sibling relationship in future studies.

**Summary and Rationale for the Present Study**

Thus far, in reviewing the sibling literature, it is evident that much of the research focused on the mother's influence on her children, whereas the role of the father in the sibling literature has been generally neglected. Research on the infant attachment literature has clearly revealed the importance of the father as recipient of his child's affiliative behaviors as well as serving as an attachment figure; it is, therefore, worthwhile to study the nature of the father's influence in his childrens' lives. This research has also revealed that children are attached to their fathers in addition to their mothers, albeit to different degrees. It is proposed that these different parental styles in interacting with young children may, in turn, influence the way that siblings interact with one another.

The Berghout-Austin et al. (1987) study indicates that mothers and fathers

do involve themselves differently in encouraging sibling awareness in a laboratory setting, at least for very young infants. The Brody et al. (1992) and Volling and Belsky (1992) studies indicate that mothers and fathers are associated with different influences on the sibling relationship for both preschool- and school- aged sibling dyads in a home-based study. The present study focused on the association between mothers' and fathers' interactive style with their children and subsequent sibling interaction in the play situation in a home setting. As was previously discussed, research indicates that the style with which parents interacted with their children was different; fathers engaged in vigorous rough-and-tumble games with their children, whereas mothers engaged in more comforting as well as toy-mediated games. Even the type of language that parents used to encourage interaction between their children was different (Berghout-Austin et al., 1987). The main question being addressed in the present study is how these different parental styles are associated with positive and negative sibling interaction.

The study comprised three sessions. In one session, same-sex preschool- and school-aged sibling dyads were asked to complete a puzzle which required the cooperation of both children. Prosocial and agonistic sibling-directed behaviors were recorded. In the other two sessions, the presence of the mother and father was alternated. Parents were asked to make sure that their children once again complete the task with different puzzles at the same level of complexity. Parent-child directed and child-parent directed behaviors were coded as either positive or negative.

**Hypotheses**

1) Berghout-Austin et al. (1987) found that fathers generally fostered the

firstborn's awareness of baby and generally directed sibling interaction more than mothers. Thus, it was expected that more prosocial interaction between children will occur in the father's presence than in the mother's presence.

2) Dunn and Kendrick (1981) found that frequent mother- infant interaction and a high proportion of play were negatively related to positive sibling interaction; these findings were replicated by Howe and Ross (1990). Similarly, Abramovitch et al. (1982) as well as Corter et al. (1983) reported more negative behavior on the part of the siblings in the mother's presence as compared to her absence. Thus, it was expected that children would interact more positively when by themselves in the sibling episode than when with either parent.

3) Conversely, it was predicted that children would interact more negatively when with either parent than when by themselves in the sibling episode.

4) Finally, as was previously discussed, the literature suggests links between parent-child and sibling-child relationships. It was, therefore, expected that positive behaviors on the part of the parent toward their children, would, in turn, be associated with prosocial behaviors between the siblings.

5) Conversely, it was expected that parents' negative behaviors toward their children, would, in turn, be associated with agonistic behaviors between the siblings.

## Method

### Subjects

Thirty same-sex preschool- and school-aged sibling dyads from largely intact (29 of the couples were married, the wife of one couple was previously divorced and living with her present mate) middle-class families were observed in the home. The firstborn sibling was between the age of 4 and 9 with a mean of 6.6 years and the secondborn was between the age of 2 and 7 with a mean of 4.2 years. Sixteen of the sibling dyads were female, while the remaining fourteen were male dyads. Table 1 presents the age and employment characteristics of this sample. The mothers ranged in age between 29 and 44 years. Eleven of the mothers from this sample did not work outside the home. The remaining 19 mothers held part or full time positions (nine mothers worked 21 or fewer hours a week, 10 mothers worked 25 or more hours a week) mostly in managerial or professional jobs. The fathers ranged between 32 and 50 years of age. All but two of the fathers held positions in the managerial or professional domain. The fathers in this sample worked between 35 and 70 hours per week, with most men reporting a 50-hour work week.

For the purpose of exploratory analyses reported in the results section, the sample was balanced for gender: there were 16 female dyads and 14 male dyads recruited. Also for the purpose of exploratory analyses reported in the results section, the sample was divided into older and younger sibling dyads. Table 2 presents the mean, standard deviation, and range of age of the firstborns and secondborns within the older and younger sibling dyads. The firstborn sibling in the older dyad ranged between 7 and 9 years of age with a mean age of 7.7 years.

**Table 1**

**Age and employment characteristics.**

| | Age Characteristics | | | | Hours Per Week Worked Outside Home | | | |
|---|---|---|---|---|---|---|---|---|
| | n | M | SD | Range | n | M | SD | Range |
| **Mother** | 30 | 33.2 | 3.7 | 29-44 | 19 [a] | 28.5 | 13.0 | 12-50 |
| **Father** | 30 | 36.7 | 4.8 | 32 - 50 | 30 | 46.6 | 7.9 | 35-70 |
| **Older** | 30 | 6.6 | 1.4 | 4 - 9 | - | - | - | - |
| **Younger** | 30 | 4.2 | 1.4 | 2 - 7 | - | - | - | - |

Note. Units = years

[a]Eleven of the mothers did not work outside the home and were therefore not included in these calculations

**Table 2**

**Age characteristics of older and younger sibling dyads**

| | Older Dyad | | | | Younger Dyad | | | |
|---|---|---|---|---|---|---|---|---|
| | n | M | SD | Range | n | M | SD | Range |
| **Firstborn** | 15 | 7.7 | .7 | 7-9 | 15 | 5.5 | 1.0 | 4-7 |
| **Second born** | 15 | 5.3 | 1.1 | 4-7 | 15 | 3.1 | .6 | 2-4 |

Note. Units = years

The secondborn of the older sibling dyad ranged between 4 and 7 years of age with a mean age of 5.3 years. The firstborn sibling in the younger dyad ranged between 4 and 7 years of age with a mean age of 5.5 years. The secondborn of the younger sibling dyad ranged between 2 and 4 years of age with a mean age of 3.1 years. Participants were recruited by contacting various types of schools in the greater Montreal area as well as by word-of-mouth. Children with siblings who fit the age requirement were asked to participate in the study and written permission from the parents was obtained. (See Appendix A for a copy of the consent form). Subjects were free to withdraw from the study at any time.

**Procedure**

Observations were conducted in the home during a time when the children were playing together and both parents were home. The family was told that the observer was interested in watching how siblings interacted with one another in the home setting. The parents were asked to fill out a brief questionnaire requesting information on the sex, age of children, and SES. (Refer to Appendix B). In the meantime, the investigator engaged in conversation with the children in order to accustom them to her presence. After this initial warm- up period, formal observations began. There were three sessions, one where the children were alone, one where the mother was present with the dyad, and one where the father was present with the siblings. In each session, the eldest child was given half of the pieces of a floor puzzle and the younger child was given the remaining pieces. The challenge was suitable for the ages of both children. The children were required to take turns fitting together their pieces of the puzzle. In one session, the children were left alone to complete the puzzle. In another episode, the mother was

present while her children completed the task, which involved a different puzzle than the sibling alone episode, but of the same level of difficulty. In the final episode, the father was present while his children completed the puzzle. Once again the puzzle was different than in the other episodes, but was suitable for both children. Episodes were counterbalanced across families, and each episode lasted five minutes. A video camera was set up to record the sibling's and parent's behavior (see Appendices C and D), and a stopwatch was used to time the sessions.

## Materials

Six different puzzles were used: three puzzles (one for each episode) which were appropriate for the older sibling dyads, and three puzzles which were determined to be appropriate for the younger sibling dyads. The puzzles are described in the following sections.

Older Sibling Dyad Puzzles. These puzzles were used for those dyads where the older sibling was between the ages of 7 and 9, and the younger sibling was between the ages of 4 and 7.

The first puzzle, entitled *Mix 'n Match Puzzles: Initial Consonants - Level 2,* was produced by Trend Enterprises. The object of this puzzle was for the siblings to match a picture of an initial consonant, to a picture, and to a word with the initial consonant omitted. Only the three correctly matched puzzle pieces fit together.

The second puzzle, entitled *Animal Match-Up,* was produced by Ravensburger. The objective of this puzzle was to match a baby animal to a frame and to its mother.

The third puzzle in this category, entitled *Match and Spell,* was also produced by Ravensburger. In this game, animals were represented on spelling cards cut into strips. Each strip showed a part of an animal with one letter in the animal's name. When the strips were placed correctly side by side, the animal and its name appeared. The same animals were shown on a smaller card with the correct spelling of the animal's name on the other side. This card was used as a pattern for assembling the larger card. The object of the game was to put together each animal / letter card so that the animal was formed and the name spelled.

Younger Sibling Dyad Puzzles These puzzles were used for those dyads where the older sibling was between the age of 5 and 7, and the younger sibling was between the age of 2 and 4.

The first puzzle, produced by Ravensburger, was entitled *abc game.* In this game, the siblings were required to match a picture with the first letter (small) of that word. On the back of the picture card, was the small letter that the word started with and on the back of the letter card was the same letter in capital. The children, therefore, could choose with which side of the cards to play the game.

The second puzzle, entitled *Mix 'n Match Puzzles: Matching Things* was produced by Trend Enterprises. The objective of this puzzle was for the siblings to match identical pictures. Only the two correctly matched puzzle pieces would fit together.

The final puzzle, entitled *Number Plaques 2413,* was produced by Lauri. The objective of this puzzle was for siblings to fit numbers (1 to 10) and round circles into forms and to then match the numbers to the correct number of round circles on a form.

## Measures

**Sibling behaviors.** Behaviors between siblings were coded as prosocial or agonistic using the descriptions adapted from Abramovitch et al. (1979). All prosocial and agonistic categories used in the present study were the same as those used in Abramovitch et al. (1979), except that a category of "approach" (moving to within .5 m of sibling with no evidence of agonistic intent) was not used in the present study since the siblings sat next to one another for the duration of the sessions, and therefore the category did not apply. Prosocial behaviors included such behaviors as cooperate, request, praise, comfort, physical affection, and amity. Agonistic behaviors included such behaviors as physical aggression, command / threat, insult / disapproval, and tattle-tell. See Appendix C for a description of these behaviors. Each initiation of sibling interaction was recorded during the five-minute episodes.

**Parental behaviors.** Behaviors directed by parents to siblings or siblings to parents were coded globally as either negative or positive and the behavioral categories were those used by Corter et al. (1983). See Appendix D for a description of those behaviors. For parent-child directed behaviors, positive behaviors included caretake, praise/comfort, and help. Negative behaviors included command, threat/disapproval, and punish. For child-parent directed behaviors, positive behaviors included requests, affection, and help; negative behaviors included disapproval and threat. Each initiation of these behaviors and the initiator as well as the person(s) to whom the behavior was directed were recorded during the five-minute episodes.

**Reliability**

An assistant was trained in the coding procedures by the author during five one-hour sessions. The author and assistant simultaneously coded the behaviors of the four pilot families who had been previously videotaped. After this initial training period, five of the videotaped families who participated in the research were randomly selected to be coded by the assistant. All videotaped families were previously coded by the author. Cohen's Kappa, an agreement statistic that corrects for chance, was used to determine reliability (Bakeman & Gottman, 1986). Cohen's Kappa is computed by subtracting the proportion of agreements expected by chance from the number of tallies representing agreement and dividing by the total number of tallies. A Kappa of .70 or above was previously deemed as acceptable (Bakeman et al., 1986).

In the present study, seven separate Kappas were computed and are presented here:

Father-Child-Directed Interaction. A Kappa statistic was calculated for all the behaviors exhibited by the father (positive and negative) to his children. The Kappa was .72.

Child-Father-Directed Interaction. A Kappa statistic was calculated for all the behaviors directed to the father (positive and negative) by his children. The Kappa was .89.

Mother-Child-Directed Interaction. A Kappa statistic was calculated for all the behaviors exhibited by the mother (positive and negative) to her children. The Kappa was .79.

Child-Mother-Directed Interaction. A Kappa statistic was calculated for

all the behaviors directed to the mother (positive and negative) by her children. The Kappa was .89.

Younger Sibling Interaction. A Kappa statistic was calculated for all those behaviors (prosocial and agonistic) exhibited by the younger sibling to the older sibling. The Kappa was .94.

Older Sibling Interaction. A Kappa statistic was calculated for all those behaviors (prosocial and agonistic) exhibited by the older sibling to the younger sibling. This Kappa was calculated at .85.

Amity and Cooperate - Help. Finally, a Kappa was computed separately for the behaviors Amity and Cooperate-help since these were behaviors that were not directed to someone directly, rather both or all parties engaged in these behaviors simultaneously. This Kappa was calculated at .84.

The overall Kappa statistic was .84 which indicates a high level of agreement between coding procedures of both the author and assistant.

## Results

In the following section, the descriptive statistics pertaining to the sibling's prosocial and agonistic behaviors in the three episodes will be presented, followed by the results pertaining to the five specific hypotheses addressed in this study. Finally, some exploratory analyses will be presented.

### Descriptive Statistics

Table 3 presents the means and standard deviations of the sibling's prosocial behavior score in the mother, father, and sibling episodes. More frequent prosocial behaviors were observed in the sibling alone episode than in either the mother or father episodes. The greatest variation in sibling prosocial behaviors was noted in the father episode, as indicated by the large standard deviation.

Table 4 presents the means and standard deviations of the siblings' agonistic behavior score in the sibling alone episode, the mother and father episodes. Once again, more frequent agonistic behaviors were observed in the sibling alone episode than in either the mother or father episodes. The greatest variation in sibling agonistic behaviors was noted in the father episode, as indicated by the large standard deviation.

Table 5 presents the means and standard deviations of the mothers' and fathers' positive and negative behaviors. More frequent positive behaviors were exhibited by the fathers as compared to the mothers. The greatest variation in positive behaviors was noted in the father episode, as indicated by the large standard deviation. More frequent negative behaviors were displayed by the

**Table 3**

**Means and standard deviations of siblings' prosocial behavior score in the mother, father and sibling episodes**

| Episode | M | SD |
|---|---|---|
| Mother | 8.567 | 5.958 |
| Father | 9.800 | 19.829 |
| Sibling | 13.900 | 7.039 |

Note. n = 30 dyads

**Table 4**

**Means and standard deviations of siblings' agonistic behavior score in the mother, father, and sibling episodes**

| Episode | M | SD |
|---|---|---|
| Mother | 11.033 | 9.320 |
| Father | 13.800 | 18.670 |
| Sibling | 19.533 | 13.490 |

Note. n = 30 dyads

fathers as compared to the mothers. The largest variation in negative behaviors was noted in the father episode, as is evident from the large standard deviation.

**Hypotheses Tests**

**1. Children will interact more prosocially when together with their father than when together with their mother.** A dependent samples t-test was conducted to test this hypothesis, whereby the dependent variable was the number of occurrences of prosocial behavior between the siblings and the independent variable was the type of episode: father present versus mother present. The dependent samples t-test for the sibling prosocial score in the mother and father present episodes indicated that there was no difference in the prosocial behaviors exhibited by the siblings in the mother present episode as compared to the father present episode, $t(29) = -.32$ , $p > .05$ (one tail). Thus, the hypothesis was not supported.

**2. Children will interact more prosocially when together than when with either parent alone.** First, a one-way repeated measures analysis of variance was used to test this hypothesis, whereby the dependent variable was the number of instances of prosocial behavior between the siblings and the independent variable was the episode: siblings alone, father present, and mother present. As indicated in table 6, the one-way repeated measures ANOVA revealed no significant omnibus effect for episode, $F(2,58) = 1.44$, $p > .05$, n.s. Two planned comparisons, dependent samples t-tests were conducted to further test this hypothesis. In the first dependent samples t-test, the dependent variable was the number of instances of prosocial behavior between the siblings and the independent variable was the type of episode: siblings alone versus the mother present episode.

**Table 5**

**Means and standard deviations of mothers' and fathers' positive and negative behavior scores**

| Episode | Positive Behavior | Negative Behavior |
|---|---|---|
| **Mother**[a] | 32.5[c]<br>(19.0)[d] | 12.4<br>(9.7) |
| **Father**[b] | 35.7<br>(23.7) | 16.6<br>(18.3) |

Note. [a]n = 30 [b]n=30 [c]=mean [d]=SD

**Table 6**

**Summary table for the analysis of variance of prosocial behaviors for episode**

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Within** | | | | | | |
| | Episode | 2 | 467.76 | 233.88 | 1.44 | .245 |
| | Error | 58 | 9411.58 | 162.27 | | |

The t-test indicated that there was a significant difference in prosocial behaviors exhibited by the siblings in the two episodes. The siblings interacted significantly more prosocially when by themselves than when with their mother, $t(29) = 2.97$, $p < .01$, (one tail). In the second dependent samples t-test, the dependent variable was the number of instances of prosocial behavior between the siblings and the independent variable was the type of episode: siblings alone versus the father present episode. The t-test indicated that there was no significant difference in prosocial behaviors exhibited by the siblings in the two episodes, $t(29) = 1.08$, $p > .05$, (one tail), n.s.

It is evident that the initial one-way repeated measures ANOVA did not reach significance since the sibling prosocial behaviors were so far from significance in the sibling alone versus father episode and in the mother episode versus father episode, that any difference in the sibling alone versus mother episode was masked. The two dependent samples t-tests, then, reveal that the hypothesis was partially confirmed. The siblings' prosocial behavior was significantly greater when alone than when with the mother, but the siblings were not significantly more prosocial when alone as compared to when they were with the father.

**3. Children will interact more negatively when with either parent than when alone.** First, a one-way repeated measures analysis of variance was used to test this hypothesis, whereby the dependent variable was the number of instances of agonistic behaviors between the siblings and the independent variable was the episode: siblings alone, father present, and mother present. As indicated in table 7, the one-way repeated measures ANOVA revealed a significant omnibus

effect for episode, $F(2,58) = 3.41$, $p < .05$. That is, the siblings' agonistic behaviors significantly differed in the three episodes. Two planned comparisons, dependent samples t-tests were conducted to further test this hypothesis. In the first dependent samples t-test, the dependent variable was the number of instances of agonistic behaviors between the siblings and the independent variable was the type of episode: siblings alone versus the mother present episode. The t-test indicated that there was a significant difference in agonistic behaviors exhibited by the siblings in the two episodes. The siblings interacted significantly more agonistically when by themselves than when with their mother, $t(29) = 3.13$, $p < .01$, (one tail). In the second dependent samples t-test, the dependent variable was the number of instances of agonistic behavior between the siblings and the independent variable was the type of episode: siblings alone versus the father present episode. The t-test indicated that there was no significant difference in agonistic behaviors exhibited by the siblings in the two episodes, $t(29) = 1.61$, $p > .05$, (one tail), n.s.

The two dependent samples t-tests, then, reveal that the hypothesis was not supported. Contrary to the hypothesis, the siblings' agonistic behavior was significantly greater when alone than when with the mother, and moreover, the siblings were not significantly more agonistic when with the father as compared to when they were alone.

**4. The relationship between parent positive behaviors toward the siblings and sibling prosocial behaviors will be positively correlated.** A correlation between the parents' positive behaviors and the siblings' prosocial behaviors was conducted to test this hypothesis. Since mothers' and fathers'

**Table 7**

**Summary table for the analysis of variance of agonistic behaviors for episode**

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Within** | | | | | | |
| | Episode | 2 | 1127.76 | 563.88 | 3.41 | .040 |
| | Error | 58 | 9593.58 | 165.41 | | |

behaviors were not significantly correlated, they were looked at separately. (For mothers' positive and fathers' positive behaviors, $r(30) = .28$, $p > .05$, two tailed; for mothers' negative and fathers' negative behaviors, $r(30) = .09$, $p > .05$, two tailed.)

Parent positive and negative behaviors were significantly correlated (for mothers' positive and negative behaviors, $r(30) = .46$, $p < .01$, two tailed; for fathers' positive and negative behaviors, $r(30) = .62$, $p < .01$, two tailed), therefore the number of parents' positive behaviors was used as the parents' positive behavior score. Similarly, sibling prosocial behavior was positively correlated with sibling agonistic behavior, $r(30) = .56$, $p < .01$, two tailed, therefore the number of siblings' prosocial behaviors was used as the siblings' prosocial behavior score. Siblings' prosocial behavior was calculated both when the children were alone, as well as when they were with the parent in question to determine whether their behavior was a performance effect or whether their behavior carried over to when they were no longer in their parents' presence.

Thus, four different correlations were conducted to test this hypothesis:

1. A correlation between mother positive behavior and sibling prosocial behavior when siblings were alone was conducted. Mother positive behavior and sibling prosocial behavior when alone was not significantly correlated, $r(30) = .01$, $p > .05$, one tail, n.s.

2. A correlation between mother positive behavior and sibling prosocial behavior when siblings were in the mother's presence was conducted. Mother positive behavior and sibling prosocial behavior when in the mother episode was not significantly correlated, $r(30) = -.26$, $p > .05$, one tail, n.s.

3. A correlation between father positive behavior and sibling prosocial behavior when siblings were alone was conducted. Father positive behavior and sibling prosocial behavior when alone was not significantly correlated, $r$ (30) = .03, $p > .05$, one tail, n.s.

4. A correlation between father positive behavior and sibling prosocial behavior when siblings were in the father's presence was conducted. Father positive behavior and sibling prosocial behavior when in the father episode was highly positively correlated, $r$ (30) = .69, $p < .01$, one tail.

To summarize, the hypotheses of positive correlations of parent positive behaviors with sibling prosocial behaviors was partially confirmed. Mothers' positive behavior was not significantly correlated with sibling prosocial behavior, whether the siblings were alone or together with the mother. Fathers' positive behavior was significantly positively correlated with sibling prosocial behavior when the siblings were together with the father but not when the siblings were alone.

**5. The relationship between parent negative behaviors toward the siblings and sibling agonistic behaviors will be positively correlated.** As in hypothesis # 4, the same methodology was used to test this hypothesis.

The number of mothers' and fathers' negative behaviors was used as their negative behavior score. Similarly, the number of siblings' agonistic behavior was used as the siblings' agonistic behavior score. Siblings' agonistic behavior was calculated and analyzed separately for when they were alone and when they were with the parent in question. Thus, once again, four different correlations were conducted to test this hypothesis:

1. A correlation between mother negative behavior and sibling agonistic behavior when siblings were alone was conducted. Mother negative behavior and sibling agonistic behavior when alone was not significantly correlated, $r$ (30) = .17, $p > .05$, one tail, n.s.

2. A correlation between mother negative behavior and sibling agonistic behavior when the siblings were in the mother's presence was conducted. Mother negative behavior and sibling agonistic behavior when in the mother episode was not significantly correlated, $r$ (30) = .12, $p > .05$, one tail, n.s.

3. A correlation between father negative behavior and sibling agonistic behavior when siblings were alone was conducted. Father negative behavior and sibling agonistic behavior when alone was significantly positively correlated, $r$ (30) = .49, $p < .01$, one tail.

4. A correlation between father negative behavior and sibling agonistic behavior when siblings were in the father's presence was conducted. Father negative behavior and sibling agonistic behavior when in the father episode was significantly positively correlated, $r$ (30) = .66, $p < .01$, one tail.

To summarize, the hypotheses of positive correlations of parent negative behaviors with sibling agonistic behaviors was partially confirmed. Mothers' negative behavior was not significantly correlated with sibling agonistic behavior, whether the siblings were alone or together with the mother. Fathers' negative behavior was significantly positively correlated with sibling agonistic behavior when the siblings were together with the father and when the siblings were alone.

**Exploratory Analyses**

**Gender.** As was reported in the introduction, researchers have been

interested in whether sex of sibling dyad has an effect on sibling behavior, and the findings have been mixed. Thus, a gender factor was built into the sample (16 female dyads and 14 male dyads were recruited). Analyses were conducted to determine whether or not there were differences between male and female sibling dyads in the behaviors exhibited. Table 8 presents the means and standard deviations of the prosocial and agonistic behaviors exhibited by the male and female sibling dyads in the mother episode, father episode, and sibling alone episode. A repeated measures analysis of variance of both prosocial and agonistic behaviors was conducted. As presented in Table 9, there was no main effect for gender for prosocial behaviors, $\underline{F}$ (1,28) = .50, $\underline{p}$ > .05, n.s. That is, male and female dyads did not differ significantly in the amount of prosocial behaviors exhibited. The main effect for episode will not be addressed under any of the exploratory analyses categories since it was already analyzed for hypotheses number two and three. There was no interaction between gender and episode for prosocial behaviors, $\underline{F}$ (2,56) = .50, $\underline{p}$ > .05, n.s. Table 10 presents the analyses of variance of agonism for the male and female sibling dyads. The test for the main effect for gender reveals a trend whereby female sibling dyads scored higher on agonism than male sibling dyads, $\underline{F}$ (1,28) = 3.00, $\underline{p}$ =.095. There was no interaction between gender and episode for agonistic behaviors, $\underline{F}$ (2,56) = 0, $\underline{p}$ > .05, n.s.

**Age.** As was previously discussed, researchers have looked at birth order to determine if firstborns behave differently than secondborns in terms of prosocial and agonistic behaviors. Therefore, it was analyzed as well in the present study. Additionally, because the age range of the sibling dyads in the present sample was

**Table 8**

**Means and standard deviations of the male and female sibling dyad's prosocial and agonistic behaviors**

| | Prosocial Behavior Score Sibling Dyad | | Agonistic Behavior Score Sibling Dyad | |
|---|---|---|---|---|
| | Male [a] | Female [b] | Male [a] | Female [b] |
| **Mother Episode** | 8.3[c] (5.0)[d] | 8.8 (6.8) | 7.8 (3.1) | 13.9 (11.9) |
| **Father Episode** | 6.8 (7.8) | 12.4 (26.3) | 10.6 (7.8) | 16.6 (24.6) |
| **Sibling Episode** | 14.2 (8.3) | 13.6 (6.0) | 16.4 (13.3) | 22.3 (13.4) |

Note. [a] n = 14 dyads [b] n = 16 dyads [c] = mean [d] = SD

Table 9

Summary table for the analysis of variance of prosocial behaviors for the gender and episode main effects and the gender by episode interaction

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Gender | 1 | 77.75 | 77.75 | .50 | .487 |
| | Error | 28 | 4379.54 | 156.41 | | |
| **Within** | | | | | | |
| | Episode | 2 | 483.15 | 241.58 | 1.46 | .240 |
| | Gender x Episode | 2 | 165.42 | 82.71 | .50 | .609 |
| | Error | 56 | 9246.16 | 165.11 | | |

**Table 10**

**Summary table for the analysis of variance of agonistic behaviors for the gender and episode main effects and the gender by episode interaction**

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Gender | 1 | 803.20 | 803.20 | 3 | .095 |
| | Error | 28 | 7508.45 | 268.16 | | |
| **Within** | | | | | | |
| | Episode | 2 | 1123.68 | 561.84 | 3.28 | .045 |
| | Gender x Episode | 2 | .12 | .06 | .00 | 1.00 |
| | Error | 56 | 9593.46 | 171.31 | | |

large (siblings ranged in age between 2 - 9 years), the sample was divided into older and younger dyads to determine if they behaved differently. Thus, age was analyzed from three different perspectives. First, age of dyad was analyzed by forming two groups: older sibling dyads versus younger sibling dyads, and comparing these two groups on prosocial and agonistic behaviors exhibited. Second, birth order was examined by comparing prosocial and agonistic behaviors amongst two groups: firstborns versus secondborns. Finally, the potential confound of age and birth order was teased apart by comparing the "younger" firstborns (those firstborns between the ages of 4 and 7) with "older" secondborns (those secondborns between the ages of 4 and 7). Forming these two groups kept age of sibling constant whereby only birth order varied. These results will be presented in the following paragraphs.

**Age of dyad.** Sibling dyads were categorized in two groups: younger dyads (whereby the younger sibling was between 2 - 4 years old and the older sibling was between 4 - 7 years old), and older dyads (whereby the younger sibling was between 4 - 7 years old and the older sibling was between 7 - 9 years old).

Analyses were conducted to determine whether or not there were differences between older and younger sibling dyads in prosocial and agonistic behaviors. Table 11 presents the means and standard deviation of the prosocial and agonistic behaviors exhibited by the older and younger sibling dyads in the three episodes. As can be seen from Tables 12 and 13, there were no significant differences between younger and older sibling dyad's prosocial behaviors, $F = .78$, $p > .05$, n.s., or agonistic behaviors, $F = 1.31$, $p > .05$, n.s. There was no interaction between dyad and episode for prosocial behaviors, $F(2,56) = .15$, $p >$

**Table 11**

**Means and standard deviations of the younger and older sibling dyad's prosocial and agonistic behaviors**

| | Prosocial Behavior Score Sibling Dyad | | Agonistic Behavior Score Sibling Dyad | |
|---|---|---|---|---|
| | Younger [a] | Older [b] | Younger [a] | Older [b] |
| **Mother Episode** | 7.9[c] (5.7)[d] | 9.2 (6.3) | 8.8 (6.2) | 13.3 (11.5) |
| **Father Episode** | 7.6 (6.7) | 12.0 (27.5) | 10.3 (7.4) | 17.3 (25.3) |
| **Sibling Episode** | 13.3 (8.3) | 14.5 (5.8) | 19.2 (14.4) | 19.9 (13.1) |

Note. [a] n = 15 dyads [b] n = 15 dyads [c] = mean [d] = SD

Table 12

Summary table for the analysis of variance of prosocial behaviors for the dyad and episode main effects and the dyad by episode interaction

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Dyad | 1 | 120.18 | 120.18 | .78 | .386 |
| | Error | 28 | 4337.11 | 154.90 | | |
| **Within** | | | | | | |
| | Episode | 2 | 467.76 | 233.88 | 1.40 | .255 |
| | Dyad x Episode | 2 | 49.09 | 24.54 | .15 | .864 |
| | Error | 56 | 9362.49 | 167.19 | | |

**Table 13**

**Summary table for the analysis of variance of agonistic behaviors for the dyad and episode main effects and the dyad by episode interaction**

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Dyad | 1 | 372.10 | 372.10 | 1.31 | .262 |
| | Error | 28 | 7939.56 | 283.56 | | |
| **Within** | | | | | | |
| | Episode | 2 | 1127.76 | 563.88 | 3.35 | .042 |
| | Dyad x Episode | 2 | 155.40 | 77.70 | .46 | .633 |
| | Error | 56 | 9438.18 | 168.54 | | |

.05, n.s. There was no interaction between dyad and episode for agonistic behaviors, $F(2,56) = .46$, $p > .05$, n.s.

**Birth order.** Firstborns were compared with secondborns on the behaviors exhibited. Two dependent sample t-tests were conducted whereby the dependent variables were, first, the number of instances of prosocial behaviors and, second, the number of instances of agonistic behaviors. The independent variable was birth order: firstborn versus secondborn. The t-test for prosocial behaviors indicated that there was no significant difference in the amount of prosocial behaviors exhibited by firstborns as compared to secondborns, $t(29) = .05$, $p > .05$, n.s., two-tailed. The t-test for agonistic behaviors indicated that there was a significant difference in the number of agonistic behaviors exhibited by firstborns as compared to secondborns. Firstborns directed significantly more agonism to secondborns than vice versa, $t(29) = 5.41$, $p < .01$, two tailed.

**Age and birth order.** Age and birth order was further analyzed by forming two groups: "younger" firstborns who were between the age of 4 and 7 and "older" secondborns who were between the same age of 4 and 7. Thus, the two groups comprised the same age children who only varied as a component of their birth order. These two groups were compared on their prosocial and agonistic behaviors.

The independent samples t-test for prosocial behaviors revealed that there was no significant difference in the amount of prosocial behavior exhibited by firstborns as compared to secondborns of the same age, $t(28) = .35$, $p > .05$, n.s., two-tailed. The independent samples t-test for agonistic behaviors revealed that there was no significant difference in the number of agonistic behaviors exhibited

by firstborns as compared to secondborns of the same age, $t$ (28) = -.76, $p > .05$, n.s., two-tailed. Thus, the initial effect of birth order was not found to be statistically significant when the confound of age was removed and will, therefore, not be mentioned again.

**Number of other siblings.** Researchers interested in sibling interaction have typically studied two-children families. In the present sample, 15 families had two children and the remaining families had 3 or 4 children in the home. Thus, it was possible to conduct analyses to determine whether family size was associated with differences in sibling interaction between the siblings. Sibling dyads were categorized into two groups: those dyads who had one or two other siblings in the family (11 dyads had one other sibling, four dyads had two other siblings); and those dyads who had no other siblings in their family (15 dyads in total). Table 14 presents the means and standard deviations of the prosocial and agonistic behaviors exhibited by these two groups in the three episodes.

Table 15 presents the summary table for the analysis of variance of prosocial behaviors for the sibling and no sibling groups. There was no significant difference between the group that had no other siblings in the home and the group who had one or two other siblings in the home in terms of prosocial behaviors exhibited, $F$ (1,28) = 1.04, $p > .05$, n.s. However, as depicted in Table 16, the summary table for the analysis of variance of agonistic behaviors for the sibling and no sibling groups revealed a trend with the sibling group scoring higher on agonism than the no sibling group, $F$ (1,28) = 2.90, $p = .10$. There was no interaction between the number of other siblings and episode, $F$ (2,56) = .98, $p > .05$, n.s., for prosocial behaviors. There was no interaction between the number of

Table 14

Means and standard deviations of the sibling and no sibling dyad's prosocial and agonistic behaviors

| | Prosocial Behavior Score Sibling Dyad | | Agonistic Behavior Score Sibling Dyad | |
|---|---|---|---|---|
| | Sibling [a] | No Sibling [b] | Sibling [a] | No Sibling [b] |
| **Mother Episode** | 7.3[c] (6.6)[d] | 9.9 (5.1) | 10.7 (10.4) | 11.3 (8.5) |
| **Father Episode** | 12.8 (27.2) | 6.8 (7.2) | 18.5 (25.2) | 9.1 (6.4) |
| **Sibling Episode** | 16.2 (7.4) | 11.6 (6.0) | 24.0 (13.1) | 15.1 (12.7) |

Note. [a] n = 15 dyads [b] n = 15 dyads [c] = mean [d] = SD

**Table 15**

**Summary table for the analysis of variance of prosocial behaviors for the sibling and episode main effects and the sibling by episode interaction**

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Sibling | 1 | 160.00 | 160.00 | 1.04 | .316 |
| | Error | 28 | 4297.29 | 153.47 | | |
| **Within** | | | | | | |
| | Episode | 2 | 467.76 | 233.88 | 1.44 | .245 |
| | Sibling x Episode | 2 | 319.40 | 159.70 | .98 | .380 |
| | Error | 56 | 9092.18 | 162.36 | | |

Table 16

Summary table for the analysis of variance of agonistic behaviors for the sibling and episode main effects and the sibling by episode interaction

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Sibling | 1 | 780.28 | 780.28 | 2.90 | .100 |
| | Error | 28 | 7531.38 | 268.98 | | |
| **Within** | | | | | | |
| | Episode | 2 | 1127.76 | 563.88 | 3.46 | .038 |
| | Sibling x Episode | 2 | 474.29 | 237.14 | 1.46 | .242 |
| | Error | 56 | 9119.29 | 162.84 | | |

siblings and episode, $F$ (2,56) = 1.46, $p > .05$, n.s., for agonistic behaviors.

**Maternal employment.** Much research has been conducted to determine what effect, if any, maternal employment has on children. The present sample included 19 families whose mother worked outside the home and 11 families whose mother did not work outside the home. Analyses were conducted to determine whether maternal employment was associated with differences in sibling behavior in this study. The sample was divided into two groups: those dyads whose mother was employed outside the home, and those dyads whose mother was not employed outside the home.

Table 17 presents the means and standard deviations of the prosocial and agonistic behaviors exhibited by these two groups in the three episodes. As depicted in Tables 18 and 19, there was no main effect for maternal employment for the prosocial, $F$ (1,28) = 1.56, $p > .05$, n.s., or agonistic behaviors, $F$ (1,28) = 2.35, $p > .05$, n.s. There was no interaction between maternal employment and episode for prosocial behaviors, $F$ (2,56) = 1.73, $p > .05$, n.s. There was no interaction between maternal employment and episode for agonistic behaviors, $F$ (2,56) = 2.52, $p > .05$, n.s.

**Parental behaviors.** A dependent samples t-test was conducted to determine whether there was any significant difference between negative behaviors exhibited by the mother and father toward their children. It was found that mothers and fathers did not differ significantly in the number of negative behaviors directed toward their children, $t$ (29) = -1.16, $p > .05$, n.s., two-tailed. Similarly, there was no difference between mother's and father's positive behaviors directed towards their children, $t$(29) = -.67, $p > .05$, n.s., two-tailed.

Table 17

Means and standard deviations for mother employed and mother home sibling dyad's prosocial and agonistic behaviors

| | Prosocial Behavior Score Sibling Dyad | | Agonistic Behavior Score Sibling Dyad | |
|---|---|---|---|---|
| | Mother Employed[a] | Mother Home [b] | Mother Employed[a] | Mother Home [b] |
| Mother Episode | 9.0[c] (5.3)[d] | 7.8 (7 1) | 10.8 (7.6) | 11.5 (12.2) |
| Father Episode | 5.9 (6.3) | 16.4 (31.5) | 8.6 (6.6) | 22.8 (28.1) |
| Sibling Episode | 13.6 (7.4) | 14.4 (6.7) | 18.9 (13.5) | 20.6 (14.0) |

Note. [a] n = 19 dyads [b] n = 11 dyads [c] = mean [d] = SD

**Table 18**

**Summary table for the analysis of variance of prosocial behaviors for the maternal employment and episode main effects and the maternal employment by episode interaction**

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Mat. Empl. | 1 | 234.90 | 234.90 | 1.56 | .222 |
| | Error | 28 | 4222.39 | 150.80 | | |
| **Within** | | | | | | |
| | Episode | 2 | 435.16 | 217.58 | 1.37 | .261 |
| | Mat. Empl. x Episode | 2 | 547.69 | 273.85 | 1.73 | .187 |
| | Error | 56 | 8863.89 | 158.28 | | |

Table 19

Summary table for the analysis of variance of agonistic behaviors for the maternal employment and episode main effects and the maternal employment by episode interaction

| Design | Source | df | SS | MS | F | p |
|---|---|---|---|---|---|---|
| **Between** | | | | | | |
| | Mat. Empl. | 1 | 643.50 | 643.50 | 2.35 | .137 |
| | Error | 28 | 7668.20 | 273.90 | | |
| **Within** | | | | | | |
| | Episode | 2 | 1042.18 | 521.09 | 3..32 | .044 |
| | Mat. Empl. x Episode | 2 | 793.29 | 396.64 | 2.52 | .089 |
| | Error | 56 | 8800.29 | 157.15 | | |

## Summary

In summary, the results of the tests of the hypotheses have revealed that, contrary to what was predicted, there was no difference in the prosocial behaviors exhibited by the siblings in the mother and father episodes. Children were found to interact more prosocially and more agonistically when alone than when with their mother, providing only partial support for the hypotheses put forth. Fathers' positive behavior was significantly positively correlated with sibling prosocial behavior when the siblings were together with their father. Fathers' negative behavior was significantly positively correlated with sibling agonistic behavior when the siblings were together with their father as well as when the siblings were alone. These findings provide partial support for the hypotheses that parent behavior would be correlated with sibling interaction.

The results of the exploratory analyses did not reveal any significant main effect for gender, age, number of other siblings, or maternal employment for prosocial or agonistic behaviors. However, a trend was found for gender whereby female sibling dyads scored higher on agonism than male sibling dyads. Also, a trend was found for number of other siblings, whereby dyads who had other siblings in the home were found to score significantly higher on agonism than dyads who had no other siblings in the home. None of the four factors were found to interact significantly with episode.

## Discussion

In the following pages, the findings of the present study will be discussed and analyzed in light of other research in the sibling and related literature. First, the findings pertaining to the five specific hypotheses will be addressed followed by an analysis of the results of the exploratory analyses. Finally, limitations of the present research will be noted and future research directions as well as applications of the present findings will be discussed.

### Hypotheses

Based on the Berghout-Austin et al. (1987) finding that fathers generally directed sibling interaction more than mothers, it had been predicted that children would engage in more prosocial interaction in the father episode than in the mother episode. However, the present study did not confirm this prediction. Instead, it was found that there was no significant difference in the number of prosocial behaviors exhibited by the siblings in the mother versus father episodes. Berghout-Austin et al. (1987), in contrast to the present study, reported that fathers orchestrated sibling interaction more than mothers through explicit directives or remarks to his toddler regarding the baby. The two studies differ on several components which could account for the different findings.

First, the Berghout-Austin study involved firstborn siblings between 18 and 26 months and secondborn siblings between 4 and 8 weeks old, whereas the present study involved school-aged siblings. Indeed, parents would be expected to treat the two populations, school-aged and preschool-aged sibling dyads, very differently. For instance, the Berghout-Austin study involved younger siblings

who were between the ages of 1 and 2 months whereas the present study involved younger siblings who were between the ages of 3 and 7 years. Perhaps the finding that fathers were found to foster the firstborn's awareness of baby and direct sibling interaction more than mothers in the Berghout-Austin study was particular to the fact that the younger siblings were newborns. It could be that fathers were anxious to acquaint their firstborns with the new baby in the house and help the older sibling adjust favorably to the younger sibling's presence by directing a greater amount of sibling interaction. With older sibling dyads, as in the present study, the situation of having a younger sibling is not a novel one. Parents might therefore be more relaxed in their roles as facilitators of sibling interaction and, therefore, interact less frequently. Mothers, on the other hand, were probably exhausted from the care required of a newborn, and were therefore less interactive in general in the Berghout-Austin study and, consequently directed less interaction between the children.

Second, a further difference between the two studies was the setting. The Berghout-Austin study was laboratory-based whereas the present study took place in the home setting. Perhaps fathers felt more compelled to interact and foster interaction between their children in the lab, where they knew that something was expected of them, whereas the fathers in the home setting felt more at ease and less "under pressure" to foster prosocial interaction between their children. The lab setting used in the Berghout-Austin study was more artificial and elicited behaviors that would not be seen to the same extent in the more naturalistic home-based study, where parents presumably feel more comfortable in their own surroundings. For instance, Lamb (1976a; 1976c) reported in his laboratory-based studies of

parents interacting with their infant, that infants displayed more attachment behaviors to their mothers when a stranger entered the room. Home observation, however, did not reveal the same findings since home is a non-stressful environment as compared to the laboratory (Lamb, 1977a).

Finally, it is worthwhile to note that the Berghout-Austin study focused on language whereas the present study focused on behavior. Berghout-Austin et al. (1987) report that fathers in their study generally directed, with language, sibling interaction more than mothers. However, it is not known, since it was not measured, whether or not the siblings in their study actually interacted more prosocially when the father was present as compared to when the mother was present.

The present research partially confirmed the hypothesis that children would interact more prosocially when alone than when with either parent. Indeed, siblings were found to interact more prosocially when alone than when together with their mother. This finding has been replicated in the sibling literature (Abramovitch et al., 1982; Corter et al., 1983; Dunn and Hendrick, 1981; Howe and Ross, 1990). For example, Howe and Ross (1990) report that in their home and lab-based study, maternal interaction was associated with a less positive sibling relationship in both settings. It might be that when children are together with a parent, they must vie for parental attention and, therefore act less positively in this situation. When neither parent is present, siblings are free to act more prosocially since their sense of competition is no longer as acute as when a parent is present. However, this does not explain why the same finding did not hold true for fathers. It may be that the standard deviation for sibling prosocial behaviors in the father

episode, as well as the standard deviation for father positive behaviors was so large that any potential findings were masked. Indeed, both the findings of large standard deviations suggest much greater variability in fathers' than mothers' behavior and in siblings' behavior when with the father than any other episode.

Contrary to the findings of Abramovitch et al. (1982) as well as Corter et al. (1983), who reported more negative sibling behavior in mother's presence than in her absence, the present study did not confirm the hypothesis that children will interact more negatively when with either parent than when alone. Siblings in this study were found to interact significantly more negatively when by themselves than when with their mother. Siblings were not found to interact significantly more agonistically when alone than when with the father ($p = .058$), however, it is likely that with a larger sample size, this number might have reached significance. This discrepancy in findings between the present study and the Abramovitch et al. (1982) and Corter et al. (1983) studies might be due to the differences in data collection. Specifically, the Abramovitch et al. and Corter et al. studies were naturalistic observations whereby the researchers recorded family interactions as they naturally occurred in the home. When siblings are free to interact naturally, they may indeed interact more negatively in a parents' presence since they are vying for parental attention. The present study was more constrained in that the sibling dyads were required to complete puzzles and family interaction was observed as it occurred in connection with the puzzles. The very objective of the puzzles demanded a high degree of interaction between the siblings themselves, which may be why the siblings in this study were found to interact more negatively when by themselves than when with either parent. When either parent was

included in the episode, however, the overall level of interaction (and therefore the overall level of negative behavior) between the siblings was reduced since there was now a third person to interact with.

In sum, it seems that the children in this research acted significantly more prosocial and agonistic when alone in a dyad than when with their mother in a triad. It appears that somehow sibling interaction is inhibited in whatever form: whether prosocial or agonistic, possibly simply by virtue of mother's physical presence. Interestingly, this finding was shared by Brody et al. (1987). In determining whether sibling behavior varied as a result of mother's presence, the authors reported that siblings engaged in significantly more verbalizations, prosocial, and agonistic behaviors when alone than when mother was present (the authors did not study fathers). Other research conducted with preschool-age siblings also reported an overall reduction in sibling interaction in mother's presence (Corter et al , 1983; Lamb, 1978b). Researchers have explained this tendency of siblings to interact less with each other in mother's presence by pointing out that the number of behaviors emitted are the same but must now be distributed among three interactors as opposed to two (Corter et al., 1983; Lamb 1978b). However, this would not explain why this finding would be true with mothers and not for fathers. Again, it may be that the variation in fathers' behavior and in sibling interaction in the father episode was so large as to mask any findings.

The greatest amount of variation in sibling behavior was present in the episodes which included the father. That is, siblings tended to act either with a very high or low degree of prosocial behavior and with a very high or very low degree of agonistic behavior in the father episode. The fathers then, were

associated with a greater range of behaviors from their children than were mothers. This finding might relate to the different roles parents serve as mothers and fathers to their children and to the different interactive styles used by mothers and fathers with their children. Specifically, fathers, as secondary caretakers, are away from their children all day. Dad's presence, then, may have been a novelty to some children who would not normally be sitting down with their father to complete a puzzle. When fathers are home, children might interact in one of two ways. Some children would be excited by Dad's presence and might interact with their family members to a greater degree as a result of their excitement. Additionally, fathers, we know, interact with their children using more physically active rough-and-tumble games than mothers which might add to their children's excitement (Lamb, 1976b; 1977b). Alternately, children might find that Dad's presence is intimidating and therefore inhibit their behaviors. Thus we observed a very high or low degree of behaviors in the father episode. Mothers (specifically in this study), on the other hand, as primary caregivers, are available to their children most of the day. Children, then, are used to their mother's presence and mothers, therefore, do not elicit the same range in behavior from their children. Mothers also use more toy-mediated, quiet, conventional interaction styles in play with their children (Lamb 1976b; 1977b), and therefore might not elicit the same response from their children as fathers do, who engage in more active and vigorous interactive styles. Indeed, fathers, who typically play "rough and tumble" type games with their children, might not be used to the sedentary, more cognitive, quiet activities as the type used in this study, and therefore, may not have managed the situation as they normally would have in another activity. Thus, it may be that parents are playing different

roles in facilitating or inhibiting certain kinds of sibling behavior.

The prediction that a high proportion of parent positive behaviors toward the sibling would be associated with more sibling prosocial behaviors was partially supported by this research. The mothers' positive behavior was not correlated with the sibling's prosocial behaviors. However, it was found that fathers' positive behavior was positively correlated with sibling prosocial behavior when siblings were together with their father but not when they were alone. What seems to be happening is a performance effect. That is, children interacted more prosocially in the father's presence but this effect did not carry over to when the children were alone. The notion of novelty might be contributing here. If Dad's presence is a novelty to his children then perhaps the children in this study were so impressed by Dad's positive behaviors toward them that they engaged in more prosocial behaviors between themselves when with their father. When Dads were no longer present, siblings no longer interacted prosocially between themselves. It seems that the fathers' positive behavior style toward their children was associated with greater prosocial sibling interaction and the mothers did not demonstrate this same association with their children. Once again, this finding may be related to the fact that mothers in this study might be inhibiting interaction between their children. On the other hand, it might be that fathers do exert a special influence on their children which mothers do not exert. Clearly, more research is needed to clarify this finding. Indeed, it should be pointed out that the direction of effect is not conclusive here. It might be that by acting prosocially, siblings elicit positive behaviors from their fathers and not necessarily vice versa. Indeed, Anderson, Lytton, and Romney (1986), in their study of mothers' interaction with conduct-

disordered boys, conclude that it is the type of child and not the type of mother that dictates how the mother will interact with the child. Alternatively, it might be a two-way street whereby the sibling prosocial behavior elicits a positive response from the father and the fathers' positive behavior toward the dyad continues to reinforce the siblings' prosocial behavior. (See Lytton (1990) for a further discussion of this direction of effect question.) It is not known who is the initiator of these behaviors - father or child? But the question might be seen as irrelevant since the sibling- sibling and father- sibling directed behaviors are mutually dependent on one another. Contrary to this study, Brody et al. (1992), in their study of the association between parental direct and differential behaviors toward their children and the sibling relationship, found that both mother's and father's roles of direct positive behavior were associated with positive behavior between the siblings. However, similar to this study, Volling and Belsky (1992), in their longitudinal study of the association between parent-child relationships to the quality of sibling interaction, also found that prosocial sibling interaction was associated with facilitative and affectionate fathering (and not mothering). Thus, it seems that some research has found links between both parents' behaviors and subsequent sibling interaction and other research has found stronger links between fathers' than mothers' behavior and subsequent sibling interaction.

The hypothesis that a high proportion of parent negative behaviors toward the siblings would be associated with more sibling agonistic behaviors was partially confirmed, whereby fathers' who to a greater extent commanded, threatened, disapproved, or punished their children had children who engaged in more sibling-directed agonistic behaviors both when alone and when together with their father.

It may be that fathers are such a powerful role model to their children for negative behaviors to the extent that this effect carries over to when the children are alone as well. Indeed, how often do mothers threaten their misbehaving children with the words "just wait until your father comes home!". Thus, once again, it was fathers' and not mothers' negative behaviors that were positively correlated with sibling agonistic behavior. This finding is consistent with some research, but not others. For instance, in their longitudinal study, Volling and Belsky (1992) reported that agonistic sibling interaction was associated with a higher level of mother-child conflict, but not father-child interaction. Brody et al. (1992), found that paternal rates of direct negative behavior predicted high levels of negative sibling interaction. Maternal rates of direct positives to older (but not younger) siblings predicted higher rates of positive behavior from them.

Clearly, then, the present study as well as other recent literature discussed here (Brody et al., 1992; Dunn and Kendrick, 1982; Howe and Ross, 1990; Stewart et al., 1987; Stocker et al., 1989; Volling and Belsky, 1992) points to strong links between parent behaviors directed toward their children and the subsequent sibling relationship. Specifically, "positive parenting style" (e.g., giving physical or verbal assistance, admiration, or consolation to the child, physical affection, etc.) is related to prosocial and friendly interactions between siblings and "negative parenting style" (e.g., statements of intent to punish, unfavorable judgments directed toward the child, etc.) is associated with agonistic and hostile interactions between siblings. However, future research is needed to clarify the exact role of mothers' as compared to fathers' behaviors and the subsequent association to sibling interaction. Indeed, social learning theorists would argue

that children learn particular behaviors through modeling. Children see how their parents interact with them on a day-to-day basis, and they then generalize these behaviors to their own interactions with others, such as their siblings or peers (Parke, MacDonald, Beitel, & Bhavnagri, 1988). Therefore, according to this view, the children in this study interacted prosocially or agonistically with their siblings through modeling their fathers' positive or negative behaviors toward them. Once again, though, the alternative explanation may be true. That is, if siblings play nicely together, then it is easy for parents (especially fathers) to be positive toward their children.

In summary, the present study found that siblings interacted significantly more prosocially and agonistically when alone than when together with their mother. Sibling interaction was inhibited when in the presence of the mother. It was explained that the overall number of behaviors were the same, but they were distributed amongst a triad as compared to a dyad. It is not known why this finding is true for mothers but not fathers. It may be that the range of behaviors of the siblings was so large in the father episode as well as the range in fathers' behavior, that any potential findings were masked. This finding of large variation in the fathers' behavior as well as in the siblings' behavior when in the father episode was explained by pointing to the secondary caretaker role of fathers to their children. As a result of this role, fathers may elicit specific behaviors (such as playing "wild", rough and tumble) from their children which mothers, as primary caretakers, do not. Indeed, having their father sit down to complete a puzzle with them may be a novelty for many children and perhaps some fathers would not normally find themselves in this situation. Thus, the large range in behaviors for

both fathers and children was noted. Finally, a high proportion of paternal positive behaviors was associated with prosocial sibling interaction and a high proportion of paternal negative behaviors was associated with agonistic sibling interaction. These findings were discussed in light of the greater salience in fathers behaviors for his children as compared to mothers. The direction of effect question was raised in the present study. These findings were consistent with other literature in the area which also pointed to strong links between parent-directed behaviors to their children and subsequent sibling interaction.

**Exploratory Analyses**

Exploratory analyses were conducted in four major areas: a.) Gender: analyses were conducted to determine whether male and female sibling dyads differed significantly in the number of prosocial or agonistic behaviors exhibited; b.) Age: It was determined whether older sibling dyads exhibited significantly more or less prosocial or agonistic behaviors than younger sibling dyads; whether firstborns exhibited more or less prosocial or agonistic behaviors than secondborns; and whether "younger" firstborns differed from "older" secondborns in terms of number of prosocial or agonistic behaviors; c.) Number of other siblings: Dyads who had other siblings were compared to dyads who had no other siblings in terms of prosocial and agonistic behaviors; and d.) Maternal employment: Sibling dyads whose mother worked outside the home were compared with sibling dyads whose mother did not work outside the home on prosocial and agonistic behaviors.

In each of these four areas, no main effects were found. That is, the siblings did not differ in prosocial or agonistic behaviors exhibited in terms of

gender, age of dyad, number of other siblings, or maternal employment. Each of the four areas will be addressed separately in relation to their literature in the following pages.

**Gender differences.** No differences were found in the present study between male and female sibling dyads in prosocial or agonistic behaviors. However, a trend was noted whereby female sibling dyads exhibited more agonistic behaviors than male sibling dyads, which is inconsistent with reports in the literature. It might be that "female agonism" emerges in quieter, more conventional games such as puzzles, whereas "male agonism" emerges in such games that allow for more physical interaction such as sports. The literature reports mixed findings regarding sex of dyad differences in prosocial and agonistic behaviors. Abramovitch et al. (1979), in their initial study on sibling interaction, report sex of dyad differences. Male dyads were found to engage in more physically aggressive acts than female dyads, and older females engaged in more prosocial behavior than any other group. However, it is important to note that the authors of the study, in contrast to the present study, observed sibling interaction as it naturally occurred in the home, without introducing any predetermined games for the children to engage in. In a subsequent study, Pepler et al. (1981) found no sex of dyad effects for prosocial or agonistic behaviors. The authors note that this overall lack of sex differences is inconsistent with the sex differences reported in the peer literature, but explain that the sibling and peer literature differ on many accounts, the area of sex differences perhaps being one of them. Similarly, in follow-ups to the Pepler et al. (1981) study, no consistent effects of sex were found (Corter et al., 1983; Abramovitch et al., 1986).

**Age.**

**Age of dyad.** Older sibling dyads (siblings between 4-9 years) did not differ significantly from younger sibling dyads (siblings between 2-7 years) in the amount of prosocial or agonistic behaviors exhibited. It seems then, at least for this sample, younger sibling dyads were just as likely to dominate, command, insult, tattle-tell, as well as share, cooperate, request, praise, comfort, and engage in physical affection as older sibling dyads. The fact that there was such a large overlap in the age of older and younger sibling dyads, however, quite possibly contributed to the lack of a significant difference in the behaviors of the two groups, therefore analyses in this area were taken two steps further.

**Birth order.** Firstborns and secondborns did not differ in the number of prosocial behaviors exhibited. Other research found that firstborns initiated more prosocial behaviors as compared to secondborns (Abramovitch et al., 1980; 1982; 1986). However, firstborns in the current study were shown to exhibit a greater number of agonistic behaviors as compared to secondborns, as is consistent in the literature (Abramovitch et al., 1980; 1981; 1982; Buhrmester & Furman, 1990; Lamb, 1978a). Firstborns might display more agonism to their sibling since they feel the loss of parental attention as a result of their sibling's birth and subsequent presence in the home. Secondborns, on the other hand, never experienced life without a sibling and therefore do not display the same level of agonism as firstborns since they never had parental attention all to themselves. Additionally, firstborns may feel a sense of power in their position as older brother or sister and the territory that comes with it (i.e., usually being taller and physically stronger than their sibling). Firstborns may display more agonism toward their sibling as a

result of this feeling of power.

**Age and birth order.** It was found that firstborns did not significantly differ from secondborns in the same age range in the amount of prosocial or agonistic behaviors exhibited. Thus, there was no confound of age and birth order in this study. This means that the original finding of no significant difference in prosocial or agonistic behaviors between older and younger sibling dyads was not confused by the fact that there was a large overlap in the age range of these two groups.

**Number of other siblings.** Those dyads who had additional siblings in the home did not exhibit any more frequent prosocial behaviors as compared to those dyads who had no other siblings in the home. However, a trend was found whereby dyads who had other siblings exhibited significantly more agonism as compared to those dyads who had no other siblings. It might be that having more than one sibling is reason to display increased agonism since there are more children with whom toys must be shared, who interfere with your play, and who need parental attention.

**Maternal employment.** Maternal employment was not found to influence sibling prosocial or agonistic behavior in this study and this finding is consistent with reports in the literature. For instance, Saxena, Mehrotra and Singh (1986) found that in comparing children of working and nonworking mothers, the sibling relationship was not affected by maternal employment. When children aged 10 to 17 years were asked to complete a questionnaire concerning parental employment and the perceived effects on the family the majority of children reported that neither the mothers' or the fathers' job interfered with their family lives

(Piotrkowski & Stark, 1987).

The reader should be aware that this finding as well as interpretation must be regarded with caution since these analyses were purely exploratory. Future research should be conducted to test specific predictions in these areas.

In summary, the exploratory analyses revealed that there were no differences in prosocial or agonistic behaviors for gender, age, number of other siblings, or maternal employment, which was consistent with some research in the area. However, two trends were noted whereby female sibling dyads engaged in more agonism than male sibling dyads and dyads who had other siblings in the home engaged in more agonism than dyads who had no other siblings in the home.

**Limitations and Future Research Directions**

The limitations of the present study include the correlational nature of this research. Where correlations are used, no causative links can be applied. This is important to stress since it would be tempting to conclude that parents who direct more positive behaviors to their children cause their children to interact more prosocially, and parents who direct more negative behaviors to their children cause their children to interact more agonistically. Of course, the alternative explanation might also be true, that is, parents are positive or negative because their children are so. Further research studies should be designed to test causative links between parental behavior toward their children and sibling interaction. This can be accomplished using a similar design as in the present study. Parents who use predominantly negative behaviors in interactions with their children would be recruited. The same parent behavior and sibling behavior as in the present study would be measured. Additionally, the same three episodes would be used. The

parents who used predominantly negative behavior in interactions with their children would then be trained in using positive behavior in interacting with their children. Mother and father positive and negative behaviors as well as sibling prosocial and agonistic behaviors would be measured in each of the three episodes both before and after the training session. Based on the present study it would be predicted that sibling prosocial behavior would be significantly greater in the parent positive episode after parent behavior training as compared to before training. Research similar to what is outlined here would help draw causative links between parent and sibling behaviors and would help determine how mothers and fathers differ in influencing sibling interaction, which the present study has just begun to address.

A further limitation of the present research is that the findings are limited to the population sampled, that is, middle to upper middle class families and same-sex siblings. Future studies should include families of other socioeconomic backgrounds as well as mixed-sex sibling dyads to determine whether or not the findings presented here apply to other population samples. For instance, sampling opposite-sex dyads in future research would test the hypothesis that fathers treat sons and daughters differently as compared to mothers (Berghout-Austin et al., 1987; Parke, 1978). Also, replicating the results of this study with a more diverse family population in terms of socioeconomic status and age of children will serve to generalize the results. Additionally, future studies should include a larger sample size. Indeed, two trends were noted in the present study which may reach significance when a larger sample size is obtained.

## Applications

One of the important findings of this study was the association found to exist between fathers' positive behavior and siblings' prosocial behavior, as well as fathers' negative behavior and siblings' agonistic behavior. Whether it is the siblings' behavior that influenced paternal behavior or vice versa, or whether it is a third factor altogether that is responsible for this finding is not known. However, since a number of studies have reported this same finding, parents, especially fathers, might want to employ positive rearing techniques such as verbal statements of admiration, verbal or physical consolation when the child is distressed, physical affection, help, etc., as opposed to negative ones, such as commands, threats, or punishments. Support for this suggestion is provided by Brody, Stoneman, and MacKinnon (1986) who reported that when mothers used rearing practices that featured consistent use of nonpunitive control techniques, siblings exhibited less agonism and more prosocial behavior. Additional support for this suggestion comes from the delinquency literature. In his research on delinquent boys, Patterson and colleagues have demonstrated that parent-training programs are successful in the treatment of deviant child behavior. That is, parents who learn positive discipline techniques through a parent training treatment program in dealing with their delinquent sons were better able to establish effective control over their sons' delinquency and had reduced rates of delinquency as compared to service traditionally provided by the juvenile courts (Bank, Marlowe, Reid, & Patterson, 1991; Bank, Patterson, & Reid, 1987; Patterson, Chamberlain, & Reid, 1982). Certainly, parents of non-delinquent children can expect a similar, relative degree of positive results in employing positive rearing techniques with

their own children.

**Summary**

To summarize, the limitations of the present study include the correlational nature of the research, as well as the restriction in the population sampled and the small sample size. The most important finding of the study is the association that was drawn between paternal behaviors and subsequent sibling interaction which adds to the increasing number of studies on links between parental behaviors and the sibling relationship. Indeed, it is now time to further analyze links in an experimental design where causative effects can be drawn and the exact nature of the differences between mothers and fathers in influencing sibling behavior can be determined. An outline for such a study was provided. It was suggested that based on the findings of this research and a growing body of evidence, parents, especially fathers, would want to sharpen their positive parenting skills through the use of positive reinforcement techniques as opposed to negative ones, in order to potentially enhance family harmony through more positive sibling interaction in the home setting.

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# Appendix A

## Consent Form

## Consent Form

This study is being conducted by Elaine Dubrow in conjunction with Dr. Nina Howe for the purposes of a Masters thesis. We are from the Education Department at Concordia University.

The purpose of this study is to investigate how family members interact with one another. If you agree to participate in this study, you will be asked to complete a brief questionnaire which will request such information as your name, children's ages, etc. The study will then comprise 3 sessions of 5 minutes duration each. During one of the sessions, your two children will be asked to complete a puzzle. In another session, the children's mother will be asked to be present with her children while they complete a puzzle. In the final session, the children's father will be asked to be present with his children while they complete a puzzle. The total duration of your family's participation will be 45 minutes.

You are free not to participate in this study or to withdraw from the study at any time.

The results of this study may be published in a professional journal or presented to a professional audience, however, all interactions recorded here will remain strictly anonymous and will only be presented as group data. You will be sent a short report of the group findings at the completion of the study.

Please remember that there are no "right" or "wrong" answers, we are simply interested in how you would normally interact with your family.

---

I have read and understood the above form and I agree to have my family participate in the study.

MOTHER'S NAME (PLEASE PRINT) _____
SIGNATURE: _____
FATHER'S NAME: _____
SIGNATURE: _____

DATE: _____
PHONE NUMBER: _____
ADDRESS: _____

# Appendix B

## Personal Information Report

INFORMATION SHEET ID# _____

1. Mother's Name _____ 2. Mother's Age_____

3. Father's Name_____ 4. Father's Age_____

5. Marital Status: (circle one)

Married Widowed Single

Divorced Separated Other (please specify)

6. Mother's occupation _____
Specifically, what do you do? _____

How many hours a week do you work? _____

7. Father's occupation_____
Specifically, what do you do? _____

How many hours a week do you work? _____

8. Firstborn's name _____
9. Firstborn's age _____ Birth date_____
10. Firstborn's grade _____ Sex _____

11. Secondborn's name _____
12. Secondborn's age _____ Birth date_____
13. Secondborn's grade _____Sex _____

14. Do you have any other children in the family?

(circle one) Yes No

15. If yes, what are their names and ages?

| Name | Age | Name | Age |
|---|---|---|---|
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |
| _____ | _____ | _____ | _____ |

# Appendix C

## Behavior Definitions of Sibling Behavior

**Behavior Definitions of Sibling Behavior**

| Category | Definition |
|---|---|
| | Agonistic Behaviors |
| Physical. | |
| 1. Physical conflict aggression dominance and intrusion | Assertive physical contact, specifically: hit, push, shove, kick, bite, pinch, pull hair, fight over an object |
| Verbal: | |
| 2. Command/threat/ disagreement | An order or demand stated with authority in a loud tone of voice, may be accompanied by threatening facial expressions or gestures, statements of intent to harm, take toys away |
| 3. Insult/disapproval | Teasing, name calling, unfavorable judgments |
| 4. Tattle-tell | Telling the parent about the other sibling's "wrong-doing" |
| | Prosocial Behaviors |
| 1. Give/share an object | Give an object spontaneously or on request; let other sibling share an object with which child is already playing - spontaneously or on request |
| 2. Cooperate/help/comply (differentiate intrusion and help) | Engaging in behaviors which require two individuals: explanations or physical aid |
| 3. Request | Asking for something (e.g., a toy, help) in a polite manner (e.g. come and put your piece here) |
| 4. Praise/approval | Verbal statements of approval or admiration of sibling or his behavior |
| 5. Comfort/ reassurance | Verbal or physical consolation when sibling is in some way distressed |

| | |
|---|---|
| 6. Physical affection | Positive physical contact, specifically hug, kiss, hold hands, pat |
| 7. Amity | Facial expression of laugher or smiling shared with the sibling |

# Appendix D

## Behavior Definitions of Parent Behavior

**Behavior Definitions of Parent Behavior**

| Category | Definition |
|---|---|
| **Parent to child:** | |
| 1. Negative behaviors: | |
| Command<br>Threat/disapproval<br>Punish | An order or demand stated in a harsh tone to direct the child's behavior<br><br>Statements of intent to punish or withdraw objects or privileges; unfavorable judgments directed toward the child or the child's behavior<br><br>Disciplining the child physically or withdrawing objects or privileges |
| 2. Positive behaviors: | |
| Caretake<br>Praise/comfort<br>Help | Physical or verbal behavior assisting the child in areas related to safety, comfort, and general well-being<br><br>Verbal statements of admiration of the child or the child's behavior; verbal or physical consolation when the child is distressed; physical affection, specifically: hug, kiss, hold hands, pat<br><br>Giving physical or verbal aid and assistance; also includes verbal statements offering help |
| **Child to parent:** | |
| 1. Negative behaviors: | |

| | |
|---|---|
| Disapproval<br>Anger | Negative verbal behavior, including insults, statements of disapproval, complaints, or protests directed toward the parent or the parent's behavior<br><br>Assertive physical contact, specifically: hit, push, pull, shove, bite, pinch, pull hair |
| 2. Positive behaviors: | |
| Requests<br>Affection<br>Help | Asking parent for assistance, an object, teaching, etc., stated in a polite manner, also includes requests for parent to watch the child or something the child has done<br><br>Verbal statements indicating admiration or affection to the parent; positive physical contact, specifically: hug, kiss, hold hands, pat<br><br>Giving physical or verbal aid and assistance; also includes verbal statements offering help |