

# Sibling and Peer Interaction: A Final Follow-up and a Comparison

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ABRAMOVITCH, RONA; CORTER, CARL; PEPLER, DEBRA J.; and STANHOPE, LINDA. *Sibling and Peer Interaction: A Final Follow-up and a Comparison*. CHILD DEVELOPMENT, 1986, 57, 217-229. In a second follow-up study of sibling interaction, 24 pairs of same-sex siblings and 24 pairs of mixed-sex siblings were observed in their homes 18 months after the first follow-up and 3 years after the initial observations. The younger siblings were approximately 5 years old, and the age interval between siblings was either large (2.5-4 years) or small (1-2 years). The patterning of interaction was similar to that observed earlier. Birth order was important. There was no effect of age interval between siblings and few effects of sex of child or sex composition of the dyad. Sibling observations were supplemented by naturalistic observations of dyadic peer interaction for 19 of the same-sex dyads. There was no consistent pattern of correlations between interactions with siblings and with peers. Interaction in almost all dyads was characterized by reciprocity. The results are discussed in terms of the nature and importance of early sibling relationships.

On several earlier occasions we reported observations of sibling dyads in the home (Abramovitch, Corter, & Lando, 1979; Abramovitch, Corter, & Pepler, 1980; Pepler, Abramovitch, & Corter, 1981), originally when the younger siblings were 1.5 years old and their older siblings were 3 or 4.5 years old (time 1), and next when the younger children were 3 years and the older ones were 4.5 and 6 (time 2). Now we report a third observation: at time 3 the younger siblings were 5 years old and the older ones 6.5 and 8 years old. At time 1 the sample consisted of 34 pairs of same-sex siblings and 36 pairs of mixed-sex siblings; at time 2 it consisted of 28 pairs each of same-sex and mixed-sex siblings. This study, at time 3, was based on 24 same-sex and 24 mixed-sex pairs. This last observation was motivated by several questions: Would previously observed patterns of sibling interaction (i.e., different roles of first-born and second-born siblings) remain stable over time? Would behavior of individual children with their siblings remain stable? Is there a relation between sibling interaction and peer interaction?

The recent literature on social development reflects a growing appreciation of

sibling interaction. Observations of preschool-age siblings in both naturalistic and laboratory settings indicate that siblings interact a great deal, engaging in both prosocial and agonistic behavior and imitating each other (Abramovitch et al., 1979, 1980; Dunn & Kendrick, 1979, 1982; Lamb, 1978a, 1978b; Pepler et al., 1981). The work has also dealt with the effects of various sibling characteristics on sibling interaction. Some studies indicate that same-sex sibling pairs engage in a higher percentage of positive interactions and a lower percentage of negative interactions than mixed-sex pairs (Dunn & Kendrick, 1979). Sex composition effects, however, are not consistent in observations of sibling interaction. Lamb's (1978a, 1978b) research and our previous work cited above show few effects of dyadic composition or sex of the individual sibling. Similarly, there have been conflicting findings regarding the effect of age interval between siblings. In a recent study, Minnett, Vandell, and Santrock (1983) report an age-spacing effect, as well as some sex and sex composition differences. In contrast, our previous work, as well as that of Dunn and Kendrick (1979), revealed no effects of age spacing.

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## Abstract

In a second follow-up study of sibling interaction, 24 pairs of same-sex siblings and 24 pairs of mixed-sex siblings were observed in their homes 18 months after the first follow-up and 3 years after the initial observations. The younger siblings were approximately 5 years old, and the age interval between siblings was either large (2.5-4 years) or small (1-2 years). The patterning of interaction was similar to that

## **Predictive Factors for Juvenile Delinquency: The Role of Family Structure, Parental Monitoring and Delinquent Peers**

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### **Abstract**

The aim of this research was to investigate the role of family structure, parental monitoring and affiliation with delinquent peers in predicting juvenile delinquency. In this Cross-sectional study, 96 delinquent adolescents and 91 non-delinquent adolescents, chosen through a convenient sampling in Tehran, completed parental monitoring inventory and affiliation with delinquent peers scale. Data was analyzed using Logistic regression analysis. Reliability of the questionnaires verified using internal consistency and test-retest methods. Regarding Logistic regression analysis results, among predicting variables, family structure and affiliation with delinquent peers were significant predictors of juvenile delinquency. These factors could explain 29 to 39 percent of delinquency variance. Parental monitoring was also unable to predict delinquency, but it could significantly predict affiliation with delinquent peers. The results of the present study were in line with results of the previous researches and showed that distress in family structure and affiliation with delinquent peers have a significant role in the delinquency phenomenon. Therefore, it seems necessary to consider these factors as influential factors in promoting delinquency.

### **Introduction**

Juvenile delinquency is a major problem in many societies as it causes major distress and damage to victims, perpetrators, and society at large (Nas et al., 2005). Adolescent crime has been studied using many labels. The most common label that has been used is delinquency. Delinquency encompasses a range of norm-breaking behaviors for which adolescents are criminally responsible; Drug use, violent offenses against other persons and carrying weapon are just some instances of delinquency (Mart, 2008). The negative psychosocial and economic consequences of delinquency along with its developing expansion have caused experts' concerns. The current statistics reiterates necessity of these concerns. In 2006, for example, there were 1,626,523 arrests of juveniles reported in the USA; this number accounts

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for only about 16 percent of all arrests (Shoemaker 2009). According to a report of the Russian Ministry of Internal Affairs (MVD), in 2001, adolescents committed over 185,000 crimes, and almost 19,000 adolescents were sentenced to prison (Koposov et al, 2005). While in Germany it was violence against people of a non-German cultural background that caused deep concern in society, in the US the public became alarmed by news about weapons at schools. In Great Britain the appearance of hooligans during football games was an issue of public debate and even in Japan, which is known for its well-integrated youth, an increase in bullying and violence at schools was reported (Jost, 2003).

Many adolescents today, and perhaps increasing numbers in upcoming years, are at risk for adverse health outcomes stemming from their behavior. To organize preventive programs, recognizing factors that influence these phenomena like juvenile delinquency is very important (DiClemente et al., 2001). The study of delinquency literature highlights the role of some prominent factors, the most important of which are family-related and peers factors (Pearce & Haynie, 2004; Brendgen et al., 2000). Among family process variables, parental monitoring has been identified in the literature as one of the proximal determinants of early development and maintenance of antisocial and delinquent behavior in children and adolescents (Singer et al., 2004).

Parental monitoring typically is defined as parent's knowledge of the whereabouts of their teenager when they are not with them, and knowing whom they are spending time with (Patterson, Dearshe, & Ramsey, 1989). Parents are expected to know their children's whereabouts, activities, and playmates (Laird et al., 2003). Research on parental monitoring has traditionally focused on adolescent norm-breaking behavior such as delinquency, antisocial behavior, smoking and substance use (Frojd et al., 2006). These studies showed that parental monitoring has been associated with less delinquent behavior (Brendgen et al., 2000; Romero & Ruiz, 2007; Thornberry & Krohn, 2003; Heilbrun et al, 2005; Caldwell et al., 2006; McShane & Williams, 2007) and is a protective factor for adolescents against delinquency and other high risk behaviors (Crosnoe et al., 2002). Parental monitoring is associated with different factors including cultural poverty and dual carrier parents (Zahn, 2009). Furthermore, low levels of parental monitoring may be resulted from family structure distress (Jost, 2003; Demuth & Brown, 2004; Shoemaker, 2009; Shoemaker, 2010) and also lead to adolescent affiliation with delinquent peers (Brandt, 2006; Brendgen et al., 2000); in fact the aforementioned factors are related to delinquency themselves.

It has been well established that the incidence of juvenile delinquency in non-two-parent families, also called broken homes, is much higher than in two-parent families (Jost, 2003). Distress in family structure, if specially resulted from divorce, not only may increase delinquency (Thornberry & Krohn, 2003; Demuth & Brown, 2004; Dehghani et al., 2008; Paschal et al., 2003; Eitle, 2006; Zimmermann, 2006, Changizi, 2007) but also may lead to low level of parental monitoring (Jost, 2003, Demuth & Brown, 2004; Dehghani et al., 2008; Shoemaker, 2009; Shoemaker, 2010) and affiliation with delinquent peers (Paschal et al., 2003). Affiliation with delinquent peers is described as the relationship with adolescents who are committing behaviors like weapon carrying, offending, and drug abuse (Paschal et al., 2003). With respect to social learning theory, relationship with delinquent peers can impress adolescents' problem behaviors (Meldrum, 2009). Recent research shows a significant relationship between affiliation with delinquent peers and delinquent behaviors (Brendgen et al., 2000 ;Laird et al., 2003 ;Heilbrun et al., 2005 ;Queen, 2004).

Given the fact that in developing countries, in comparison with developed countries, adolescents form remarkable portion of society, it demands to pay much attention to the adolescents (Changizi, 2007). The aim of the present study was to investigate the role of family structure, parental monitoring and affiliation with delinquent peers in predicting juvenile delinquency. In an effort to fill this gap in the literature, this study also contributed to the limited body of research on the effects of parental monitoring, family structure and delinquent peers on delinquent behaviors among Iranian adolescents.

## Methods

This study investigates the relationships among Parental monitoring, family structure and affiliation with delinquent peers with delinquency. The delinquent sample consisted of 96 adolescents, aged 14 to 18 years, convicted of major crimes. The sample was recruited from Correction Service Center in Tehran, Iran. The control sample comprised of 91 non-delinquent, community participants, selected with regard to delinquent sample's age, gender and residential area. All participants completed individually administered Questionnaires with regular supervision to provide reliable and valid data. The following instrumentations were applied to collect data.

Parental monitoring was measured through a seven-item parental monitoring scale that previously had achieved a Cronbach's  $\alpha$  of .76 (Singer et al., 2004). Parental monitoring items included questions about adolescent's whereabouts, friends and activities. The six-item version of this scale was previously used by Flannery et al. (1994). Singer et al. (2004) added a question regarding punishment by parents to the original six items.

The scale translated into Persian was improved and adapted to daily language usage. The corrected version was translated back into English to be checked for meaning changes. To establish test-retest reliability, the scale was administered with two weeks interval. For this study Cronbach's  $\alpha$  were .81 and .72 for delinquents and non-delinquent adolescents, respectively.

Affiliation with delinquent peers was measured using 8-item scale. The adolescents were asked for delinquent behaviors committed by their peers, like drug and alcohol use, carrying knife or gun and physical fighting during the past six months (Paschal et al., 2003). The possible responses were "none of them" (0) to "all of them" (4). The total response score was computed for each adolescent, with the higher score indicating more affiliation with delinquent peers. After translation and back translation, the scale test-retest reliability was confirmed. The Cronbach's  $\alpha$  of scale were .88 and .84 for delinquents and non-delinquent adolescents, respectively.

The demographic questionnaire was used for assessing variables including adolescents' age, education and socioeconomic status. To measure family structure, the adolescents categorized their families as intact (two- biological parents) or broken/disturbed families (single-parent etc.). Moreover, to examine the relationship between variables, we conducted Chi-square test and Logistic regression analysis. The acceptable level of significance was set to  $p < /0.05$ .

## Results

The participants were 96 delinquent and 91 non-delinquent adolescents. 4 non-delinquents were not eligible due to having convicting background. Therefore the non-delinquent sample size was reduced to 87. The participants mean and standard deviation (SD) of age were 16.82 and 1.04 years for delinquents and 16.52 and 1.22 for non-delinquents, respectively. Most of the participants ( $n = 78$ , 81.2%) were spending their first term in prison. Also a large proportion of the delinquents (78/96, 81.2%) and non-delinquents (52/87, 54.1%) had vocational experiences.

The reasons why the delinquents were confined to the juvenile corrective institutions included violent offenses such as fighting or threatening (16.7%), homicide and rape offenses (9.4%), property offenses such as theft and burglary (44.8%), alcohol and drug related offenses (16.7%), mixed type offenses (5.2%) and other offenses (7.3%). Descriptive statistics for variables used in the chi square test are shown in Table 1.

Table 1. The results of chi square test for the two group's comparison in demographic variables

Variable	Delinquent	Non-delinquent	Chi square
Family Structure			
Intact	47(49)	83(95.4)	47.85**
Broken Family	49(51)	4(4.6)	
Parental condemnation			
Yes	21(21.9)	9(10.3)	4.43*
No	75(78.1)	78(89.7)	
Parental addiction			
Yes	30(31.2)	3(3.4)	23.87**
No	66(68.8)	84(96.6%)	
Family Income			
More Than 1000\$	0(0%)	17(19.5%)	36.21**
Sibling			
1-2	22(22.91)	42(48.28)	24.66**
3-4	41(42.71)	39(44.89)	
5-6	24(25)	4(4.6)	
6<	9(9.38)	2(2.3)	
Job record			
Yes	78(81.2)	35(40.2)	32.51**
No	18(18.8)	52(59.8)	
Drug And Alcohol			
Cigarette Abuse	43(44.8)	11(12.6)	22.68**
Alcohol Abuse	49(51)	12(13.8)	28.50**
Drug Abuse	27(28.1)	5(5.7)	15.84**
Education			
Primary School	12(12.5)	1(1.15)	32.67**
Secondary School	47(48.96)	17(19.54)	
High School	37(38.54)	69(79/31)	

\*P&lt;.05. \*\*P&lt;.001

The results of independent sample t test are shown in table 2. This findings showed that delinquent and non-delinquent adolescents were significantly different in scores of parental monitoring ( $P<.05$ ) and affiliation with delinquent peers ( $P<.001$ ).

Table2: Comparison of self-rating questionnaire scores of adolescents in parental monitoring and affiliation with delinquent peers

Variable	Delinquents		Non-delinquents		df	T	p
	M	SD	M	SD			
Parental monitoring	12.09	5.18	13.44	3.81	173.93	2.01	.046
Affiliation with delinquent peers	12.77	8.77	6.84	6.25	180	5.29	.000

Logestic regression analysis was used to investigate the predictive role of family structure, parental monitoring and affiliation with delinquent peers for delinquency. The results showed that family structure and affiliation with delinquent peers, among predictor variables, could significantly predict delinquency occurrence. The results of omnibus test showed that the theoretical model used in the study is fit to predict juvenile delinquency variation (Chi Square= 64.86,  $P<0.001$ ).

Also the presented model could truly predict the delinquency occurrence in 74.7 percent of time. Results presented in table 3 showed that among predictive variables, family structure ( $B= 2.736$ ,  $P<.001$ ) and affiliation with delinquent peers ( $B= 0.091$ ,  $P<.001$ ) were significant predictors of delinquency.

Table 3. Logistic regression analysis predicting delinquency with Family structure, parental monitoring and affiliation with delinquent peers

Variable	B	Wald	df	sig	Exp(B)
Family structure	2.736	27.675	1	.001	15.432
Affiliation with delinquent peers	.091	11.506	1	.001	1
Parental monitoring	-.048	1.114	1	.291	.953
Constant	.686	.705	1	.401	.503

Due to the fact that parental monitoring couldn't significantly predict delinquency, its effect was investigated indirectly. To inquire into this hypothesis, and regarding the significance of the relationship between parental monitoring and affiliation with delinquent peers ( $R= -0.408$ ,  $P<0.001$ ), linear regression analysis was used. The results revealed that parental monitoring was a significant predictor of affiliation with delinquent peers ( $P<0.001$ ) and could explain 16.2 percent of its variance.

## Discussion

This study was aimed to investigate the role of family structure, parental monitoring and affiliation with delinquent peers in predicting juvenile delinquency. Results supported that family structure was an important predictor of juvenile delinquency so that 51% of delinquents reported distress in the structure of their families. Findings of our study contribute to previous research, which indicated that parental absence, also termed broken homes, is positively associated with adolescent delinquency (Pearce & Haynie, 2004; Thornberry & Krohn, 2003; Demuth & Brown, 2004; Dehghani et al., 2008; Paschal et al., 2003; Eitle, 2006; Zimmermann, 2006; Changizi, 2007).

Given that broken families typically are the result of marital discord preceding the break up, it often seems that it is the exposure to discord and quarreling that impacts the adolescent rather than the actual separation (Brandt, 2006). The absence of one parent can lead to poverty (Jost, 2003), parental monitoring reduction (Demuth & Brown, 2004; Dehghani et al., 2008) and affiliation with delinquent peers (Paschal et al., 2003) and affects adolescents through the mentioned factors. While Iran is a developing country wherein family and community structures are strong and extended family connections reduce the impact of parental loss, contrary to Schoemaker's findings (2009), the results of the present study showed that the connection between broken homes and delinquency is strong.

Our results, similar to those of Brendgen, Vitaro, and Bukowski (2000), Paschal, Ringwalt, and Flewelling (2003), and Meldrum, Young, and Weerman (2009), showed that affiliation with delinquent peers could predict the delinquency occurrence. Consistent with previous research, spending time with delinquent peers as well as its direct effect on juvenile delinquency was associated with family structure (Paschal et al., 2003) and parental monitoring (Brendgen et al., 2000; Brandt, 2006). The results support the basic argument of delinquent peers as an important factor in the development of juvenile delinquency as suggested in the Social Learning Theory (Meldrum et al., 2009).

In our study, we found that parental monitoring was not an influential predictor of juvenile delinquency directly. Previous research suggested that parental monitoring is an important deterrent of

delinquent behavior (Brendgen et al., 2000; Romero & Ruiz, 2007; Caldwell et al., 2006), but this study has not supported this prediction.

Although parental monitoring could not predict delinquency, it appears to be an indirect predictor of delinquency. So regarding the difference of two groups in parental monitoring and its relationship with affiliation with delinquent peers, the effect of parental monitoring on juvenile delinquency was investigated indirectly. Consistent with Brendgen, Vitaro, and Bukowski (2000) and Xiong, Rettig, and Tuicomepee (2008), parental monitoring could significantly predict affiliation with delinquent peers. Dishion et al. (1995) demonstrated that lacking parental monitoring can foster adolescents' affiliation with delinquents by providing children with the opportunity to meet with delinquent peers. In sum, we found that family structure and affiliation with delinquent peers were significant predictors of juvenile delinquency; furthermore parental monitoring indirectly influences delinquency through affiliation with delinquents.

Limitations of this study are worthy of discussion. First, the direct measure of juvenile delinquency was constrained to Correction Service Center inmates, while every juvenile committing delinquent behavior is not imprisoned necessarily. Second, causal relationship cannot be inferred from analyses conducted on cross-sectional data, thus causal relationship between research variables cannot be established. Another limitation is that measurement of research variables was based on participants' self-report, and there was no independent method for testing the validity of their responses. Future studies would probably benefit from using Interview and observational research data to help researchers understand the connections of adolescent delinquency and its connected variables in greater depth. Since studies in Iran have not investigated parental monitoring and affiliation with delinquent peers, the obtained data from the current study cannot be compared with research carried out on Iranian samples.

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## Sibling Rivalry among Adolescents

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Sibling rivalry was investigated with a questionnaire among 198 adolescents (112 girls and 87 boys) 13-18 years of age. Conflicts were most prominent when the age difference between the siblings was 3 years. Among girls, but not among boys, there was a correlation between the number of siblings and the frequency of conflicts. There was no sex difference with respect to frequency of violent episodes due to sibling rivalry. Conflicts tended to decrease after age 15. The adolescents reported injuries caused by fighting with siblings as follows: scratches, 57 %; bruises, 55 %; biting marks, 24 %; nosebleed, boys 26 %, girls 7 %; broken teeth, 4 %; psychological damage, 6 %; injuries that required medical treatment, boys 8 %, girls 4 %.

Sibling rivalry is a well-known phenomenon, but there is surprisingly little research on the subject, taking into account its influence on psychosocial development and family life. As Kurst-Swanger and Petcosky (2003) point out, sibling abuse is probably the most common form of family violence, yet it receives the least attention from researchers in the field.

History and mythology provide a plentiful of examples of sibling rivalry. We may only turn to the Bible: Cain's fratricide of Abel is perhaps the most well-known example, but there are others as well. Ishmael, the alleged forefather of the Arabs and Abraham's son by Hagar the Egyptian, is cast out by Abraham at the insistence of his wife Sarah. Jacob tricks his elder brother, Esau, into selling his birthright for a bowl of stew, and urged on by his mother, Rebecca, disguises himself as Esau in order to acquire his father's blessing as his successor. Joseph, Jacob's favourite son, is hated by his brothers who throw him into a well, sell him to Ishmaelite traders, and tell Jacob that he was slain by wild animals.

In Greek mythology, there is the tale of Eteocles and Polyneicos, the twin sons of Oedipus, who slew each other in front of the seven gates of Thebe in their power struggle. According to legend, the founding of Rome was also preceded by fratricide, with Romulus killing Remus. Hollan (1996, p. 46) provides a relevant Hawaiian legend: One day a child is told to watch a younger sibling while the mother goes out to the fields to harvest rice. Before she leaves, she instructs the older child to cook *kaladi* (taro) for the children to eat. The child, however, confuses the word *kaladi* with the younger sibling's name, which happens to be Ladi. So the child kills, cooks and eats the younger child.

Sibling rivalry may easily be understood from an evolutionary point of view (Mock & Parker, 1997). It is a common phenomenon in most animal species, and particularly apparent among birds. In extreme cases, older or stronger birds simply kill siblings when they have the opportunity to do so. Usually, however, the rivalry is expressed more subtly, in the form of active manoeuvring in the nest to find the best position, closest to the feeding parent (Avital, 2000).

Sibling rivalry has been shown to occur in a number of cultures (see e.g. Ramamurti & Rama Devi, 1986; Steinmetz, 1981), and Leung and Robson (1991) suggest it to be a universally existing phenomenon. Our position is that they probably are right.

Also human sibling rivalry may lead to fratricide or sororicide, the killing of one's brother or sister. Dawson and Langan (1994) found in a study covering murder cases in 75 cities in U.S.A. in 1988 that 1.5 percent was sibling killings. The majority of the killers were over 19 years old, suggesting that sibling homicide may be the result of long-standing rivalries and unresolved conflicts.

Straus, Gelles and Steinmetz (1980) found in a study of more than 2000 families that 80 percent of parents who had more children than one reported acts of violence between siblings during the last year. Roscoe, Goodwin, and Kennedy (1987) surveyed junior high school students, and were able to confirm that aggression between siblings is the most frequent form of family violence. They found that 88 percent of males and 94 percent of females reported that they had been victims of sibling violence during the last year. In addition, 85 percent of males and 96 percent of females stated that they had committed acts of sibling violence during the past year.

If sibling violence is so frequent, why is it then so often ignored by aggression researchers? One possibility is that exactly due to its frequency, it is simply considered a normal part of growing up. Parents often view negative sibling interactions as an important mechanism by which children learn to negotiate conflict (Goodwin & Roscoe, 1990). Research by Hillekech-Bedford, Volling, and Avioli (2000) suggest that sibling conflicts may indeed have some positive developmental outcomes. However, there is evidence that children who engage in violent behaviour with their siblings are more likely than others to engage in violent behaviour in family situations later in life (Gully, Dengerink, Pepping, & Bergstrom, 1981).

Studies suggest that there is more rivalry between sisters than between brothers (Leung & Robson, 1991; Roscoe et al., 1987; Stocker, Lanthier, & Furman, 1997). However, Prochaska and Prochaska (1985) did not find any sex difference in the amount of rivalry.

The literature provides no clear answer to the question of whether there is an optimal age difference between siblings when the risk of violent rivalry is greatest. Dunn (1983) suggests that reciprocal relationships are usually seen in siblings who are close in age and developmental status. Leung and Robson (1991) also suggest that a small age difference decreases the risk of rivalry, but they provide no data for this claim. There is an equally plausible counter-argument that siblings who are close in age also compete for similar resources and parental attention, and closeness in age would then result in more rivalry rather than less.

Sibling rivalry tends to decrease by age, and it is considerably less prominent during adulthood, regardless of the age difference between siblings (Tucker, Barber, & Eccles, 1997).

The present study examined the following questions: a) How important is the age difference between siblings for the occurrence of sibling rivalry? b) Is the number of siblings of importance? c) Is there a developmental trend in sibling rivalry during adolescence? (A decrease was hypothesized.) d) Are there sex differences in the frequency of sibling violence? (The literature suggests more rivalry between girls.) e) Have the participants received injuries in violent episodes with siblings, and if so, what kind of?

## Method

### *Participants*

The sample consisted of 198 high school students from a Swedish-speaking area in Finland (girls:  $n = 112$ , boys:  $n = 87$ ) who all had siblings. Their age range was 13 to 18 years (mean age  $\pm$   $SD = 15.3 \pm 1.5$  yrs). The mean number of siblings was  $3.8 \pm 3.2$ . It is twice as high as the general mean in Finland, but typical for the area in question.

Boys tended to share their room somewhat more frequently with a sibling than girls [ $\chi^2_{(1)} = 3.59$ ,  $p = .058$ ]. The most common age difference to the sibling the participants shared their room with was 2 years (girls: in 27.8 % of cases; boys: in 30.4 % of cases).

### Questionnaire

The questionnaire was distributed during school lessons. It contained questions pertaining to sex, age, number of siblings, if they shared room with a sibling, and some other questions of general nature. Sibling rivalry was assessed by asking adolescents "how often they had fights with" a specific sibling, the one they had most fights with. They were to respond to this question on an ordinal-level six-point scale (anchors: never, once a month, once a week, several times a week, every day, several times per day). It may be argued that number of fights is not an accurate measure of rivalry, since fights may be due to other reasons than rivalry, and rivalry may take other forms than fights. On the other hand, the frequency of violent episodes is easy to estimate, and rivalry is the most logical explanation for the occurrence of fights.

It was asked what the age difference was to the sibling they had most fights with, and the sex of that sibling. They were to mention if they had suffered specific injuries due to fights with siblings. The following options were provided: bruises; scratches; broken teeth; nosebleed; biting marks; psychological damage; and, injuries that required medical treatment. The questionnaire also examined other aspects of family relations, which will not be presented in this research report.

### Results

#### Age Difference to Rival Sibling

The most common age difference, for both boys and girls, was 3 years [ $\chi^2_{(5)} = 14.43, p < .05$ ] (cf. Fig. 1).

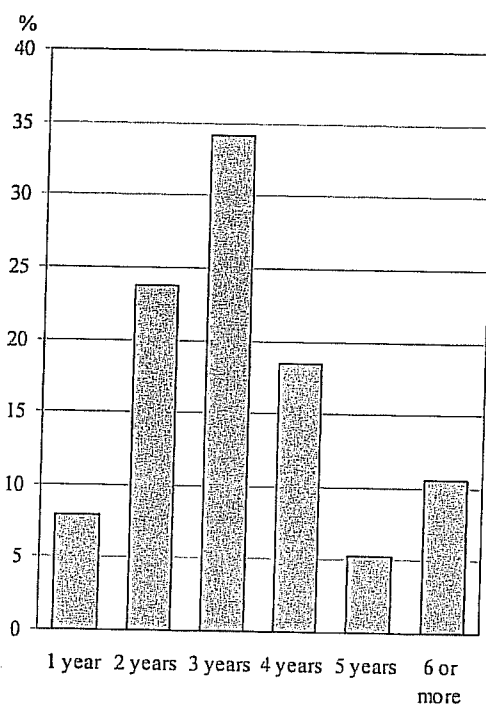


Figure 1. The participants' reports of the age difference to the sibling they most often had violent episodes with, in percentage.

### Number of Siblings

In the case of girls, there was a significant correlation between the number of siblings and the frequency of violent episodes [ $r_s = .33, p < .001$ ], but not in the case of boys.

### Developmental Trend

There was a significant effect of age on how often sibling fights occurred [Kruskal-Wallis  $H_{(5)} = 34.13, p < .001$ ]. After the age of 15, sibling violence dropped dramatically in frequency. There was no sex difference with respect to the decrease in violent episodes (cf. Fig. 2).

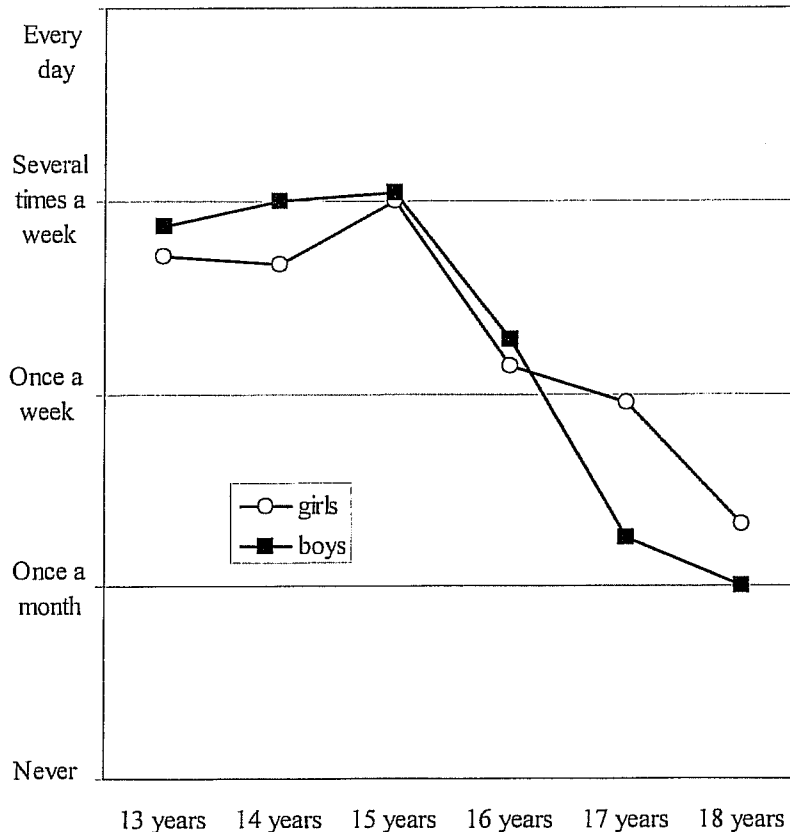


Figure 2. Developmental trend in frequency of sibling violence for adolescent boys and girls.

### Sex Differences

Boys reported violent episodes more often than girls, but the difference only bordered at being significant [Mann-Whitney  $U = 4065.50, n = 198, p = .052$ ]. Whether one shared room with the sibling in question was of no importance, neither the sex of the sibling. Table 1 presents the frequency of violent episodes among all adolescents, i.e., the average of the whole age range (13 - 18 years).

Table 1  
*Frequency of Violent Episodes with Siblings in Percentage, among Boys and Girls (n = 198)*

Frequency of violent episodes	Boys	Girls
Never	11.5 %	9.0 %
Once a month	14.9 %	27.0 %
Once a week	18.4 %	19.8 %
Several times a week	20.7 %	23.4 %
Every day	21.8 %	17.1 %
Several times a day	12.6 %	3.6 %

*Injuries*

The participants were provided with a list of possible injuries, and asked whether they had suffered any of these due to sibling violence. The frequencies are presented in Fig. 3. As the figure shows, scratches (in 57 % of the cases) and bruises (55 %) were the most common injuries. Biting marks occurred in 24 % of the cases. Nosebleed occurred in 26 % of the cases among boys, but only in 7 % of the cases in girls [ $\chi^2_{(1)} = 12.80, p < .001$ ]. Teeth had been broken in 4 % of the cases. Six percent reported psychological damage. Also injuries that required medical treatment occurred, in 8 % of boys and in 4 % of girls (the difference was not significant).

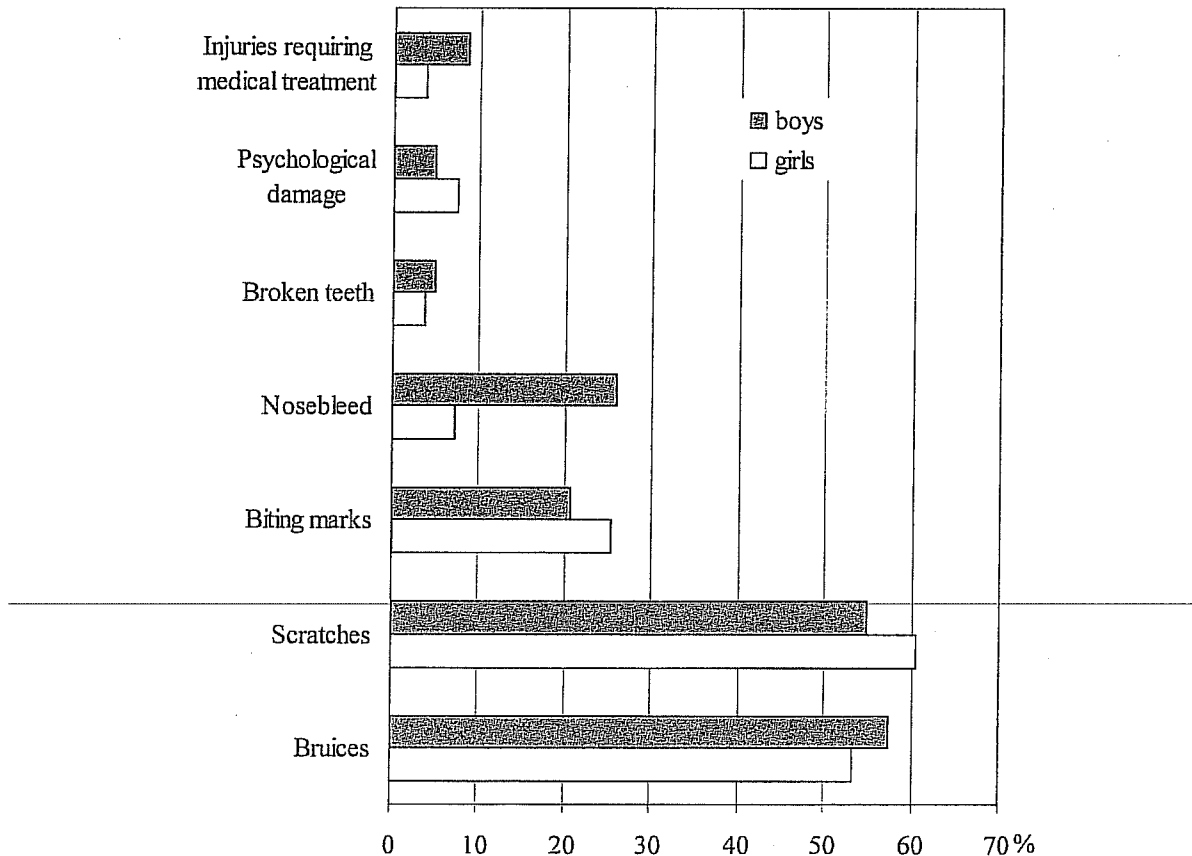


Figure 3. The number of boys and girls, in percentage, who reported specific injuries caused by fights with siblings.

## Discussion

The study confirmed the fact that violence between siblings indeed is common. The research literature suggests rivalry to be more frequent among sisters than among brothers (Leung & Robson, 1991; Roscoe et al., 1987; Stocker, Lanthier, & Furman, 1997), but this was not the case in the present study, since the sex of the sibling one had most fights with had no impact on the frequency of conflicts, neither for boys nor for girls. Boys reported violent episodes with siblings more often than girls, but the difference did not fully reach significance ( $p = .052$ ). Boys reported nosebleed as a consequence of fights more often than girls, a fact suggesting that they more often engage in boxing.

As expected, the frequency of violent episodes decreased by age. After the age of 15, there was a remarkable reduction in fights. This may be a sign of maturation and increased self-control. It may also reflect the fact older adolescents spend more time with friends outside of the family.

The number of siblings correlated positively with the frequency of violent episodes in the case of girls, but not in the case of boys. There is no obvious explanation for this finding. It may be a coincidence, but it is also possible that in families with several children, girls are expected more than boys to take care of younger siblings, which in turn may lead to more conflicts with them.

It was found that the age difference to the sibling the participants most often had fights with was 3 years. Both Dunn (1983) and Leung and Robson (1991) have suggested that a small age difference decreases the risk of rivalry. The present study provides some support for this notion. If the age difference was only one year, the risk of rivalry was very small. It increased considerably if the age difference was 2 years, with a peak at 3 years. When the age difference was more than 3 years, there was a clear decline in rivalry. It appears that when the age difference is very small, children enjoy similar games and are likely to play with each other during their childhood. Why, then, is there a peak of rivalry when the age difference is three? One explanation could be that, if a new baby is born, a 3-year old child is still very dependent on the mother and in need of parental attention, which now is given to the newborn child. This circumstance naturally causes jealousy. The baby is too small to play with, and therefore perhaps seen only as a nuisance. When the children grow up, the age difference is too great for them to play the same games. However, when the child is four years or more when the new baby arrives, the older child is more detached from the mother and old enough to play with other children, providing less reason for rivalry.

It was somewhat of a surprise for the present authors that injuries due to sibling violence were so frequent. It suggests that this is an important area to study, and more research is needed.

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## Sibling Relationships as Contexts for Delinquency Training in Low-Income Families

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The purpose of the study was to investigate the link between sibling relationships and antisocial behavior in 208 boys from low-income families. Sibling relational attributes and mother–target child (MTC) relationship quality were assessed when the target child (TC) was 10 years old. At ages 11 and 12, TC antisocial behavior and TC reports of peer antisocial behavior were evaluated. Results indicated that MTC negative relationship quality was significantly related to sibling conflict. In turn, sibling conflict was a significant predictor of antisocial behavior; sibling warmth/closeness was related to TC reports of peer antisocial behavior. Findings also indicated that sibling relationship quality was related to antisocial behavior after controlling for MTC negativity. Implications for interventions are discussed.

*Keywords:* sibling relationships, antisocial behavior, peer relationships, parent–child relationships

A number of researchers have highlighted children's relationships with brothers and sisters as important contexts for socialization (e.g., Bank, Burraston, & Snyder, 2004; Dunn, 1999; Patterson, 1986). Specifically, sibling relationships have been identified as potential training grounds for delinquent behavior (e.g., Bank, Patterson, & Reid, 1996; Compton, Snyder, Schrepferman, Bank, & Shortt, 2003; Garcia, Shaw, Winslow, & Yaggi, 2000). Empirical evidence has shown high levels of sibling conflict/coercion and low levels of sibling warmth/closeness to be linked to high levels of child antisocial behavior and low levels of social competence (Ingoldsby, Shaw, & Garcia, 2001; MacKinnon-Lewis, Starnes, Volling, & Johnson, 1997; Stocker, Burwell, & Briggs, 2002). While the importance of siblings in the development of antisocial behavior has been well established, findings are less clear regarding the influence of parent–child relationships on sibling relationship quality. Some studies have found measures of family functioning to be significantly associated with sibling relations (e.g., Brody, Stoneman, McCoy, & Forehand, 1992; Dunn, 1999); whereas in other studies, this has not been the case (e.g., Garcia et al., 2000). In addition, there has been only pre-

liminary evidence suggesting that negative sibling relations significantly increase the risk for child adjustment difficulties after controlling for other measures of family functioning (e.g., Bank et al., 2004). In the present longitudinal study, we examined whether mother–target child (MTC) negativity was related to the quality of sibling relationships (i.e., warmth/closeness and conflict). We also analyzed the link between sibling relations and antisocial behavior and whether this link remained significant after controlling for MTC negativity. Finally, we examined whether the association between sibling relationship quality and antisocial behavior was moderated by MTC negativity.

### Links Between Sibling Relationship Quality and Child and Peer Antisocial Behavior

For most children, brothers and sisters are highly influential figures in their lives, typically serving as valuable sources of support, companionship, and entertainment (Stormshak, Bellanti, Bierman, & Conduct Problems Prevention Research Group, 1996), but also as sources of conflict and negative role models (Patterson, 1984; Rowe & Gulley, 1992; Stormshak et al., 1996). It is not surprising, therefore, that sibling relationships have been posited as critical contexts for delinquency training (e.g., Bank et al., 2004; Dunn, Deater-Deckard, Pickering, Golding, & the ALSPAC Study Team, 1999; Stocker et al., 2002). According to Patterson's (1986) coercion theory, the development of deviant behavior could occur during sibling interactions through two mechanisms. First, modeled from coercive parent–child interactions, sibling relations provide children with opportunities to practice deviant behavior (e.g., reactive aggression)—behavior that would likely go unchecked or even be reinforced in the context of acrimonious and coercive parent–child relationships (Ingoldsby et al., 2001).

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Second, engagement and persistent involvement in coercive sibling exchanges would likely sustain and escalate negative child behavior and perhaps lead to more delinquent-reinforcing experiences outside the home, such as association with antisocial peers. Indeed, children are often introduced to highly antisocial peers through their older (and perhaps deviant) siblings (Rowe & Gulley, 1992). More important, however, children in homes marked by cycles of coercion and escalating hostility may lack the sufficient supervision and emotional bond with their parents to be swayed from deviant peers (Dishion & Bullock, 2002; Patterson, Reid, & Dishion, 1992).

A number of studies have validated that dimensions of sibling relationships are linked to child antisocial behavior and peer relations. For instance, using a sample of predominantly European American children, Updegraff, McHale, and Crouter (2002) found that both control and intimacy in the sibling relationship were significantly related to similar relational dimensions in the children's friendships. In addition, Compton et al. (2003) found that high levels of sibling coercion, assessed when the younger sibling was approximately 6 years old, were significantly related to younger sibling antisocial behavior, assessed 10 years later. Using a sample of 53 European American children, Stormshak and colleagues (1996) found sibling conflict to be significantly related to high levels of aggression and low levels of social competence. In summary, research has established linkages between sibling relationship quality and child antisocial and prosocial behaviors.

### Interplay Between Family Functioning and Sibling Relationships

Although sibling relationship quality has been shown to be associated with the development of antisocial behavior, sibling relationships do not occur in isolation, but rather as one component of interrelated dyadic subsystems (Bank et al., 2004). With this in mind, several research teams have examined the interplay between sibling relationship quality and family functioning, typically testing one of three models. According to the cross-system contagion model, the hostility that characterizes coercive processes within families, especially in parent-child relationships, often spreads to the sibling dyad and disrupts the quality of the sibling interactions (Bank et al., 2004; Ingoldsby, Shaw, Owens, & Winslow, 1999; Patterson, 1986). Cross-system contagion is often bidirectional (e.g., sibling conflict also can affect the quality of parent-child interaction) and may sustain the cycle of coercion within families (Patterson et al., 1992). Support for this model has been found in the sibling relationship literature. Erel, Margolin, and John (1998) found that high levels of marital conflict and maternal power assertion predicted high levels of sibling negativity. Brody and colleagues (1992) reported that low harmony, low cohesion, and high conflict in the family were significantly related to later levels of child-reported sibling conflict. Similarly, in a study conducted by Dunn et al. (1999), negativity in MTC and mother-sibling relationships was associated with low levels of sibling positivity and high

levels of sibling negativity. Collectively, these studies point to a possible linkage between parent-child and sibling relationships.

Researchers in the sibling literature have also tested additive models, investigating whether dimensions of sibling relationship predict antisocial behavior above and beyond the effects of parent-child interactions (Bank et al., 2004; Conger, Conger, & Scaramella, 1997; Ingoldsby et al., 2001; MacKinnon-Lewis et al., 1997). Additive models address whether sibling relationships are merely markers of other family processes (e.g., rejecting parenting) or serve as unique contexts for delinquency training. In general, studies that have tested additive models have found evidence for sibling relationships as incremental predictors of antisocial behavior after accounting for parenting effects. MacKinnon-Lewis and colleagues found that sibling aggression was a significant predictor of child aggression after controlling for maternal rejection. In a study conducted by Bank and colleagues, ineffective parenting and sibling conflict were each found to be unique and significant predictors of child antisocial behavior and affiliation with deviant peers. In contrast, Ingoldsby et al. found that the association between sibling conflict (age 5 years) and child-peer conflict was attenuated after controlling for marital conflict and mother-child conflict. However, overall, the findings suggest that sibling relationships may explain independent variance in relation to antisocial behavior after controlling for measures of family functioning.

Other investigators have examined whether negative parent-child relations may exacerbate the link between sibling relationship quality and antisocial behavior (Bank et al., 2004; Garcia et al., 2000). The focus of these interactive models, therefore, is whether children experiencing conflict in multiple versus single relational contexts would be expected to be at an increased risk for adjustment problems (Ingoldsby et al., 2001). Evidence from the literature has suggested that children who experience hostility in multiple relational domains are at increased risk for antisocial behavior. Bank and colleagues found that high levels of ineffective parenting amplified the positive association between sibling conflict and child antisocial behavior. Garcia et al. reported that children who experienced high levels of both rejecting parenting and sibling conflict (age 5 years) showed higher levels of externalizing problems compared with children with elevated levels of only one of these factors. In summary, research has suggested that experiencing adverse relations in multiple versus single contexts may elevate the risk for antisocial behavior.

### Research Goals and Hypotheses

Collectively, the body of literature suggests that sibling relationships develop within the context of other family relationship subsystems, most notably the parent-child relationship. In addition, the quality of the sibling relationship has been shown to be a significant predictor of antisocial behavior. However, this area of research has two major limitations. First, it has been conducted with small and predominantly European American, middle-class families.

The focus on European American, middle-class families for studying sibling effects on antisocial outcomes is somewhat ironic, given that most children from higher socioeconomic strata are at modest risk for high or persistent levels of serious antisocial activity, particularly compared with children from lower income backgrounds (Kilgore, Snyder, & Lentz, 2000; Linver, Brooks-Gunn, & Kohen, 2002). Second, in general, most of the studies have been focused only on one dimension of sibling relationship quality (e.g., conflict) without simultaneously examining other dimensions, such as warmth. The purpose of the current investigation was to examine the role of sibling relationship quality in the development of antisocial behavior in a sample of 208 boys from low-income families. Two dimensions of sibling relationship quality were assessed: warmth/closeness (i.e., intimacy, closeness) and conflict (i.e., antagonism, hostility). MTC negative relationship quality was also assessed at age 10. Two domains of child adjustment were measured at ages 11 and 12: antisocial behavior and TC reports of peer antisocial behavior.

The goal of the study was to test the validity of contagion, additive, and interactive models with respect to sibling relations and antisocial behavior. First, on the basis of the principles of the cross-system contagion model, we examined the link between MTC negativity and sibling relationship quality. It was hypothesized that high levels of MTC negativity would be related to high levels of sibling conflict and low levels of sibling warmth/closeness. We also investigated whether longitudinal associations would be evident between sibling relationship quality and antisocial behavior, with the expectation that children with low levels of warmth/closeness and high levels of conflict would engage in high levels of antisocial behavior and would report affiliating with antisocial peers. Second, on the basis of an additive model of sibling influence, we hypothesized that sibling relations would remain a significant predictor of antisocial behavior after controlling for MTC relations. To further ensure that these findings would be attributable to the sibling relationship, we also controlled for TC (i.e., prior adjustment) and sibling (i.e., gender, age, relation to TC) personal attributes. Finally, we investigated the interactive model by testing two- and three-way interactions involving MTC negative relationship quality, sibling warmth/closeness, and sibling conflict. It was anticipated that MTC negativity would exacerbate (or strengthen) the link between sibling relationship quality and antisocial behavior.

## Method

### *Participants and Procedure*

The sample consisted of families from the Pittsburgh Mother & Child Project (PMCP), an ongoing longitudinal project examining vulnerability and resilience (e.g., Criss, Shaw, & Ingoldsby, 2003). The sample was recruited from low-income families who were participants in the Women, Infants, and Children (WIC) Nutritional Supplement Program, which provides food supplements for income-eligible families. Initially, 421 families were approached at WIC sites when the TC were between 6 and 17 months old. Fourteen (3.3%) declined to participate at the time of recruitment,

and an additional 97 (23%) declined before the first assessment. Thus, of the 421 families asked, 310 participated in the first assessment when the TC were 1.5 years old (51.3% European American, 39.2% African American, 0.3% Hispanic, and 9.2% other; 33% of the families were single parent headed). Because the original intent of the project was to examine precursors of antisocial behavior, and funding did not permit recruitment of a sufficiently large sample of girls who were expected to show serious levels of antisocial activity, the sample was restricted to boys. At the time of the first assessment, the mothers ranged in age from 17 to 43 years ( $M = 27.82$  years,  $SD = 5.33$ ). Mean yearly family income was \$12,567.13 per year ( $SD = 7,689.02$ ), with a mean Hollingshead (1979) socioeconomic status of 23.32 ( $SD = 9.29$ ), indicative of a working-class sample. Subsequent assessments were conducted when TC were 2, 3.5, 5, 5.5, 6, 8, 10, 11, and 12 years old.

At the age 10 assessment, 252 families (81.3% of original sample) participated in a series of extensive interviews, questionnaires, and family discussion tasks. During the assessment, the TC was asked to report on his relationship with the sibling closest in age. If this sibling did not live at home, the TC was asked to choose another brother or sister. Sibling data were available from 208 families (52.4% European American, 36.5% African American, 0.5% Hispanic, and 10.6% other ethnic groups; 31.7% of the families were single parent headed; family yearly income,  $M = \$12,378.26$  per year,  $SD = 7,639.71$ ; family socioeconomic status,  $M = 23.68$ ,  $SD = 9.38$ ). Siblings (53.4% male) ranged in age from 6 to 18 years ( $M = 11.88$ ,  $SD = 2.47$ ), with considerably more being older (76.4%;  $M = 12.92$ ,  $SD = 1.71$ ) than younger (23.6%;  $M = 8.49$ ,  $SD = 1.19$ ). Nearly all of the participating siblings were biologically related to the TC (91.8% biological siblings, 3.4% stepsiblings, 3.8% half siblings, and 1% other). Participating children ( $N = 208$ ) were compared with nonparticipating children ( $N = 102$ ) at the initial recruitment when the children were 1.5 years old on indicators of maternal education, annual family income, and mother-reported toddler oppositional behavior. No significant differences were found between the two groups on any of the three measures.

### *Overview and Procedure*

Data for the present study were collected during home visits when the TC were 10 and 12 years old and during the age 11 laboratory visit. One research assistant interviewed the parent (usually mother) while another interviewed the TC. During the age 10 assessment, families (62.2% mother-TC dyads and 37.8% mother-father-TC triads) also participated in a semistructured discussion task that was videotaped. This task was based on the work of Hetherington and Clingempeel (1992) and Melby and Conger (2001). During the 8-min task, the family discussed one or two "hot" issues that they selected from a list of 24 typical family conflicts (e.g., child's choice of friends, child keeping room tidy; Hetherington & Clingempeel, 1992), from which individual and dyadic codes were subsequently rated from videotapes (e.g., conflict).

### *Measures*

*Sibling relationship quality.* During the age 10 assessment, TC completed the 32-item Sibling Relationship Questionnaire (SRQ), which was adapted from a measure developed by Furman and Buhrmester (1985). The SRQ taps psychologically meaningful qualities of the sibling relationship as they occur in a wide range of contexts. Furman and Buhrmester conducted a principal-

components analysis that yielded four underlying factors: relative status/power, rivalry, warmth/closeness, and conflict. In the current study, we focused on the latter two factors because of their expected greater relevance to the socialization of deviant behavior. Sibling warmth/closeness was based on the sum of 12 items ( $\alpha = .91$ ; e.g., "How much do you and this sibling tell each other everything?" and "How much do you and this sibling go places and do things together?") that assesses the level of intimacy, prosocial behavior, and affection in the sibling relationship. For this factor, each item was rated on a 5-point scale (with responses ranging from 1 [*hardly at all*] to 5 [*extremely much*]). Sibling conflict was assessed using 12 items ("How much do you and this sibling insult and call each other names?" and "Your sibling told a lie and got you in trouble") that tap the level of antagonism, quarreling, and overall negativity in the target's relationship with his sibling. For this factor, as 4 items were rated on a 5-point scale (with responses ranging from 1 [*hardly at all*] to 5 [*extremely much*];  $M = 11.63$ ,  $SD = 3.98$ ) and 8 items were rated on a 7-point scale (with responses ranging from 1 [*not at all in the last month*] to 7 [*more than once a day*];  $M = 22.73$ ,  $SD = 11.05$ ), items were standardized before averaging ( $\alpha = .84$ ) to create the final sibling conflict factor.

**MTC relationship quality.** MTC negative relationship quality at age 10 was created by standardizing and averaging ( $\alpha = .62$ ) scores based on three informants: mother reports, observer observational ratings coded from videotapes, and interviewer impressions. Using a 5-point Likert scale (with responses ranging from 1 [*definitely not*] to 5 [*definitely*]), mothers completed the 15-item Adult-Child Relationship Scale, an adaptation of the school-based Student-Teacher Relationship Scale (Pianta & Steinberg, 1991). This measure assesses both MTC openness/warmth (e.g., "If upset, this child seeks comfort in me") and conflict/negativity (e.g., "This child and I always seem to be struggling with one another"). After reverse scoring the five openness/warmth items, responses to all 15 items were summed ( $\alpha = .88$ ) to create the mother-reported component ( $M = 29.00$ ,  $SD = 9.70$ ) of the MTC negative relationship quality factor.

Observed MTC conflict was based on ratings from the videotaped family discussion task. Four trained coders made each of their 9-point global ratings based on two viewings of the interaction task. Observed MTC conflict ( $M = 3.09$ ,  $SD = .94$ ) was based on the mean ( $r = .59$ ,  $p < .001$ ) of two factors: mother-to-target conflict and target-to-mother conflict. Mother-to-target conflict ( $M = 3.27$ ,  $SD = 1.16$ ) was created by averaging ( $\alpha = .85$ ) eight ratings: put-downs, negative humor, complaining, conflict, emotional reactivity, rejection, commands, and nonverbal expressions of disengagement. Target-to-mother conflict ( $M = 2.91$ ,  $SD = 0.95$ ) was based on the mean ( $\alpha = .85$ ) of six ratings: complaining, conflict, emotional reactivity, rejection, interruptions, and nonverbal expressions of disengagement. Interrater reliability was established using four coders on the basis of 60 interactions (15 tapes per coder). Intraclass correlations for mother-to-target conflict ( $\rho = .70$ ;  $p < .001$ ) and target-to-mother conflict ( $\rho = .78$ ;  $p < .001$ ) were both in acceptable ranges (Mitchell, 1979). Because father-TC conflict data were available for only 37.8% of the sample, we chose to use only mother data in the construction of the observed MTC conflict variable.

The third indicator of MTC negative relationship quality was based on interviewer postassessment impressions that were rated on a 5-point Likert scale with responses ranging from 1 (*never or almost never*) to 5 (*always or almost always*). Four ratings tapped MTC negativity (e.g., "This child seemed aloof, distant, or unattached to his mother"). Five items assessed MTC positivity (e.g., "Did the parent initiate positive physical contact with the target

child?") and were reverse scored. The nine interviewer ratings were summed ( $\alpha = .81$ ) to create the interviewer-rated component ( $M = 15.89$ ,  $SD = 5.43$ ) of the MTC negative relationship quality factor.

**TC and TC-rated peer antisocial activity.** TC antisocial behavior was created by averaging ( $\alpha = .70$ ) scores based on mother, teacher, and target child reports at ages 11 and 12 years. We chose to use the mean of ages 11 and 12 years for two primary reasons. First, we believed that aggregating data from both years created more reliable and valid indicators of antisocial behavior. Second, we wanted to maximize the available data (and thus power). For instance, by combining TC antisocial behavior scores from ages 11 ( $n = 198$ ) and 12 ( $n = 195$ ) years, we were able to include more families ( $n = 205$ ) in the analyses involving antisocial behavior and sibling relations. Mother and teacher reports of TC delinquent behavior were assessed using the Child Behavior Checklist (CBC) and Teacher Report Form (TRF), respectively (Achenbach, 1991). Items on the Delinquent Behavior subscales (11 and 9 on the CBC and TRF, respectively) were rated on a 3-point scale (with responses ranging from 0 [*not true*], 1 [*somewhat true*], to 2 [*very true*]) and were summed (separately for the CBC and TRF) to create delinquent behavior factors at each age. CBC scores at ages 11 ( $\alpha = .71$ ;  $M = 2.08$ ,  $SD = 2.26$ ) and 12 ( $\alpha = .75$ ;  $M = 2.00$ ,  $SD = 2.45$ ) years were averaged ( $r = .76$ ,  $p < .001$ ) to create the mother-reported delinquent behavior component ( $M = 2.00$ ,  $SD = 2.29$ ). Likewise, the TRF delinquent behavior factor ( $M = 4.25$ ,  $SD = 3.74$ ) was based on the mean ( $r = .53$ ,  $p < .001$ ) of scores from ages 11 ( $\alpha = .85$ ;  $M = 4.34$ ,  $SD = 4.16$ ) and 12 ( $\alpha = .80$ ;  $M = 3.84$ ,  $SD = 3.43$ ). TC report of antisocial behavior (10 items) was evaluated using an abbreviated version of the Self-Report of Delinquency questionnaire (SRD; Elliott, Huizinga, & Ageton, 1985). Using a 3-point rating scale (with responses ranging from 1 [*never*], 2 [*once/twice*], to 3 [*more often*]), TC reported the extent to which they engaged in different types of antisocial behaviors (e.g., stealing, throwing rocks at people, being sent home from school for misbehavior). Several substance use items that have extremely low base rates at these ages (e.g., intravenous drug use) were deleted from the scale. Separate factors for TC behavior at ages 11 ( $\alpha = .69$ ;  $M = 1.85$ ,  $SD = 2.25$ ) and 12 ( $\alpha = .71$ ;  $M = 1.85$ ,  $SD = 2.23$ ) were created by summing items. TC reports of antisocial behavior ( $M = 1.81$ ,  $SD = 1.94$ ) were based on the mean ( $r = .57$ ,  $p < .001$ ) of scores at ages 11 and 12.

Fourteen items assessing TC-reported peer antisocial behavior (e.g., "Have any of your friends broken the law?") were evaluated using the SRD (Elliott et al., 1985), with the wording modified to reflect the behavior of the TC's friends. These items were rated on a 3-point Likert scale (with responses ranging from 1 [*never*], 2 [*once/twice*], to 3 [*more often*]) and are similar to those used in previous studies (e.g., Dishion, Patterson, Stoolmiller, & Skinner, 1991; Laird, Pettit, Dodge, & Bates, 1999). Because the 14 items displayed adequate base rates, none were omitted. Factors at ages 11 ( $\alpha = .87$ ;  $M = 3.92$ ,  $SD = 4.09$ ) and 12 ( $\alpha = .83$ ;  $M = 3.54$ ,  $SD = 4.02$ ) years were based on the sum of the 14 items. TC reports of peer antisocial behavior were created by averaging ( $r = .62$ ;  $p < .001$ ) scores from ages 11 and 12.

**Prior TC antisocial behavior.** Prior TC antisocial behavior was based on the mean ( $r = .33$ ,  $p < .001$ ) of mother (age 8) and teacher (ages 8 and 9) reports of TC externalizing behavior using the CBC and TRF, respectively (Achenbach, 1991). Items on the Externalizing Behavior subscales (33 and 34 on the CBC and TRF, respectively) were summed at age 8 years ( $\alpha = .97$ ;  $M = 10.44$ ,  $SD = 7.67$ ) for the CBC and at ages 8 ( $\alpha = .96$ ;  $M = 11.40$ ,  $SD = 14.01$ ) and 9 ( $\alpha = .90$ ;  $M = 14.58$ ,  $SD = 14.35$ ) years for the TRF.

## Results

### *Descriptive Statistics and Bivariate Correlations*

Bivariate correlations and descriptive statistics are presented in Table 1. Intercorrelations (two-tailed) among study variables indicated expected patterns of covariation within and between variable domains. Sibling warmth/closeness was significantly related to low levels of sibling conflict, and TC antisocial behavior was significantly related to TC reports of peer antisocial behavior. In addition, MTC negative relationship quality was significantly related to high levels of TC antisocial behavior and TC reports of peer antisocial behavior.

For our first research question, we utilized the cross-system contagion model to see whether MTC negative relationship quality would be related to sibling relations. The results indicated that MTC negativity was positively and significantly related to sibling conflict (see Table 1). However, bivariate correlations indicated that MTC negative relationship quality was unrelated to sibling warmth/closeness. In addition, we examined whether sibling relationship quality was associated with subsequent youth antisocial behavior, and found that sibling conflict was positively and significantly associated with TC antisocial behavior and TC reports of peer antisocial behavior (see Table 1). Sibling warmth/closeness was found to be unrelated to TC antisocial behavior but was positively correlated with TC reports of peer antisocial behavior.

### *Multiple Regressions*

Next, we tested (a) whether sibling warmth/closeness and conflict were significant predictors of antisocial behavior after controlling for the MTC relationship and characteristics of the TC and sibling (i.e., additive model) and (b) whether MTC negativity moderated the link between sibling relations and antisocial behavior (i.e., interactive model). Two regressions were computed in which antisocial behavior (TC antisocial behavior or TC reports of peer antisocial behavior) was predicted by sibling gender, sibling relation to TC, sibling age, and prior TC antisocial behavior (Step 1); MTC negative relationship quality (Step 2); sibling warmth/closeness and sibling conflict (Step 3); Warmth/Closeness  $\times$  Conflict, Warmth/Closeness  $\times$  MTC Relationship Quality, and Conflict  $\times$  MTC Negative Relationship Quality (Step 4); and Warmth/Closeness  $\times$  Conflict  $\times$  MTC Negativity (Step 5).

The results demonstrated that sibling relationship quality explained a significant and incremental percentage of variance in antisocial behavior after controlling for sibling and TC characteristics and MTC relations (see Table 2). Inspection of the standardized betas indicated that sibling conflict was positively and significantly related to TC antisocial behavior and TC reports of peer antisocial behavior; sibling warmth/closeness was positively related to TC reports of peer antisocial behavior. Though warmth/closeness and TC antisocial behavior were not significantly associated in the bivariate correlation analyses, results from the regressions demonstrated that high levels of warmth and closeness in the sibling dyad were related to high levels of antisocial behavior, indicative of a suppressor effect. The findings also indicated that none of the two- or three-way interactions were significant on Steps 4 and 5 of the regressions, respectively. That is, MTC negativity did not qualify the association between sibling relationship quality and antisocial behavior.

We also examined whether the associations involving sibling relationship quality were moderated by marital status (i.e., single vs. married/cohabiting), TC ethnicity (i.e., European American vs. ethnic minorities), sibling gender (i.e., male vs. female), sibling age, and sibling relation to TC (i.e., biological vs. nonbiological sibling). None of the two-way interactions (e.g., Sibling Warmth/Closeness  $\times$  Sibling Age) tested in multiple regressions were significant.

## Discussion

The purpose of the present study was to examine the association between sibling relationship quality and antisocial behavior. In addition, we investigated the interplay between the sibling and MTC dyadic subsystems by testing three models: cross-system contagion, additive, and interactive. The findings indicated that conflict in sibling dyads was positively related to TC antisocial behavior and TC reports of peer antisocial behavior; sibling warmth/closeness was positively related to TC reports of peer antisocial behavior. Consistent with a cross-system contagion perspective, MTC negativity was associated with high levels of sibling conflict. Furthermore, in support of the additive model, sibling warmth/closeness and conflict were both significantly related to antisocial behavior after accounting for variance associated with MTC relations and TC and sibling attributes. Finally, no support was found for an interactive framework, as the association between sibling

Table 1  
*Bivariate Correlations and Descriptive Statistics*

Variable	2	3	4	5	<i>n</i>	<i>M</i>	<i>SD</i>
1. Sibling warmth/closeness	-.31***	-.11	.10	.24***	208	3.11	.89
2. Sibling conflict		.29***	.26***	.22**	208	0.00	.61
3. MTC negative relationship quality			.46***	.36***	207	0.02	.77
4. TC antisocial behavior				.62***	205	0.02	.78
5. TC reported peer antisocial behavior					201	3.76	3.87

Note. Bivariate correlation  $ns = 200-208$ . MTC = mother-target child; TC = target child.  
\*\*  $p < .01$ . \*\*\*  $p < .001$ .

Table 2  
Multiple Regression Models for TC and TC-Reported Peer Antisocial Behavior

Step	Predictor	TC antisocial behavior (n = 204)			TC-reported peer antisocial behavior (n = 200)		
		Std. $\beta$	$\Delta R^2$	R <sup>2</sup>	Std. $\beta$	$\Delta R^2$	R <sup>2</sup>
Step 1	Sibling gender <sup>a</sup>	-.04	.33***	.47***	-.06	.09***	.30***
	Sibling relation to TC <sup>b</sup>	-.01			-.08		
	Sibling age	-.10			-.02		
Step 2	Prior TC antisocial behavior <sup>c</sup>	.57***			.29***		
	MTC negative relationship quality	.31***	.08***		.30***	.08***	
	Sibling warmth/closeness	.18**	.04***		.34***	.11***	
Step 3	Sibling conflict	.18**			.20**		
	Sibling Warmth/Closeness $\times$ Sibling Conflict	.03	.00		-.04	.01	
	Sibling Warmth/Closeness $\times$ MTC Negative Relationship Quality	.00			.10		
Step 4	Sibling Conflict $\times$ MTC Negative Relationship Quality	.03			.08		
	Warmth/Closeness $\times$ Conflict $\times$ MTC Negative Relationship Quality	-.02	.00		-.10	.01	

Note. MTC = mother-target child; TC = target child; Std. = standardized.  
<sup>a</sup> Coded -1 = female and +1 = male. <sup>b</sup> Coded -1 = biological sibling and +1 = nonbiological sibling. <sup>c</sup> Based on mean of mother and teacher reports of externalizing behavior at ages 8 and 9 years.  
 \*\*  $p < .01$ . \*\*\*  $p < .001$ .

relationship quality and antisocial behavior was not moderated by MTC negativity.

In the current study, and in accord with the extant literature (e.g., Bank et al., 2004; Conger et al., 1997; Garcia et al., 2000; Ingoldsby et al., 2001; Stocker et al., 2002), children whose sibling relationships were characterized by elevated levels of conflict displayed high levels of antisocial behavior and reported affiliating with antisocial peers. As others have speculated (e.g., Compton et al., 2003; Patterson, 1986), sibling relationships marked by high rates of acrimony may provide a training ground for learning aggressive behavioral tactics, which, in turn, can be applied to other contexts. The coercive and hostile exchanges that characterize these relationships could reinforce children's use of antisocial behavior and potentially lead them to delinquent-reinforcing contexts, such as affiliating with deviant peers (Patterson et al., 1992). Moreover, experiences in such relationships would not be very conducive in the development of emotional regulation and understanding, which some researchers have posited as an important function of sibling relationships (Dunn, 1999). Although these behavioral and emotional strategies may be more likely modeled from an older sibling (Patterson, 1986), experiencing hostile exchanges with a younger sibling on a regular basis and being successful at using such strategies may increase the probability that the child would engage in such behaviors outside of the relationship. In summary, the results are consistent with the notion that conflictual sibling relationships may serve as contexts for delinquency training for boys in middle childhood.

Findings also indicated that sibling warmth/closeness was positively related to TC reports of peer antisocial behavior and TC antisocial behavior, even after controlling for MTC and sibling conflict. Consistent with research indicating that children may be led to delinquent-reinforcing circumstances by their siblings (e.g., deviant peers; Patterson, 1986; Rowe & Gulley, 1992), the findings suggest that children may be more receptive to the recommendations of their brothers and sisters in the context of warm and close relationships. The results are analogous to studies of parent-child relationship quality, which demonstrate greater child receptivity to parental socialization in the context of a warm and mutually responsive relationship (e.g., Criss et al., 2003; Kochanska, 1997). It should be noted that the positive association between sibling warmth/closeness and TC reports of peer antisocial behavior may have been due to or inflated because of the monomethod approach to the assessment of each variable (i.e., based only on TC reports). Ideally, it would have been desirable to have peer rather than TC reports of peer antisocial behavior. As using the same informant and method for independent and dependent variables are subject to bias, this represents a notable methodological limitation of the study. Also, the positive association between warmth/closeness and TC antisocial behavior occurred only after accounting for MTC negativity and sibling conflict in the regression analyses. This suppressor effect could be attributable to characteristics of the sibling. That is, it is possible that having a close relationship with a deviant sibling may place a child at risk for the

development of antisocial behavior. However, because sibling antisocial behavior was not assessed in the current study, this possibility is merely speculative.

In the present study, MTC relationships characterized by negativity were associated with antagonism and conflict in the sibling relationship. These associations were cross-sectional, but do echo previous findings in the literature (Brody et al., 1992; Compton et al., 2003; Dunn et al., 1999; Erel et al., 1998; Ingoldsby et al., 2001) and do support the cross-system contagion model (Bank et al., 2004). It is possible that children who experience hostile interactions with their parents incorporate these coercive strategies into their behavioral repertoires, which, in turn, are extended to other relationships. Another possibility is that because family relationships are permeable, the negative affect and irritability that characterize poor parent-child relationships may spill over and lead to negative interactions in the sibling dyad (Patterson, 1986). Given the cross-sectional nature of these data, however, it must be acknowledged that it is equally possible that sibling discord may influence the quality of parent-child relationships. That is, siblings who constantly fight and argue may increase conflict between parents and children.

Interestingly, MTC negative relationship quality was unrelated to sibling warmth/closeness. Although few studies have explored the link between family functioning and positive sibling relational attributes (see Dunn et al., 1999, for an exception), it had been expected that high levels of MTC negativity would be associated with less warm sibling relationships. These findings could be due to the age of the participating siblings, who on average were older than the TC. Given that children often take on caregiving responsibilities for younger siblings, especially in dual-earner or single-parent families (Zukow-Goldring, 2002), it is possible that many target children were required to spend time with their older brothers or sisters out of necessity and irrespective of the quality of the relationship with their mothers. With limited resources and lack of mobility, 10-year-olds may have no other options but to spend time with their older siblings.

Results from the multiple regression analyses indicated that sibling relationship quality remained a significant predictor of target children antisocial behavior and TC reports of peer antisocial behavior after statistically controlling for MTC negativity and TC and sibling characteristics. These findings are in accordance with the additive model and suggest that sibling relational attributes are not merely indicators of overall family functioning. Instead, sibling interactions may provide children with unique socialization experiences in the development of antisocial behavior (Bank et al., 2004; McKinnon-Lewis et al., 1997). These unique experiences could be attributable to the differential balance of power in parent-child and sibling relationships. Sibling relationships tend to be horizontal or balanced (i.e., both partners share responsibility during interactions; Burhmester & Furman, 1990), whereas parent-child relationships are generally more vertical and unilateral (i.e., parents dictate the direction of interactions; Russell, Pettit, & Mize,

1998). Thus, these unique interaction styles may afford children unique experiences in delinquency training.

In contrast to the interactive model and findings from previous investigations (e.g., Bank et al., 2004; Garcia et al., 2000), associations between sibling relationships and antisocial behavior were not found to vary as a function of MTC negativity level. These results provide further support for the importance of brothers and sisters as socializing agents in the development of antisocial behavior. The findings also suggest that MTC relationships may not ameliorate (or exacerbate) the influence of siblings on child development. Although moderating effects in nonexperimental studies can be difficult to detect (McClelland & Judd, 1993), the inability to find significant interactions may have been due to the measure of MTC relationship quality; other dimensions of the MTC dyad, such as communication and responsiveness, may be more relevant to attenuating sibling effects on youth antisocial behavior.

### *Implications for Prevention and Intervention*

The study's findings are especially relevant for prevention and intervention efforts. As it represents one of the first studies to demonstrate sibling effects on a sample of low-income children, the current findings may have salient implications for interventionists working with problematic school-age children from low-income backgrounds. As the environments of many children from low-income families are embedded within layers of risk within (e.g., stability of family structure) and outside (e.g., quality of neighborhood and school) of the home, relationships children have with siblings may play a relatively more important role than in middle-class contexts, to the extent that delinquency training modeled in the home is more likely to be condoned in low-income extrafamilial contexts. Findings from the current study confirm previous research on predominantly middle-class families, indicating that siblings (who tended to be older in this sample) exert an independent influence on children's socialization experience, providing a training ground that supplements the influence of parents. The finding is also in accord with research on family-based interventions targeting older sibling antisocial behavior, in which decreases in the TC's antisocial behavior were associated with later reductions in court appearances of non-treated younger siblings (Klein, Alexander, & Parsons, 1977). More recent prevention efforts have also incorporated the potential influence of older siblings into treatment designs. For instance, Olds's (2002) preventive intervention targeting high-risk mothers during pregnancy and infancy is open only to parents rearing their first-born child, in part, because of the novel challenges associated with raising a first child. However, improved functioning of the first-born child should also have benefits for the later born children because of sibling effects. More germane to the developmental period of the boys in the current study, Bank and Snyder (2004) examined the efficacy of a parent-training approach to treating school-age children's conduct problems. Results indicated that both older and younger siblings were shown to benefit from the sibling-plus-parent-training

intervention (as compared with parent training alone or community control). The results of this study should be quite informative for clinical practice in addressing the impact of siblings on problem children's behavior.

### Limitations and Suggestions for Future Research

It should be noted that the current sample consisted of boys (and their mothers) from low-income families. As such, these findings can only be generalized to these types of families. Future research would benefit from an examination of other family subsystems involving fathers, daughters, or even sibling triads. Sibling relationship quality and peer antisocial behavior were based only on the perceptions of the TC. Inclusion of other sources of information (e.g., siblings, peers) and methods (e.g., observation) might provide more insight into the complex and dynamic interplay of sibling relationships and its impact on child adjustment. Also, the associations between sibling relationship quality and MTC relationship quality were cross-sectional in nature, and, as such, the directionality of these associations cannot be fully ascertained from these data. Assessing these constructs at multiple time points would allow researchers to test transactional models of the links between sibling relationship quality and family and child functioning, and also explore developmental trajectories and pathways in sibling relations. Likewise, examining more long-term associations between sibling relationship quality and antisocial behavior would illuminate whether the influence of siblings extends beyond a few years. Finally, it would be informative to examine sibling antisocial behavior, both as an outcome of sibling interactions and as a moderator in the link between sibling relationship quality and TC antisocial behavior. Having a supportive relationship with a highly aggressive sibling may be associated with more detrimental outcomes compared with affiliations with less aggressive siblings.

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# Social Behavior of Young Siblings in the Family Context: Differences between Same-Sex and Different-Sex Dyads

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DUNN, JUDY, and KENDRICK, CAROL. *Social Behavior of Young Siblings in The Family Context: Differences between Same-Sex and Different-Sex Dyads*. CHILD DEVELOPMENT, 1981, 52, 1265-1273. Individual differences in the social behavior of young siblings were studied in 40 sibling pairs observed at home, when the infant sibling was aged 8 and 14 months. Differences between same-sex and different-sex sibling pairs were marked by the 14-month-old observations, with more frequent positive social behavior shown by both first child and infant sibling in same-sex pairs, and more frequent negative behavior by first children in different-sex pairs. Infants in both same-sex and different-sex pairs increased in negative behavior between 8 and 14 months. Stability of individual differences between 8- and 14-month observations was found for positive behavior in same-sex pairs and for negative behavior in different-sex pairs. Differences in sibling behavior were related to mother-infant interaction. Frequent mother-infant interaction and a high proportion of play were negatively related to positive sibling interaction. Mothers of different-sex siblings played more with their infants than mothers of same-sex siblings.

Many infants and young children spend a large part of their early years in the company of siblings. In spite of the potential developmental importance of this early experience, the interaction and early relationships between young siblings has been little studied in a systematic fashion. While the importance of examining the social relationships of children with people other than their mothers is increasingly recognized, attention has been primarily focused on the interaction with fathers and with peers (Eckerman, Whatley, & Kutz 1975; Lamb 1976; Mueller & Vandell 1979). The few studies of young siblings and of twins that have been carried out in the natural environment of the home do suggest that interaction between siblings is not only frequent but that it offers an interesting new perspective

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One particularly striking feature of the interaction between young sibling pairs observed at home is the dramatically wide range of individual differences in the frequency and

the affectional quality of their interaction (Buhler 1939; Dunn & Kendrick 1979; MacFarland 1937). Little is known of the origins of these individual differences, but their range and the emotional nature of the interactions—both affectionate and hostile—suggest the importance of understanding their development more clearly. One conspicuous gap in our knowledge concerns the individual differences in social behavior shown by siblings during infancy: both the studies of Abramovitch et al. (1979) and of Lamb (1978a; 1978b) focused on children of more than 12 months of age in interaction with older siblings. The importance of further research on infants' behaviors toward their siblings is highlighted by Lamb's (1978b) study which examined the interactions of infants at 12 months and 18 months with their pre-

the affectional quality of their interaction (Buhler 1939; Dunn & Kendrick 1979; MacFarland 1937). Little is known of the origins of these individual differences, but their range and the emotional nature of the interactions—both affectionate and hostile—suggest the importance of understanding their development more clearly. One conspicuous gap in our knowledge concerns the individual differences in social behavior shown by siblings during infancy: both the studies of Abramovitch et al. (1979) and of Lamb (1978a; 1978b) focused on children of more than 12 months of age in interaction with older siblings. The importance of further research on infants' behaviors toward their siblings is highlighted by Lamb's (1978b) study which examined the interactions of infants at 12 months and 18 months with their preschool siblings. Lamb found that there was an increase over this period in the infants' participation in interactions, and that individual differences in the behavior of both the infants and preschoolers were stable over time. His results showed that the infants' behaviors at 12 months were good predictors of how the preschool-aged siblings would relate to them 6 months later.

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## Siblings and Sibling Rivalry

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### Glossary

**Complementary interactions** – Hierarchical exchanges in which one partner is invested with greater knowledge or authority as seen in parent–child interactions (e.g., teacher and learner roles).

**Differential parental treatment** – When parents' positive and negative treatment of their children is different for siblings in the same family.

**Reciprocal interactions** – Mutual and egalitarian exchanges typical of peer interactions, where both partners are invested with relatively equal levels of power and knowledge and can contribute to the interaction in fairly equal ways (e.g., during play).

**Sibling rivalry** – Siblings' resentment and jealousy typically associated with competition for parental affection, attention, and approval.

### Introduction

Family systems theorists, in particular Salvatore Minuchin, have conceptualized the family as a system of reciprocally interactive and interdependent subsystems (marital, parent–child, sibling) that together form the whole family system. Although there is a large literature on the importance of the marital and parent–child subsystems to family functioning, considerably less attention has been devoted to the sibling system. Yet, more than 80% of children growing up in North America have at least one sibling and during the early years children spend more time with their sibling than any other family member. Nevertheless, parents (but most research has only included mothers) exert a strong influence on the quality of sibling relations. In addition, for most individuals, the sibling relationship will be their longest and most enduring relationship over their lifetime. Historically, the significant role of siblings in the lives of individuals and families is acknowledged by their prominent place in myths, biblical and classical stories, religion, history, autobiographies, and literature.

In the twentieth century, clinicians and family systems theorists, particularly those working within a psychoanalytic tradition, such as Alfred Adler and David Levy, wrote about the role of siblings (and rivalry) in family life and personality development. Sibling rivalry was believed to

be the result of competition for parental attention after the second child's birth 'dethroned' the older sibling's position of importance in the family. Rivalry was manifested by jealous, agonistic behavior between the two children. This work was followed by research (mainly in the 1970s and 1980s, although there are still proponents of this approach today) emphasizing the role of structural variables (e.g., birth order, age, gender) in explaining why siblings differ from one another in their personality, temperament, intelligence, etc.

Since the 1970s or so there has been a shift away from examining the role of structural variables in sibling relations toward more process variables (e.g., understanding of the social world, relationship quality) with an emphasis on investigating types of interactions, the development of the sibling relationship in early childhood, and the influence of siblings on one another's development. As a case in point, research on the role of structural variables (birth order, number of siblings) in the development of children's theory of mind abilities is rather inconsistent; thus, more recent work has shifted to examining the role of process variables (e.g., relationship quality, pretend play) in explaining individual differences in theory of mind skills in early childhood.

### Relationships Theory and the Sibling Relationship as a Context for Development

Theoretical work on the development of relationships, as articulated by Robert Hinde and Judy Dunn, informs much of the empirical literature. The basic premise underlying relationship models is that children's development occurs within the context of close, intimate relationships. Hinde argued that relationships can be described by their reciprocal and complementary features. Reciprocal interactions involve mutual and egalitarian exchanges, typical of peer interactions, whereas complementary interactions are hierarchical exchanges in which one partner is invested with greater knowledge or authority as seen in parent–child interactions.

Sibling relationships are uniquely characterized by both reciprocal and complementary features. Specifically, differences in siblings' ages and development dictate differential roles (e.g., caretaking, teaching) that define complementary interactions and are characterized by instrumental assistance, instruction, and guidance.

Complementary interactions have typically been considered via structural variables (e.g., age, birth order) rather than by examining children's behavior; however, recent research points to the significance of individual differences in the complementary features of exchanges. Proximity in age also promotes egalitarian exchanges (e.g., play) that define reciprocal interactions as illustrated by mutual understanding and companionship. Reciprocal interactions may provide key opportunities for facilitating development as siblings co-construct shared meanings during mutual and returned exchanges characteristic of play and conflict. Mutual engagement may facilitate emotional support, particularly in times of stress, because children are uniquely positioned to understand their sibling's perspective and experiences. The processes inherent in reciprocal exchanges (e.g., common interests, perspective-taking) may be important for promoting children's interpersonal and cognitive development. Thus, Dunn has argued that the reciprocal features of interactions are the building blocks of relationships because of the opportunities that they afford children for understanding self and others. Yet, the role of complementary interactions in children's development is not to be underestimated.

The distinction between reciprocal and complementary interactions provides a somewhat artificial dichotomy between different kinds of sibling exchanges, since most interactions probably contain both reciprocal and complementary features. This suggests some limits to the practical usefulness of this distinction. For example, during play children may engage in a series of reciprocal and equal exchanges as they develop a pretend scenario together (e.g., assigning roles, creating scripts); however, there may be opportunities for the older child to teach the younger (e.g., how to build a wooden barn, or that pigs eat corn). The degree to which reciprocal or complementary interactions predominate differs across dyads, and may illuminate our understanding of sibling dynamics and potential mechanisms of influence on development. Further, sibling-relationship quality and children's competencies may influence the balance between these two types of interactions and the patterns of individual differences evident in sibling interactions. Wyndol Furman and Duane Buhrmester delineated a four-factor framework for describing sibling-relationship quality, namely warmth, conflict, rivalry, and relative power. Warmth, conflict, and rivalry are hypothesized to relate to the reciprocal features of relationships and relative power to the complementary features. Since these four dimensions are considered to be independent of one another, children may exhibit seemingly ambivalent combinations of behaviors in the same relationship; for example, interactions may be both intensely warm and conflictual. Sibling-relationship quality may also exert an influence on children's socioemotional understanding and interpersonal problem solving. Thus,

the sibling relationship provides an excellent window into studying young children's development.

### Shared and Nonshared Environments

One important question regarding siblings concerns the extent to which children's experiences in the family serve to make them similar or different. Originally, the assumption was that children in the same family were predominantly influenced by their shared environment; that is, by virtue of growing up in the same family, any existing genetic similarities would be magnified to make siblings even more alike. However, contrary to this hypothesis, siblings tend to be quite different from one another. For example, the average correlation between siblings on personality variables is about 0.15; given that siblings share up to half of the same genes, this relationship is surprisingly weak. In fact, studies comparing adoptive and biological siblings, as well as identical and nonidentical twins reveal that most environmental influences on siblings are nonshared. For instance, they estimated that 40% of variance in personality is due to genes, 35% to nonshared environment, 10% to error, and only 5% to shared environment. So, for those who study siblings, the important question has become: what environmental factors exert their influence 'differently' for young children in the same family? First, though some experiences do differ consistently between families (e.g., neighborhood, divorce, socioeconomic status (SES)), it is likely that these experiences influence siblings in dissimilar ways. In fact, 69% of shared but unusual events during childhood are experienced differently by two siblings (based on their temperament, developmental level, birth order, etc.). Further, siblings engage in ecological niche-picking, and thus take on complementary nonoverlapping roles in the family. Other factors that contribute to differences between siblings include different relationships with parents, with peers and teachers, gene-by-environment interactions, and general idiosyncrasies of each child's experience. Finally, one important factor is siblings' differential relationships with each other. Whether one grows up with an older or younger sibling is associated with different experiences. Furthermore, there is no guarantee that siblings will be equally friendly or unfriendly with one another, and these inequalities will certainly contribute to children's differential experiences and later socioemotional outcomes.

### Summary of the Introduction

Certainly, the sibling relationship is an integral part of most children's social worlds. Given their extended history of shared experiences including highly affectively intense prosocial and negative exchanges, siblings have an important socializing influence on one another's development. In early childhood, four major characteristics of

the sibling relationship are prominent. First, sibling relationships are emotionally charged and defined by strong, uninhibited emotions of a positive, negative, and sometimes ambivalent quality. Second, sibling relations are defined by intimacy; since children spend large amounts of time together, they know each other very well. This long history and intimate knowledge translates into opportunities for providing emotional and instrumental support for one another, engaging in pretend play, in conflict, and for understanding others' points of view. Third, there are large individual differences in sibling-relationship quality. In addition, the age difference between siblings often makes the issues of power, control, and rivalry a source of contention for children. Fourth, environmental effects on children's development are mostly nonshared between siblings, and thus researchers are investigating the processes that serve to make brothers and sisters different. These characteristics sometimes make sibling relations challenging for parents to deal with on a daily basis, because of the emotional and highly charged nature of the relationship and the potential for differential parental treatment.

In the sections that follow, issues related to the birth of a sibling and the transition to siblinghood over the infant and toddler period are discussed. Then the features of sibling interactions over the preschool period, along with the influence of parents on these interactions are addressed. Finally, the limitations of current knowledge are discussed.

### **Birth of a Sibling and the Transition to Siblinghood**

The birth of a second child launches a time of major changes in the functioning of the family system and the nature of interpersonal relationships between parents and children. Of course, this transition marks the beginning of the sibling relationship. The transition from one to two children, who are frequently close in age, signals a time of adjustment for all family members. Several longitudinal studies have charted the initial reactions and adjustment of the older child and the development of the sibling relationship over the infant, toddler, and preschool periods. Judy Dunn and Carol Kendrick conducted a naturalistic observational study of early sibling relations in British families beginning 1 month prior to the arrival of the new sibling, and again at 1, 8, and 14 months after the birth. Their findings form the backbone of our knowledge, which is complemented by other longitudinal studies, such as Robert Stewart's work on the transition to siblinghood.

Firstborn children generally have marked affective responses to the birth of a sibling, although individual differences in the range and intensity of affect have been noted. Compared to before the birth, firstborns

exhibit a combination of positive (e.g., interest, affection, imitation of the baby) and negative behaviors (e.g., clingy, demanding, confrontational, distress), perhaps indicating their overall ambivalence to the event. Older firstborn siblings (age 3–4 years) engage in more mature behaviors such as greater self-help skills and assisting with the newborn, whereas younger firstborns (age 1–2 years) are frequently more distressed and clingy. Mothers report that at 1 month after the birth of the sibling, firstborns often have problems with toileting and sleeping, engage in baby talk, and are more confrontational and deliberately naughty, particularly when the mother is feeding or caring for the infant. Children may be jealous of the attention that the newborn receives by engaging in more negative behavior. Further, some boys respond by withdrawing after the birth of the sibling, whereas girls show more dependent behaviors (e.g., clingy, fussy, greater use of pacifier or bottle). Problematic behaviors are more evident in same-gender dyads. Certainly, mothers are less available to the older child once the baby arrives, but many mothers attempt to involve the older child in the care of the younger one, partly to ease this decrease in attention and involvement.

Yet, most firstborns respond quite positively to the birth of a sibling and, within several months, the more overt negative responses typically decrease significantly. The older sibling's initial confrontational behavior decreases by the time the younger sibling is 4 months old; however, at this time, firstborns show more anxious behaviors. By 8 and 12 months, firstborns' confrontations are more likely to be directed to their increasingly mobile and intrusive younger sibling than to the parents. The temporary nature of the more overt negative behaviors may be a response to a number of changes that the firstborn may experience after the birth of a sibling, including changes to their physical environment (e.g., new room, new furniture, or having to share a room); a decrease in maternal availability and her preoccupation with the newborn; the initial separation when mother is in the hospital and the presence of less familiar adults (e.g., grandparents, babysitters) who focus their attention on the newborn; the development of new family routines reflecting the dynamics of three vs. four members; and, helping the newborn to achieve a regular pattern of sleeping and eating.

The firstborn's initial adjustment to the birth of a sibling and the transition to siblinghood appears to be tempered by several factors, including their own level of cognitive understanding. Preparing the older sibling in advance of the birth is a frequent parental strategy and may include reading books about babies and families, having contact with other families with young infants, talking about the impending changes, and/or attending a sibling preparation class offered by a hospital or community public health program. Children who attend such classes are reported to exhibit fewer negative problems

after the sibling's birth and mothers also coped more effectively with the child's negative behaviors, perhaps because they were also prepared for the range of the firstborn's possible reactions. Parental support is also critical for the firstborn's adjustment; maternal support for older sisters who exhibit high distress prior to the birth helps them to alleviate some of the stress following the birth. Fathers' support is also important, particularly after the birth when the mother may be preoccupied with the infant. Finally, having a strong friendship with a playmate who enjoys engaging in shared pretense may be a positive buffer for the older sibling's transition and acceptance of a younger sibling.

In sum, the empirical evidence is weak for the clinical (psychoanalytic) view of 'dethronement' of the older child after the arrival of the younger sibling as setting the stage for jealousy and sibling rivalry. In fact, as outlined below, the literature focusing on siblings' influence on each other and the development of their relationship suggests that other processes are equally relevant to children's development.

### **Development of the Sibling Relationship over the First 2 Years**

Our knowledge of the early development of the sibling relationship has been greatly enriched by several longitudinal studies that have charted the processes implicated in the quality of sibling relations and the role of parents (especially mothers). Links between the older child's initial reaction and the development of the quality of the sibling relationship are evident over time; namely, friendlier sibling relations at 14 months are associated with firstborns who are initially interested (and not withdrawn) and who imitate the newborn.

Maternal interaction with the firstborn is also a critical factor associated with later sibling-relationship quality. Specifically, both (1) intense close relationships between mothers and older sisters at the time of the sibling's birth, and (2) between the mother and the secondborn at 8 months were associated with less friendly sibling relations at 14 months. Since we know that siblings direct less interaction to one another in the presence of a parent than when alone, these patterns may suggest that intense maternal closeness and very frequent interaction with the children does not allow youngsters the opportunity or emotional space to construct a positive and friendly sibling relationship on their own. In contrast, when mothers and daughters engage in frequent verbal confrontations after the baby's birth (but less frequent interaction), by 14 months the sibling relationship was positive and friendly. Thus, interestingly, a very close, nonconflictual relationship between mother and firstborn child does not seem to promote friendly sibling interaction, but

rather the opposite. Related to this point, when mothers experienced fatigue and postnatal depression, by 14 months the sibling relationship was positive and friendly. This pattern suggests that in the absence of maternal attention or intimacy, siblings may have turned to one another as sources of interaction and interest, perhaps to buffer the lack of maternal emotional involvement.

On the other hand, some maternal behaviors are positively associated with the development of a friendly sibling relationship. For example, mother and firstborn's discussion of the newborn's internal states (feelings, desires, infant as a person) is positively associated with a friendly sibling relationship over time. Mothers who discuss internal states are also more likely to engage in pretense with the children, to enlist the older sister in caretaking, and to use language for complex purposes (e.g., comparisons, generalizations, explaining intentions and motives, and providing justifications in disciplinary situations). This maternal style may be a key process in helping older siblings to consider their younger sibling as a person with feelings, desires, intentions, and to be sensitive to their emotional needs and behavior. Apparently, siblings growing up in families where mothers employ such a verbal style are more likely to develop a friendly relationship, which is already evident by the time the younger sibling is 1 year old.

In sum, as younger siblings enter their second year, there are two critical features that highlight the nature of the sibling relationship. First, the salience of siblings for one another is apparent as seen in the younger sibling's high rates of imitation of the older's actions and language (27% of all interactions as reported in one Canadian study). These imitative acts along with frequent episodes of joint play suggest that siblings are often highly desired play partners for each other. Second, the marked affective tone of the interactions, particularly as the younger sibling becomes a more active and verbally skilled dyadic partner, cannot be missed. Sibling exchanges in the reciprocal (joint play, cooperation, affection) and complementary (comforting, teaching, helping) aspects of their relationship can be both positive and negative in tone. Some sibling relationships are characterized by frequent prosocial interactions, while others are more agonistic in tone; finally, some relationships are affectively mismatched (i.e., older sibling is more negative and younger child is more positive). Dunn reported that 22% of interactions when the younger sibling was 14 months old were defined by the older sibling's negative behaviors and the younger sibling's friendly behaviors. Clearly, the range of affective contexts that siblings co-construct may have an impact on the ways that they influence one another's development. The reciprocity evident in all of these interactions reflects how well siblings come to know each other and their pragmatic understanding of one another's likes, dislikes, how to tease and annoy one

another, etc. During the second year, younger siblings engage in observer/follower roles, whereas older siblings are leaders during play situations and initiate invitations to play, create, and control pretense scenarios. As discussed below, distressed younger siblings may turn to older siblings (especially sisters) for comfort. The developmental implications of these two features of their relationship become evident as the younger sibling enters the early childhood period.

### **Sibling Relationships in Early Childhood**

Clearly, sibling relationships are dynamic and reciprocal from their inception. Nevertheless, as younger siblings enter their third year of life, they become more active and interesting relationship partners for their older siblings. As such, at this age, mothers tend to withdraw from their mediating role in sibling interaction, and siblings spend more time interacting with each other than with their mother. During early childhood, there are various striking features of sibling dynamics. Research has typically focused on the negative aspects of sibling relationships, such as rivalry and conflict, given their implications for later development. However, sibling relationships are also characterized by play, prosocial behavior, caretaking, and teaching, which contribute in important ways to later social, cognitive, and affective development. Each of these features of relationships is discussed in turn.

### **Rivalry**

As described above, the birth or arrival of a new sibling can precipitate strong negative feelings in their older brother or sister and in some cases, sibling rivalry continues into the early childhood years. To some degree, this resentment may be based on valid perceptions, as there is evidence that laterborn children tend to be somewhat favored by mothers. Mothers are more responsive, verbal, controlling, and emotionally expressive with their younger children, though they may be more consistent with same-sex pairs. In fact, about half of mothers in North American and British samples reported feeling more affectionate toward their younger child, whereas less than a quarter of mothers reported feeling more affectionate toward their older child. Although mothers may behave and feel differently toward their two children at any one particular time, they apparently behave in similar ways toward their two children when those children reach the same developmental age. In fact, paying more attention to the younger child makes sense, as they do require more care. However, only the older child is privy to the enhanced attention and affection that mothers show to younger children, and thus is selectively affected by this experience. Related to this point, parental differential treatment has negative effects

only when children perceive differences in treatment as unfair. About 50% of children perceive that they are treated differently than their sibling (either better or worse). In this case, the degree of differential treatment during childhood is related to a number of negative outcomes, including concurrent internalizing (i.e., directed inwards toward the self such as depression, anxiety) and externalizing (i.e., directed toward others such as aggression, disruptive or argumentative behavior) problems as well as a diminished sense of self-worth. Differential treatment predicts self-worth even after controlling for initial differences between children, suggesting that though differential treatment may occur partly because children are different, it also contributes uniquely to adjustment. Furthermore, differential treatment (especially by fathers) is negatively associated with sibling-relationship quality. This is true for both siblings, even the child who is favored. However, as suggested above, when children perceive differential treatment as fair, this is linked to more positive sibling relationships. Finally, longitudinal studies reveal that differential treatment during childhood predicts maladjustment and delinquency in adolescence. Differential treatment may be especially problematic when children are insecurely attached or family stress levels are high.

Siblings of children with disabilities are especially likely to experience differential treatment, due to the special needs of their brother or sister. However, when children are cognitively sophisticated enough to recognize the need for differential treatment, there are no negative outcomes. In contrast, in two-child families, sibling rivalry is more pronounced than in families with three or more children. Children are also more hostile toward their sibling with a disability when their parents have ambivalent attitudes toward that sibling. Although siblings of children with disabilities may get less parental attention, they may also benefit in other ways. For instance, while mothers employ more power-assertive discipline techniques with their child with a disability, their siblings are more often the recipients of reasoning and compromise strategies.

In more general terms, competition and social comparison between siblings clearly occur from the beginning of their relationship. Older siblings may respond to as many as 75% of interactions between their mother and baby sibling (usually with protests or demands for attention). Similarly, beginning around 14 months of age, younger children pay close attention to interactions between their mother and older sibling. After their third birthday, younger children become increasingly adept at intervening in these conversations and turning them around to serve their own interests. Finally, when children describe conflictual events that occurred between themselves and their siblings, they tend to compare themselves favorably to their brothers and sisters. They often claim that their sibling engages in more harmful actions overall and provide more justifications for their own negative

actions than those of their sibling. Furthermore, these relative differences in appraisals of self and sibling are at least partially due to children's deliberate attempts to manage the impressions of others. Naturalistic observations of sibling interaction support this claim, as children's lies tend to be self-serving in nature, and are commonly used to avoid responsibility and falsely accuse one's sibling. For preschool children, tattling is also a means to report selectively on sibling misdeeds. Thus, social comparison and competition between siblings are salient facets of the relationship.

### Conflict

Sibling conflicts in early childhood are frequent, poorly resolved, and can sometimes be emotionally intense, aggressive, or violent. Estimates of the frequency of sibling conflicts during the preschool years vary from about 3 to 10 times per hour. When sibling conflict occurs, over 80% of disputes end either without resolution or with the submission of one child, typically the younger sibling. Thus, constructive resolutions such as compromises and conciliation occur infrequently.

However, sibling conflict is not necessarily aggressive and hostile, and has the potential to contribute positively to development, particularly if we consider the differences between constructive and destructive conflict-resolution strategies. Constructive strategies include reasoning, enhancing understanding between parties, and attempting to reach collaborative resolutions. Destructive strategies involve hostile or aggressive behaviors and becoming entrenched in one's own position, which result in conflicts being left unresolved. Thus, conflict resolution can be a useful context for learning skills critical to social competence. Specifically, when in conflict, children are faced with competing perspectives that are incompatible with their own. As such, divergent beliefs, goals, intentions, and motivations are made salient, helping children learn to differentiate their own perspectives from those of others. In support of this point, siblings often refer to internal states (goals, beliefs, etc.) while in conflict, which is linked to children's ability to develop shared meanings in other contexts (i.e., pretend play). Furthermore, sibling conflict may help children to improve their interpersonal relationships as they coordinate perspectives with those of others. Indeed, an intervention program aimed at improving understanding between siblings, promoting positive play interactions, and improving conflict-resolution skills resulted in friendlier sibling relationships with less rivalry and conflict.

Given the above, it is not surprising that sibling conflict is one of parents' biggest concerns about their children's behavior. There are competing arguments regarding the benefits and drawbacks of parental intervention into sibling conflict. On the one hand, it is important for children to develop conflict-resolution strategies on their own, as these

skills have been found to have numerous later benefits including improved social understanding, relationships with friends, and school adjustment. For instance, there is evidence that siblings help children develop their use of justifications in the context of disputes; thus, parental interventions may deprive children of the opportunity to learn these skills. In fact, some parental interventions actually make disputes worse. When mothers are present, conflicts last longer and children may behave in more combative ways. Thus, intervening may provide positive reinforcement for attention-seeking conflictual behavior; however, other studies suggest that children are 'less' combative when mothers are present.

The proponents of intervention claim that parental involvement in sibling conflict may have numerous positive results. Parents usually intervene when conflicts are extended in duration, particularly aggressive, or when property has been damaged. Parental involvement under these circumstances, beyond simply keeping children safe, may help to reduce tension and uphold family rules. In addition, those who argue against intervention assume that siblings will learn and use positive conflict-resolution skills on their own, which is not necessarily the case. Given that there is an inherent psychological and physical power differential between siblings, older siblings may not learn that power-assertive strategies are an unsatisfactory way to resolve conflicts. On the other hand, intervening by consistently punishing the older child and supporting the younger may actually lead to 'increased' aggression. Thus, though results are somewhat mixed, parental socialization of positive conflict behaviors may be necessary. Indeed, more frequent maternal interventions are associated with a number of immediate positive changes in conflict behaviors by the children.

Clearly, beyond the question of whether parents should intervene into their children's conflicts, some types of interventions may be more beneficial than others. Maternal discussion of rules and feelings, other-oriented reasoning, and intervening (but leaving the final solution up to the children) are linked to children's later use of constructive conflict strategies. In contrast, self-oriented reasoning and punishment are linked to children's later destructive strategies. Thus, the nature of maternal interventions may be related in specific ways to children's later conflict-resolution styles indicating one way that parents influence siblings' behavior. Intervention studies involving mediation training for parents also provide concrete support for the notion that constructive parental interventions have a number of positive outcomes on siblings' conflict-resolution strategies. Siblings exposed to mediation talk more about emotions, are less negative during conflict negotiations, and have a better understanding of their sibling's perspective. In addition, secondborn children exposed to mediation are more likely to provide justifications and initiate solutions, suggesting that they



have been empowered to participate more fully in the conflict-resolution process.

Beyond parental interventions into sibling conflict, other features of family relationships are related to the nature of sibling disputes. Specifically, parent-child and marital conflict, overcontrolling mothering, and insecure attachment are linked to sibling conflict. In contrast, parental alliances, positive marital relationships, and family cohesion are associated with less negativity in the sibling relationship. Individual characteristics of parents and children are also related to the quality of the sibling relationship; when parents exhibit more negative affectivity, sibling relationships are less positive and more negative. Further, children (especially older siblings or children with negative parent-child relationships) who have highly active, emotional temperaments and who do not adapt easily to change, engage in more sibling conflict. Temperamental mismatch between siblings is also associated with conflict, and fights are more frequent in same-gender dyads than in mixed-gender pairs, although this may be especially true of boys. Girls also tend to be more submissive in conflict than boys, consistent with literature suggesting that they are socialized to be less assertive.

Instances of sibling abuse and violence go beyond the normal range of conflictual behaviors between young children. However, unfortunately many cases of abuse go unreported as they are misperceived as 'normal' sibling rivalry. Extremely aggressive and hostile sibling conflict has been linked to later adjustment problems (e.g., conduct disorder), psychopathology (anxiety and depression), and academic problems, as well as later violent, aggressive, and delinquent behavior. This may be especially true for boys. In fact, sibling interaction can be a potent training ground for coercive behavior. Further, younger siblings seem to learn aggressive behavior from older siblings, though overall, older siblings are more aggressive than younger siblings. Sibling relationships tend to mirror other relationships later in life; children who are violent toward their siblings tend to be violent toward others as they get older, whereas children who are victimized by their siblings tend to be later victimized by their peers, but also themselves to be more aggressive toward others.

Sibling abuse and violence are more likely to occur when parents do not effectively monitor their children and are also linked to child abuse by parents, parental abuse history, maternal deprivation/rejection, extreme parental differential treatment, unhappiness, helplessness, children's medical illness, and parental condoning of abusive behavior. Sexual abuse occurs most frequently at the hands of a much older brother. The correlates of sexually abusive sibling relationships tend to be similar to those described above for physical abuse, but also include parental encouragement of a sexual climate in the home, family secrets, parental childhood sexual abuse, and rigid family rules regarding the denial of emotions.

To summarize, although sibling aggression and abuse is associated with negative outcomes, less extreme sibling conflict and negative affectivity are relatively normative aspects of this relationship, and may even contribute positively to children's development. However, the sibling relationship is also characterized by a number of positive features, to which we now turn.

### **Play and Prosocial Behavior**

By the time the younger child is age 3, siblings turn to each other as play partners and spend more time playing with one another than with their mother. Prior to this, mothers are often actively involved as a partner in the children's play or support the children's playful and prosocial interactions through guiding, making suggestions, or talking about positive ways of interacting. However, as the younger sibling becomes more socially and cognitively competent, mothers take on a less directive and more supportive secondary role and allow the children greater opportunities to play by themselves.

Siblings are more desirable as play partners than mothers for several reasons. Older siblings probably experience greater intrinsic pleasure in playing, especially engaging in pretense, than do mothers. Certainly, friendly, cooperative behavior by the older sibling is reciprocated by the younger both contemporaneously and longitudinally over the preschool years, particularly in same-sex dyads. Older siblings (especially sisters) initiate about 65% of the prosocial behaviors, although younger siblings increase the frequency of these behaviors over this time period. In fact, when preschoolers direct cooperative behaviors toward their younger sibling, the latter are also more likely to be cooperative, conciliatory, but also to engage in more teasing behavior. Teasing certainly reflects the degree of intimacy between siblings and their shared history, because to be successful the teaser must be able to understand the sibling's point of view, have an awareness of his/her weaknesses, desires, and intentions, and be able to anticipate what will annoy the other. This knowledge apparently comes partly via close, frequent, and prosocial interactions. Thus, a warm and supportive sibling relationship provides a developmental context for promoting prosocial interactions such as sharing, cooperation, nurturing, teaching, comforting, good-natured teasing, and loyalty, which may foster emotional understanding, moral sensitivity, and understanding of the sibling's capabilities and point of view. Over early childhood, sibling friendliness and aggression are quite stable, particularly for older siblings, but interestingly it is especially the lack of a positive and warm relationship, even more than the level of conflict, that best predicts maladjustment in children. In sum, positive, friendly sibling relationships in early childhood are associated with adaptive functioning later in life.

Due to their shared history, siblings know each other intimately and have constructed a body of shared knowledge that makes them desirable play partners. Older siblings become quite skillful in creating scaffolds for enticing their younger sibling to enter collaborative play, partly due to their knowledge of their sibling's interests. For example, older preschoolers employ a range of complex strategies (e.g., invitations, descriptions, extending, building-on to ideas) to draw their sibling into and sustain their engagement in play, whereas younger preschoolers rely more on paralinguistic cues (e.g., play voice, sounds) and simple strategies (e.g., calls for attention, repetitions). Initially, the older sibling takes the lead in negotiating and enacting the role play; older firstborns are more likely to draw the younger sibling into the play than are younger firstborns. However, as the younger sibling's cognitive, linguistic, and cooperative skills increase after age 3, they begin to initiate more games and to take an active and sustained role in the creation of reciprocated play, particularly during pretense.

Many sibling dyads spend a considerable amount of time engaged in joint pretend play, although there are large individual differences in the frequency and sophistication of dyadic sibling pretense. In fact, sibling dyads who engage in frequent pretense appear to approach the play situation differently compared to dyads who are less interested in pretend play. The former employ a greater number of the sophisticated strategies described above to create shared meanings in the play. Frequent pretenders also engage in significantly more high-level negotiations regarding assignment of pretend roles, object transformations, and scaffolding ('Let's pretend...'). In contrast, dyads who engage in less pretend play focus on the set-up of the concrete play props (figurines, houses, animals), are more likely to become distracted, and are more interested in control issues, thus engaging in more frequent agonistic behavior. This is not an approach conducive for the development of sophisticated joint play; in contrast, dyads who engage in frequent pretense appear to use strategies reflective of sophisticated social cognitive skills.

In fact, the frequency of pretend play between siblings has been associated with the development of children's understanding of their social worlds. For example, dyads who engage in pretend play are more likely to use internal state language (references to emotional, mental states) during their pretense negotiations and while scaffolding. It may be that children who are adept at understanding other's internal states are effective play partners, because they are sensitive to the sibling's ideas, thoughts, and conceptions about the world, all of which create a context conducive for developing joint pretend scenarios. Moreover, individual differences in the propensity to engage in pretense with one's sibling are related to the development of greater social understanding (e.g., affective perspective taking) over the preschool period.

The evidence concerning the association between the frequency of sibling pretend play and sibling-relationship quality is inconsistent. Engaging in pretend play has been positively associated with both friendly and agonistic sibling relationships, while some authors report no associations or a negative association between frequency of play and negative affect expressed in the play context. More frequent sibling conflict appears to be negatively associated with the frequency of pretend play, suggesting that the nature of children's disagreements does not produce a context conducive for joint play.

### Sibling Caretaking and Attachment

When laterborn siblings reach the early childhood period, elder children in the family often play important caretaking roles for their younger brothers and sisters. Though these roles are rarely formalized in Western industrialized societies, sibling caretaking is a critical childhood task in many other cultures. For instance, one study conducted in the 1970s found that in fewer than 20% of 186 societies, mothers acted as primary caregivers for their young children. In about 25% of societies, older children (mostly females) acted at least occasionally as caregivers for younger children. Cultural conditions associated with sibling caretaking include larger family size, lineal descent and residence patterns, an emphasis on family and community cooperation in tasks and chores, and a daily routine that results in the presence of child caregivers. Sibling caretaking is a valued task, not only because it frees parents to engage in work activities, but also because it prepares children, especially girls, for their later adult roles and may promote their sense of self-esteem, prosocial behavior, and interdependence. Although even very young caregivers (i.e., 3-year-olds) can be gentle and nurturant in their caretaking, they tend to largely imitate caregiving patterns of adults. As such, younger children may learn values, skills, and knowledge from their siblings in these contexts.

Though sibling caretaking in industrialized societies may occur less frequently (especially in the early years), it certainly exists, but may be a more informal and infrequent role for children. For instance, in one study of preschool-aged siblings, when their siblings were in distress, children only responded in a comforting way about 10% of the time (or 20% if they themselves were the cause of the distress). However, in unfamiliar situations (e.g., a university laboratory) preschoolers may be more likely to respond to their younger sibling's distress by approaching or hugging them, particularly when they have been talking about internal states with their younger sibling. In these cases, younger siblings may approach and seek comfort from their older brothers and sisters. In other unfamiliar settings (e.g., outdoor backyard), in the presence of their older siblings, infants

left their mother sooner, explored more frequently and independently, and displayed less distress. As such, there is interesting evidence that at least some older siblings may be a secondary attachment figure for their younger brothers and sisters. In Western cultures, outcomes of caretaking are generally positive. Specifically, sibling caretaking is negatively associated with anxiety and depression in normative samples.

One final context in which sibling caretaking has been reported is for children of siblings with disabilities. Typically, these children engage in more helping, caretaking, and teaching behavior than children whose siblings are not disabled, which in some cases has been positively associated with their anxiety and depression. However, as opposed to quantity of caretaking, the quality of their sibling relationship and especially the degree to which their sibling with a disability is aggressive toward them may be more strongly associated with negative outcomes for the typically developing child. Furthermore, birth order, temperament, and gender, as well as parental marriage quality and attitudes appear to moderate the links between caretaking and children's adjustment. Thus, there is not a clear-cut relationship between caretaking for siblings with disabilities and children's adjustment, and children exhibit a great deal of variability in this regard. Overall, the meaning and outcomes of sibling caretaking likely depends on the frequency and context in which it occurs.

### **Sibling Teaching**

The literature on sibling teaching has been largely guided by the work of the Russian psychologist, Lev Vygotsky. He believed that teaching and learning occurred within the zone of proximal development; namely, with the guidance and encouragement of a more skilled individual (usually an adult), the child is able to accomplish a task that he/she would not be able to do independently. The knowledgeable person guides or scaffolds the less knowledgeable child (e.g., provide hints, suggestions) so that this child can successfully learn to complete a task. In this respect, the pairing of an older and a younger child affords an excellent context for the younger, less-experienced child to acquire knowledge and develop skills. This may be true of both sibling pairs and mixed-age peers. Nevertheless, older siblings are particularly important socialization agents for younger children, given their history of collaborative interactions and the emotional intensity of the relationship. In support of this argument, younger children are more likely to solicit teaching from older siblings than from older peers and are more likely to participate actively in the teaching process. They also learn more from older siblings than from older peers, which may be partly due to the

fact that the former provide more extensive explanations, feedback, and spontaneously instruct and correct their younger sibling more often than the latter. Apparently, older siblings are comfortable assuming the role of teacher, while younger siblings take on the corresponding role of learner during interaction.

The small literature on sibling teaching in a Western cultural context reveals considerable individual differences in children's tendencies to use strategies such as verbal instruction, physical demonstrations, control, and learner involvement in the task. To some extent, these differences are related to age and birth-order effects. Chronologically older sibling teachers use more verbal instruction and encourage learner involvement. However, older teachers also tend to be more controlling than younger teachers. Preschoolers tend to mainly demonstrate during instruction. Nevertheless, even preschool-aged sibling teachers (when supported by their mothers) are able to provide instruction to their infant sibling, to capture the younger child's attention and to modify instructions based on the infant's responses. In addition to developmental effects, birth-order differences in sibling teaching are also evident. Firstborn children use more frequent and varied strategies for teaching their younger siblings when the age gap is larger rather than smaller. Furthermore, secondborn teachers are more likely to involve the firstborn learner than vice versa. On the other hand, firstborn teachers tend to be more controlling. These results are consistent with the idea that placing a high-ability child in a novice role and a lower-ability child in an expert role may facilitate more collaboration and joint construction than in pairs where the lower-ability child is the novice.

The relationship between gender and sibling teaching is inconsistent; sometimes school-aged girls are more likely than boys to teach and use a positive style of guiding; however, sometimes there are no gender differences. Many older sisters in the early school years employ an inductive method (i.e., explaining rules, describing with examples), particularly with younger brothers. In contrast, older brothers employ a deductive method (i.e., providing examples for learners to deduct the rules on their own with varying amounts of teacher help). Interestingly, older sisters provide less feedback, perhaps because their teaching style is already more informative and responsive to the younger sibling's learning.

Unfortunately, we know little about how sibling teaching transpires naturalistically in the home setting, although there is some evidence to support the notion that it occurs, in particular that older siblings (but not younger) frequently engage in this behavior. Most of their teaching behavior involves instructing their siblings in procedural skills (e.g., for playing games or use of objects). However, older siblings also sometimes teach their younger brothers and sisters verbal skills and concept knowledge (e.g., labels, numbers).

Furthermore, during play children do not often engage in direct teaching, but it is clear that a great deal of socialization occurs in this context. Namely, older siblings engage in talk about social rules and expectations, direct attention, provide missing perceptual information, use non-verbal cues, and construct simple messages. As such, they may promote more advanced levels of play in their younger brothers and sisters. Older siblings are prone to emphasizing their own competence relative to their siblings and can be highly critical, hence providing clear and unambiguous teaching messages and making the younger child's incomplete knowledge salient. In contrast, adults tend to be more subtle and less critical. Thus, interestingly, it has been argued that when older siblings try to 'show off', they may be effectively socializing their sibling. In fact, children's interactive play with older siblings tends to be more sophisticated than with adults. Younger children pay close attention to their older sibling's cues, imitate frequently, follow directions, and request help, again suggesting the potency of the relationship for influencing siblings' development.

Cross-cultural research reveals that the form and content of sibling teaching varies as a function of cultural practices, beliefs, and values. For example, ethnographic research examining Mayan children's sibling teaching reveals that they teach their sibling important everyday tasks (such as making tortillas) using a distinct teaching style. This style consists of observational learning that incorporates scaffolding and contextualized talk, as well as physical closeness between teacher and learner, the expectation of obedience, and the possibility of multiple teachers. As such, verbal instruction is less important in this context than in Western culture or a formal school setting.

## Limitations

There are a number of important limitations in the extant empirical literature on sibling relationships and sibling rivalry. First, the vast majority of research has been conducted on Caucasian, middle class, Western (British, Canadian, US) intact families. Unfortunately, we know little about the development of sibling relationships in other cultures or demographic groups. The nature of sibling relationships may possibly differ in more collectivistic cultures (e.g., Latin America) vs. the less collectivistic cultures of the industrialized West. Nor do we know much about how sibling relationships may vary within minority ethnic or linguistic populations in the West (e.g., Hispanic, French, South Asian), or rural or urban populations, etc. Only recently have researchers examined the quality of sibling relations between step- and half-siblings in nontraditional families (e.g.,

single parents, divorced). Second, researchers have not addressed the nature of sibling relationships in families with more than two children, thus there is no empirical evidence on the dynamics of families with three or more children. For example, the kinds of interactions that might exist between first- and thirdborn or second- and thirdborn siblings remain an open question. Third, in many studies the age gap between the children is confounded with the age of one of the siblings, thus we know little about the effects of this variable on the quality and types of sibling interaction. Fourth, although there is a small literature on the sibling relationships of children with a physical or intellectual disability, the impact of this experience on family and sibling functioning is a neglected area of research. Most studies rely on parental reports or employ questionnaire/interview methods and there are few naturalistic observational studies examining sibling interactions in these special populations.

## Conclusions

In conclusion, the sibling relationship has been described as a natural laboratory for very young children to learn about their social worlds and social relationships. The sibling relationship is a safe and secure context in which to learn how to manage the positive and negative aspects of interaction with a partner who is close in age and with whom one has a shared, intimate, and affectively intense history. There are many opportunities to learn how to handle disputes in constructive ways and to regulate both positive and negative feelings in socially acceptable ways within the family context. In interaction with their sibling, youngsters develop an understanding of social relations with a partner who may be warm and affectionate one minute and nasty and aggressive the next. Certainly, the range and intensity of affection between siblings may be stronger than in any other relationship that young children experience. Further, the sibling relationship affords many opportunities for young children to foster their social cognitive skills to understand others' point of view, engage in prosocial behavior and play, imitate, teach, engage in caretaking and affectionate behaviors, and use their powers of persuasion. The positive benefits of constructing a warm and positive sibling relationship may last a lifetime, whereas more difficult or ambivalent early relationships appear to be associated with a poor developmental trajectory for children. The task for young siblings is to achieve a balance between the positive and negative features of the relationship as they develop over time.

See *also*: Attachment; Birth Order; Empathy and Prosocial Behavior; Play; Social Interaction; Temperament.

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## Relevant Website

- <http://www.excellence-earlychildhood.ca> – Centre of Excellence for Early Childhood Development.

## SIDS

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## Glossary

**Apnea** – Stopping breathing. This usually refers to a breathing pause at least 20 s in duration.

**Bedsharing** – An infant sleeping in the same bed with one or more other people.

**CHIME study** – Collaborative Home Infant Monitoring Evaluation research project. This was a multicenter research study, funded in the National Institutes of Health in 1991–99. The study used custom-designed home monitors to study breathing, heart rate, and oxygen in over 1000 infants in their own homes during the first 6 months of life.

**Electrocardiogram (ECG)** – A diagnostic test to assess the rhythm and structure of the heart.

**Home apnea–bradycardia monitoring** – Commercial devices which monitor breathing and heartbeat, sounding a loud audible alarm when breathing stops for a designated time (usually 20 s) or heart rate falls below a designated rate. These monitors are designed to alert caregivers when a baby stops breathing or heart rate falls.

**Hypercapnia** – Abnormally elevated carbon dioxide levels in blood or tissues. Blood CO<sub>2</sub> is a measure of the adequacy of breathing, and hypercapnia indicates inadequate breathing or respiratory failure.

**Hypoxia** – Abnormally low oxygen levels in blood or tissues.

**Intrathoracic petechiae** – Pinpoint hemorrhages on the surfaces of organs in the chest. These are commonly seen in sudden infant death syndrome victims, but unusual in other causes of infant death.

**Overlaying** – Smothering an infant by lying on it during sleep.

**Polymorphisms** – Variations in gene structure that occur as variants in a normal population. These polymorphisms may be associated with quantitative variations in gene function that may predispose to disease.

**Prone sleeping** – Sleeping on the stomach.

**Sudden infant death syndrome (SIDS)** – The sudden unexpected death of an infant, under 1 year of age, with onset of the fatal episode apparently occurring during sleep, that remains unexplained after a thorough investigation, including performance of a complete autopsy, and review of the circumstances of death and the clinical history.

**Supine sleeping** – Sleeping on the back.

## Introduction

And this woman's son died in the night . . .

1 Kings, 3: 19 (~950 B.C.E.)

Sudden infant death syndrome (SIDS) is the sudden unexpected death of an infant under 1 year of age, with onset of the fatal episode apparently occurring during sleep, that remains unexplained after a thorough investigation, including performance of a complete autopsy and review of the circumstances of death and the clinical

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## HOSTILITY PATTERNS IN SIBLING RIVALRY EXPERIMENTS\*

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AT THE 1933 meeting of this association, I described experiments with children in the form of standardized situations for the study of sibling rivalry. The method utilized has, since then, been published in the *Journal*,<sup>1</sup> to which the reader is referred for details. Three series of experiments were described at that time. In the first, the sibling rivalry situation (mother, baby, and brother or sister doll) was presented with no suggestion as to the direction of activity. In the second series, the hostility of the child was activated after exposure to the situation under the conditions of the first series. That is, the child was exposed to the mother-child situation, told that the brother sees the baby for the first time, and asked, "What does he (or she) do?" After one or more trials, usually three, activity was stimulated by the words: "When the sister (or brother) saw the baby she thought, 'The nerve, at my mother's breast'." A third series was described in which the amputation doll alone was used as a direct substitute for the rival sibling.

Since that time (1933) attempts have been made to increase the accuracy of standardization. The use of an amputation doll as the rival brother or sister (Series III) has been eliminated. Series I and II are considered as complementary experiments. So far, about 60 sets of experiments have been accumulated. In all of them, exposure to the standardized situation of mother-baby-brother without activation of hostility was first utilized. Certain minor differences in method occur. Ideally, of course, all experiments in which the methods have not been identical should be eliminated. This has not been found necessary because of the essential similarity in the activity, in spite of certain errors in standardization of the material and the words used to incite hostility. †

\* Presented in part at the 1936 meeting.

<sup>1</sup> "Use of play technic as experimental procedure." David M. Levy, M.D. *Am. J. Orthopsychiatry*, Vol. III, No. 3, July, 1933.

† For example, the words: "The nerve of that baby, at my mother's breast," as a phrase used to activate hostility, was changed to: "That nasty, nasty baby, at my mother's breast (or titties)," at about the twelfth experiment, when it was found that a child did not understand the intended meaning of the phrase. On occasions, also, a clay

It should be noted that until July, 1933, when the Institute for Child Guidance was still functioning, a number of the children who tried out these experiments were being treated at the time by other psychiatrists. In those cases it was not possible to get further elaboration of the material. The children were taken from the psychiatrist, usually for one period, and returned to him. Since July, 1933, the experiments have all been made on private patients, and utilized also as part of a therapeutic procedure. All the observations have been recorded by me at the time of the experiment, including my own words and activity. The age range is now 3 to 13 years.\*

Following the experiments, where interviews continued, the play activity was allowed to take a free form. Material related to the sibling rivalry situation has been recorded as a sequel to the experimental procedure. It will be found in the detailed records that are appended.

A number of points bearing on technical problems, some of them referred to in the previous article, may now be elaborated. The problem of transition from free play into a controlled situation may represent an artificial deflection of the activity of the patient into a different form, which he may resist. It is then wise to abandon the procedure, especially, of course, if the child seems to be working out a problem with his own selected play material. In utilizing patients of other psychiatrists, the latter were requested to select an appropriate time. Nevertheless, in some cases the experiments represented an unwelcomed interruption of the child's activity. These problems will be considered in the details of case records to be published at some future time. They do not concern the 3 and 4 year old cases studied in this series.

It is wiser to utilize such experiments at the beginning of therapy. It is simpler to let the child proceed from the controlled situation into free play than the reverse. However, the controlled situation may be utilized also at any appropriate time to stimulate activity in free play therapy. Throughout the experiment, encouraging remarks are made to facilitate the behavior by overcoming anxiety. Every device is used to smooth the path into display of primitive feeling. Such encouraging remarks, however, may be a boomerang. They may be felt by the child as a push from which he recoils, and thereby defeat their purpose. The question of when to encourage and of properly gauging time and pressure is more easily felt during the experiment than described. What encouraging remarks have been made are recorded in the case records. They consist chiefly

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baby was used instead of a celluloid baby, when the latter type of material was not at hand, since so many of them were destroyed and for a period of time could not be purchased.

\* For the 13 year olds the method has been varied in the following way. The child is told that I will supply the actors and the stage but he must make up the plot. The procedure follows in the same manner as with the younger children. It is put in this form in order to dignify the toys as stage puppets and overcome the reaction that it is "sissy" for the older children to play with them.

in saying: "Go ahead," "Don't be afraid," "Let the brother (brother-doll) do what he wants." If the child asks the examiner to share in the hostile activity, the wish is granted. For example, a three year old boy (Case #4) said in the sixth trial, "Now we must have dinner," and enumerated the parts of the meal, which consisted of parts of the baby doll. He gave me parts of the doll in a glass. I took some, and we both put them in our mouths. With some children, one feels that their hesitations and fear of attacking the objects require an initial and quick series of encouraging phrases, after which the activity is facilitated. Others go into the material rapidly, then recoil, as indicated by increasing inhibition of movement, escape reactions, pauses and refusals. The activity of the examiner waits for the later opportune moment. In general, the less need for any activity the better. I have felt that errors have been made more in commission than in omission.

This especially applies to the asking of questions in order to derive the meaning of the act, where this meaning is not apparent through overt behavior or spontaneous expression. It is very difficult to formulate judgment on this point. A question may deflect activity, may be regarded by the child as an accusation, may increase the child's opposition, and alter what appeared a natural process of activity in the experiment. On the other hand, the child's answer may give a very significant clue to the meaning of his behavior, and when not questioned at a particular moment, it may be lost. The question chiefly is: "Why did you do that?" In Case #1, for example, a three year old girl made her first attack on the sister doll, with the words, "She was bad, now she's good." I asked, "Why was she bad?" The reply came: "She wanted to take the baby away." The question clarifies the meaning of the act as self-punishment because of a hostile impulse. This, as consistently shown in the rest of the material, is clarified by the question and, in keeping with the method, helps in making the reasoning more direct and less inferential. Yet it is obvious that questions may defeat their purpose. I think, if there can be a rule in the matter, it would be that whenever in doubt about the effect of a question on the flow of activity, it is best to forego it, especially in the early trials.

Other points in regard to errors of standardizing the situation have to do with the material exposed to the child before the experiment is performed, and at the time of the experiment. Naturally the child uses the material at hand. If a hammer is nearby, it is more likely to be used as an instrument of hostility than a knife or a stick which is out of range. Given a sufficient number of trials and easy familiarity and access to all the toys, there results obviously more selective and hence more meaningful activity. A child, for example, who had ample opportunity for selecting various weapons of attack (Case #2) used a gun and shot at the objects from a distance. The nearest he came to close grips with them was by use of a hammer, first on nails, later on the baby, then back on the nails again. He evidently could release hostility at first only from a distance, gradually getting nearer to the object. He seemed ready to run out of the room at any



moment. I assume that if a gun were not available, he would be more likely to run out of the room, because he seemed afraid to use an instrument that would require too direct handling of the object.

To overcome these difficulties, the child is first made more or less familiar with the objects of play before the experiment begins. At least the toy drawers are opened, he rummages through them, and learns to manipulate the amputation doll. When the experiment begins the drawers are open and behind the patient; in front of him the objects of the experiment alone are revealed. The child freely (as he always does) brings into the experiment other objects. I have used the phrase "more or less familiar," because the child who goes into the "controlled situation" after a long series of interviews is more familiar with all the toys than a child who starts with the experiment after a ten or fifteen minute exposure to the play material.\*

In a strict sense, the controlled situation should take place in a room with no play objects other than the experimental set-up. This would result in a marked limitation of activity, a more stereotyped performance, and would mar, I believe, the value of the experiment; especially in the very young, who are less able to verbalize and more dependent for expression of feeling on active play with material. It would result in a "more accurate," though limited body of data, in the sense that the activity would be restricted to the set-up alone. The experimenter would be spared the concern and complication of activity with other material. Patterns of behavior would be fewer, hence more easily determined and defined. The methods of empirical research may be applied to problems of human motivation so rigidly that the activity to be observed is stultified. The problem is how to demarcate dynamic processes without curtailing the activity by too rigid control. That the method used is sufficiently standardized may be proven by repeating the experiment, with the same procedure, and noting whether the results are consistent with our own.

Certain phases of sibling rivalry noted so frequently in the anamnesis appear with much less frequency in the experiments. This is due evidently to the particular limitations of our procedure. I refer especially to attention-getting behavior revealed in the play of older children, though not apparent in the younger group. Certain regressive reactions to the coming of the baby are missing also in the controlled situation, or, at least, are not as clearly brought out as they appear in the life situation. They represent certain necessary limitations of any experiment.

In this paper an analysis of the patterns of behavior revealed in the experiments is limited to twelve children, ages 3 and 4. As a first attempt at analyzing every item in the experiment, it has the advantage of utilizing earlier genetic structures, and working with processes similar though simpler than those of the

\* The material consists generally of toy weapons, tools, clay, blocks, balls, animals, dolls, transportation toys, drawing material, a "cave," and facilities for play with water and burning paper.

older groups. Of these children, seven were age 3, five age 4, when first observed. Five were males; seven, females. In eight cases, hostility was activated in the usual manner (see appended records); in eight cases, after two or three trials. In four cases (#2, #9, #10 and #12), hostility was not activated. The children were referred for mild behavior problems varying from fingersucking, feeding problems to negativism (see Table 7). One (Case #12) was used as a control. Five were the older of two children; three the younger of two; four were "only" children.

I

All the children in our series, age 3 to 13, display remarkably similar dynamics of behavior in the sibling rivalry situation, whether expressed in simple movements and manipulation of the objects, or in the production of fairy-tale-like phantasies. Faced with the play situation of a mother nursing the baby while the older child looks on, activity is initiated which results in a hostile attack on the baby, mother, breasts; on the doll representing the older sibling, clearly self-punishing activity; attempts to restore the objects that were attacked, by re-assembling the mother (an amputation doll), putting back the breasts, or getting a new baby. Throughout, various attempts at preventing the main directions of activity are revealed, attempts at preventing hostile attacks, self-punishment and restoration of the objects. Throughout the experiment, activity of a defensive type also occurs, manifested in a variety of forms which the child uses to defend the acts that he has performed. Stealing the baby and a host of mothering activities complete the picture. Each set of experiments shows a more or less complete representation of the lines of activity enumerated. The greater the number of trials the more inclusive are all the trends. They are considered under the following headings:

- I. Prevention of hostility to objects in set-up
- II. Direction
- III. Forms
- IV. Self-punishment and accusation (retribution)
- V. Restitution
- VI. Self-defense

I. *Prevention of hostility.* All behavior observed as withholding attack on the objects is considered under this heading. (The case records appended are each followed by classification of every item.) Activity designated as "prevention of hostility" is seen in the following forms.

TABLE 1  
*Prevention of Hostility*

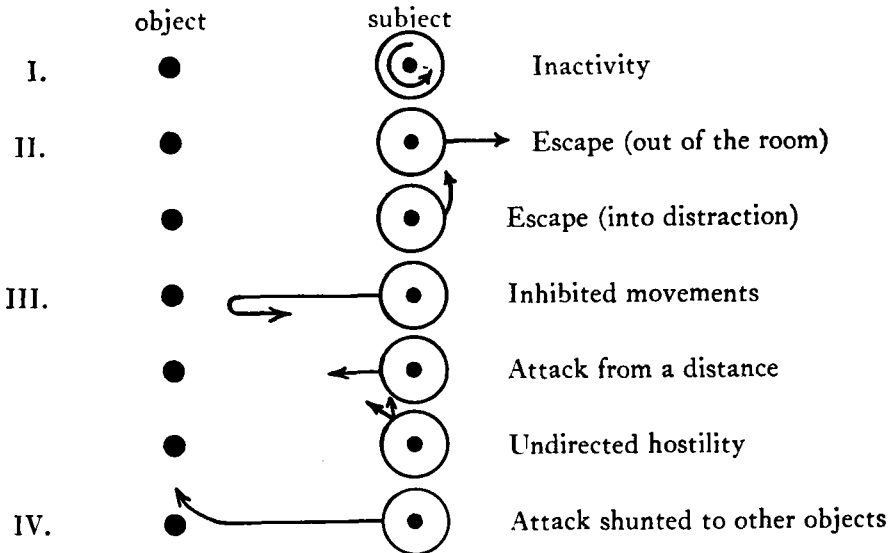
	No. of cases
1. Denial (verbal).....	6
"I don't know" (assumption of ignorance)—3	
of impulse "I don't want to"—2	
by shyness (?)—1	
2. Inhibited movements.....	3
(movements partially executed and then inhibited)	

3. Escape.....	12
Distraction—6	
Leaving room—3	
Verbally stated—1	
Asking the time—2	
4. Attack.....	5
Non-specific—2	
from distance—1	
on objects other than set-up—2	
5. Self-warning (verbal).....	2
“I mustn’t do it”—1	
“I will be scared”—1	
6. Refusal to cooperate.....	7
to have anything to do with set-up or to go on—3	
Passivity—1	
Long pause—2	
Pushing objects away—1 (?)	

A further study of these preventive movements shows that they are comprised of four types:

- I. Movements blocked (inactivity)
- II. Movements away from object (escape)
- III. Movements toward object, partially released (inhibited movements)
- IV. Movements directed to object and shunted off (shunted movements)

They may be graphically represented in the following manner.



In the 3 and 4 year olds the escape movements are by far the most frequent. Asking the time (included under this heading) is clearly a wish to get out of the situation, especially in the form: “Is it time to go yet?” Its meaning is clear from the context.

It should be explained at this point that the interpretation of any item is

based on the sequence of events. When, in any particular case, a gap occurs in a sequence which in other cases is completed, the meaning is implied. The basis of interpretation is then inferential, as though to say, if the sequence had gone on uninterrupted it would have taken the form observed in the behavior of those children who had frequently completed such a sequence. The assumption is the same in the case of a child who repeats three out of four acts in a logical sequence in the first, second or third trial, completing the chain in the fourth trial. Since the objectives in a given line of activity are clearly revealed, it is easy to infer how events would proceed if restraint on action were removed. For example, a child shoots at an object in the first trial. He hammers it with a hammer in the second trial. He shoots again on a third trial. Further trials do not take place. It is inferred simply that if they did take place, the attack would become one of handling the object directly, crushing it with the fingers, stamping on it with the feet, or biting it; since that is the final form taken by similar patterns in repeated trials.

Material from Case #1, Trial I, will illustrate the method of classifying items under "prevention of hostility." The patient, a three year old girl, pauses and says, "I don't know—" (I. Movement blocked—inactivity—denial). "Her hand moves slowly to baby doll almost touching it, then stops—" (III. Movement inhibited. Evidently, as shown by the sequence, she inhibited a movement of taking the child from the mother and throwing it). "She goes on to play with her toy automobiles—" (II. Escape, into distracting play). She busies herself with her own toys presumably to block the felt impulse to attack. She inhibits movements and busies herself elsewhere. She manifests similar inhibiting movements—letting the baby doll drop out of her hands, then throwing it, making a move as though to squeeze a breast, later squeezing it.

Would a child having an active difficulty in the relationship with a sibling show a difference in behavior from presumably adjusted siblings, in the play situation? With one exception, the six children showing overt hostility or some other difficulty related to the rivalry problem show stronger preventive efforts against release of hostile action than the others. This is shown in the larger variety and greater intensity of the preventing acts. It would seem that, in the children of this series, the open expression of feeling towards the rival does not lessen, but, on the other hand, increases, the need to prevent release of hostility in the play situation. (See Table 2.) If this preventive activity is to be regarded as evidence of the fear of the hostile impulse, as it usually is, we would infer that those children in this group who show overt difficulty with the rival have greater fear of their response to him, as measured by the experiment, than the others. The children who have greater difficulty in early release of hostility, in the experiments, include all those who have a younger sibling; i.e., all for whom the experiment represents the life situation. It is interesting that the "exceptional" child who, though in an overtly hostile relationship, shows no preventive movements, is the younger.

TABLE 2

*Status of Actual Sibling Rivalry and Prevention of Movements*

Difficulty in sibling relationship	Prevention of movements	Apparent adjustment in sibling relationship or absence of problem	Prevention of movements
#2 (older of two sibs) Overt hostility	Non-specific aggression, keeps away from set-up, frequent escapes into distracting play.	#1 (younger of two sibs)	Denial, inhibited movements, distractions and simple escape.
		#3 (an "only" child)	Inhibited movements, self-warning, simple escape, distraction.
#4 (older of two sibs) No overt hostility, marked bidding for attention in presence of baby and parents, regressive symptoms.	Denials to the point of crying, refusal to come near set-up, distractions and shunted movements.	#6 (an "only" child)	Inhibited movements, a refusal
		#9 (an "only" child)	Two simple escapes.
		#10 (younger of two sibs)	Pauses.
#5 (older of two sibs) Difficulty limited to possessions. No overt hostility.	Distraction, two simple escapes.	#12 (younger of two sibs)	Pauses. "Verbal" escapes.
#7 (younger of two sibs) Overt hostility.	None		
#8 (older of two sibs) Fighting for attention. Overt hostility when with baby in presence of adults.	Passivity, frequent distractions, refusals, verbal escapes, non-specific hostility and shunted movements.		
#11 (second of three sibs) Regressive symptoms, temper tantrums. No overt hostility.	Denials that prevent all activity in two trials, a refusal, and anticipation of fear.		

## II

When a child begins to attack an object in the set-up, it is interesting to follow the procedure in the different trials. Since the breasts are detached and attacked as a separate entity, we have only to follow the play of hostility as it passes to baby, mother, breasts and brother or sister doll. Our first three year old, in the three trials in which objects are attacked, always starts with the sister doll, i.e., the "self," before going to any other object. In Trial I the route taken is self, baby, mother. So with the second case, a three year old boy, in the two trials in which specific objects are attacked, the order starts: baby, self, mother, in Trial III; baby, self, mother, in Trial IV. Of the 12 cases, in 10, specific objects were attacked in more than one trial. Of the latter, a repetition of the pattern occurs in 8. Of the remaining 2, the breasts are the first objects of attack

in three out of four trials, though the second object of attack varies. In Case #7, a four year old boy, and Case #8, another four year old boy, there is a shift of attack in each trial. The problem arises whether the order is accidental, the continuation of the first pattern the child happens to create as a "solved" method of handling the material, or whether it is determined by psychic events in the child's life. The latter view is borne out by the material at hand. For example, the child who begins our series must first attack the doll representing herself before she attacks the breasts. This self-punishment before the release of hostility to another object is consistent with the degree of repression she showed in her behavior at home and in the office. Even though she was given permission to use any toy she wished, she would make sure, by repeating the question, that permission was granted. This over-politeness was consistent with strongly repressed hostility to the brother in real life. It was after the experimental procedure that she became more assertive with the brother. The increasing self-assertion with the brother that followed must be regarded as a healthier relationship than the previous one, in which she merely followed and "echoed" his behavior. In several cases, attack on the self does not occur until the hostility play becomes more primitive in quality. For example, in Case #3 the order of attack is first: breasts, baby. In Trial I, breasts, baby; Trial II, breasts, baby; mothering activity only in Trial III. Greater release of hostility comes in Trial IV with the order: breasts, baby, then attack on the self, then attack on the mother. Attack on the self may precede or follow an attack on another object, as manifested in overt behavior. It has been shown that the attack on the self follows an impulse to attack another object. In the three and four year olds as an initial attack it occurs only in the first child, quite evidently the most repressed child in the series.

An interesting example of this development is seen in Case #4. The order of attack is mother, baby, breasts, self. There was a quick release of primitive hostility in the first trial, followed by more restrained activity. In the second trial, the baby alone is attacked. In the third trial he refuses to act. In the fourth trial the order becomes baby and mother together, then breasts. This is followed by attempts to restore both mother and baby. He tries to put the mother with the arms around the baby, as placed originally. In the fifth trial, an attack of the same sort occurs, followed not by restoration at this time but by attack on the self—crushing the brother doll with a toy truck, just as he had crushed the baby. It is seen how either restitution or self-punishment follows the attack as a direct and necessary sequel of the hostile behavior.

In Case #5, the attack on the baby is followed by self-punishment in Trial I; it is followed by escape to distraction in Trial II. Escape may also vary with self-punishment as a sequel to hostile behavior, but this is anticipating material of a later section. Further evidence that the order is not haphazard is indicated by certain relationships between the objects attacked and the previous known response in the sibling rivalry situation. This will be considered in Section III.

TABLE 3  
*Direction: Order of Attack*

Case	Trials					
	I	II	III	IV	V	VI
#1	Self Baby Mother Breasts	Mother Baby Breasts	Breasts	Self Baby Mother		
#2	Undirected hostility	Baby Self Mother	Baby Self Mother			
#3	Breasts Baby	Breasts Baby Self (v)	No hostile behavior	Breasts Baby Self Mother		
#4	Mother Baby Breasts Self	Baby	No hostile behavior	Baby-mo. Breasts	Baby-mo. Self	
#5	Baby Self Mother Breasts	Baby				
#6	Mother Baby	Breasts	Breasts Mother	Breasts Baby Mother		
#7	Baby Breasts	Baby Breasts		Baby Mother Breasts		
#8	No hostile behavior	Baby Self Mother	No hostile behavior	Self Breasts Baby Mother		
#9	Baby Breasts	Baby Breasts Baby Mother Self	Baby Breasts Mother Self			
#10	Baby Mother					
#11	Baby	No hostile behavior	No hostile behavior	Baby Breasts	Baby Breasts Self	Baby Breasts Mother Self
#12	Baby Breasts Mother					

In the cases that do not show repetition in the order of attack, Case #6 shows an interesting oscillation. In Trial I, the attack is first on the breasts, then on the baby. In Trial II, the breast alone is attacked. In Trial III, breasts, then mother, are attacked. In Trial IV, the order is breast, baby, mother. Even in this case, there are three trials in which the first objects to be attacked are the breasts. In Case #8, a self-attack occurs after the baby is attacked (Trial II). Trial IV starts with an attack on the self, then breasts, then baby, then mother, then another self-attack.

That the word "self" is used advisedly is shown by the identification with the attacking doll, sometimes by refusal to identify with the doll, as with the child (Case #7) who said, "I'm not Ethel," a name she gave to the attacking doll. In the series there are several instances of the child actually hitting himself with the attacking doll. Further evidence of this type will be observed by reading the appended records.

### III

The manifestations of hostility vary from slight movements to primitive crushing, biting and tearing apart. The material used, however, places certain limitations on the kind of hostility displayed. A celluloid doll was selected for the baby because it could be easily torn apart and crushed and bitten. The mother doll, made of steel with head and limbs joined by a ball-socket arrangement, cannot be handled in this manner. The release of hostility on the mother doll is more likely to be in the form of amputation and scattering the parts, though crushing attempts are made on it. It will be seen in the tables that the commonest form of attack on the mother doll is amputation; the commonest form of attack on the baby doll is to crush it in some way. The clay breasts invite removal and crushing, though every variety of hostile play is seen. Children tend to remove any stuck-on object. On another occasion I prepared dolls with clay stuck on at various points of the body at different times. They were always removed, as though they did not belong to the object, by the two children on whom the experiment was tried, without evidence of hostile behavior. Sticking clay on a doll may represent to the child a distortion of a familiar object. In the experiment, the removal of the breasts is regarded as a hostile manifestation, since it is followed in every case but one by some other form of hostility—pinching, crushing with fingers, stamping with feet, tearing apart, etc. In the one case in which removal alone occurs, the meaning also is hostile, as shown by the play of events. Attack on the brother or sister doll is considered under the section on self-punishment and self-accusation. The brother or sister doll is a rubber doll and hence cannot be attacked in the same manner as the baby doll. This is unfortunate, because the hostility displayed on the self takes the form of hostility practiced on the object preceding. That is, the child attacks the brother or sister doll in self-retaliatory fashion according to the pattern of hostility on the baby. Since it is not a celluloid doll like the baby, the retaliatory hostility cannot be



identical. One child, after attacking the baby doll, eating and biting it, picked up the rubber doll and said, "I can't bite it." This illustrates the tendency to follow the identical pattern in the form of self-punishment.

TABLE 4  
*Forms of Hostility to Baby\**

Case No.	1	2	3	4	5	6	7	8	9	10	11	12
No. of Trials	4	3	3	6	2	4	3	7	3	1	6	3
Age	3	3	3	3	3	3	3	4	4	4	4	4
Sex	f	m	f	m	m	f	f	m	f	m	f	f
ACTIVE												
Removal	2		1			1	2	1	1		6	
Touching	1											
Dropping	3											
Flipping—throwing with weapon (brother doll)					2							1
Slight crush—a dent			2									
Bringing to mouth												
Shooting		1										
Throwing	4						3	7	2			
Slapping			4									
Pushing to breast	5		3									
Hitting with weapon (brother doll)				1	3				3	1	7	
Hitting with stick				2								
Hitting against floor								3				
Hammering		3		3								
Crushing with truck				5	5							
Crushing with feet	6			4				5			9	
Crushing with fingers			7			2				2	8	
Tearing apart	7				4			6				
Twisting the body			8									
Scattering parts	8							9				
Biting											2	
Piercing (with screw driver)								10				
Enema			6									
Stealing											3	
Stealing milk											4	
VERBAL												
Throwing							4					
Scratching		2										
Hitting								2				
Stamping (with feet)								4				
Tearing					1							
Killing			5								5	
Burning								8				
Biting											1	
Stealing			3?				1					

\* The numbers under each case represent the hostile acts in the order of their appearance.

The forms of hostility to the baby are detailed in the order of their appearance for each of the three and four year olds. Since, with increasing release of activity, more primitive forms are revealed, one may conveniently classify the items into three groups. The first includes mild attacks like dropping, flipping, slight denting; the second develops into simple assault like throwing, slapping, hitting; the third takes in the primitive hostile forms like crushing, tearing apart, biting. Where words are used, with and without illustrative action, they are included in the table. Stealing the baby, as a hostile act, will be considered under a separate heading.

Every child in the series shows severe forms of hostility to the baby. The largest variety of hostile forms including primitive release are shown by six children of the group. Of these, four were given the most frequent opportunity (and also encouragement) with the material, averaging four or more trials (Cases #1, 4, 8, 11). On the other hand, the least variety of forms and of intensity of

TABLE 5  
*Forms of Hostility to Mother\**

Case No.	1	2	3	4	5	6	7	8	9	10	11	12
No. of Trials	4	3	3	6	2	4	3	7	3	1	6	3
Age	3	3	3	3	3	3	3	4	4	4	4	4
Sex	f	m	f	m	m	f	f	m	f	m	f	f
<b>ACTIVE</b>												
Touching						1						
Dropping										2		
Scratching	3											
Distortion	2									1		
Shooting		1										
Throwing							1					
Throwing the parts									4			
Slapping								6				
Amputation (partial)	4		1			2		1				1
Amputation (general)	1			2	2			345				
Hitting against floor								2	3			
Hitting with the brother doll				1	1							
Hammering				3								
Crushing with feet				4					2			
Crushing with truck				5								
Crushing with hands											1	
<b>VERBAL</b>												
Mother cries for baby, baby doesn't come							2					
Drowning										3		
Amputation									1			

\* The numbers under each case represent the hostile acts in the order of their appearance.

hostile behavior were manifested by the four children whose hostile play was not activated (Cases #2, 7, 10, 12). The latter group averaged one to three trials. However, in Case #6, with four trials, there was but one simple primitive assault on the baby; and in Case #3, with three trials, there were eight forms of hostile play. Further, the frequency of trials, which naturally favor increased display of hostility, vary greatly with the different objects. Only one of the six children who displayed so much hostility to the baby is found among the three who showed the highest degree of hostility to the mother doll (#4, 8, 9); but two of them appear among the five who showed the greatest variety and intensity of hostility to the breasts (#3, 6, 7, 9, 11). It would seem that with an increase in frequency of contact with the material this group of three and four year olds show greater release of hostility to the baby than to the mother or breasts.

TABLE 6  
*Forms of Hostility to Breasts\**

Case No.	1	2	3	4	5	6	7	8	9	10	11	12
No. of Trials	4	3	3	6	2	4	3	7	3	1	6	3
Age	3	3	3	3	3	3	3	4	4	4	4	4
Sex	f	m	f	m	m	f	f	m	f	m	f	f
<b>ACTIVE</b>												
Touching						3		1-2			1-4	
Removal	1		1	1	1	4	1-5	3	1-3		8-9	1
Manipulating (trans- forming)	3		5-8				3		4		3-5	
To mouth			2						2	(of sister doll)	7-10	
Slapping							6					
Pinching						1						
Throwing					3		2		7		8	
Pushes against chest of doll			4			2						
Crushing with fingers (squashing--pressing)	2		3-6			5			4			2
Crushing with feet (stepping on breasts, jumping)						6						
Tearing apart							4		6			
Biting					2							
Stealing (putting breasts of mother doll on brother or sister doll)			7									
<b>VERBAL</b>												
"She (baby) has no milk"											2	

\* The numbers under each case represent the hostile acts in the order of their appearance.

In Table 7 an attempt is made to determine a relationship, if any, between type of problem and the object of greatest hostility. It is interesting that the three children referred for feeding problems made the breasts the major object

TABLE 7

		Problem Status of Rivalry	Object of major activity and special features
#1	3	Thumbsucking	Baby
	f	Very imitative of brother; no overt hostility; brother favored by mother	Strong inhibition and defense of hostility
	2/2*		
#2	3	Temper tantrums, fears	Baby
	m	"Usual fighting"	Hostility strongly inhibited
	1/2		
#3	3	Food refusals, vomiting	Breasts
	f		Mothering activity
	1/1		
#4	3	Baby talk	Baby
	m	No overt hostility	Spread of hostility to baby; mothering activity chiefly of washing baby and cleaning its diapers
	1/2		
#5	3	Stammering, hyperactivity	Baby
	m	Rivalry featured by fight for possessions	Immediate primitive hostility and spread; self-punishment
	1/2		
#6	3	Food refusal, vomiting	Breasts
	f		Preliminary to experiment, talk of eating mother and baby doll, highly inhibited hostile play
	1/1		
#7	3	Hair sucking, baby talk, food refusal, temper tantrums	Breasts
	f		
	2/2	Much quarreling	
#8	4	Night terrors	Baby
	m	Friendly striving for attention when a parent plays with baby	Use of "feces" as hostile weapon
	1/2		Strong inhibition of hostile play; shunted movements, denials, and escape to distraction
#9	4	Negativism, destructive behavior	All objects
	f		Uninhibited primitive hostility
	1/1		
#10	4	Delayed and indistinct speech	Baby (one trial only)
	m		
	1/1		
#11	4	Negativism; temper tantrums	Breasts
	f	No overt hostility; regressive reaction to sibling rivalry	Immediate, uninhibited primitive behavior
	1/2		
#12	4	Control case	Mild general activity
	f	Occasional quarrels over toys	
	2/2		

\* 2/2 means younger of two children; 1/2, older of two; 1/1, only child.

of attack. In one other case was the breast the main choice of hostile attack—a child referred for negativism.

Three children in this series (#1, 4, and 8) were seen much more frequently by me than the others. After activation of the hostile play, some interviews

elapsed before an opportune moment was utilized for further exposure to the material. They were thus favored in terms of the experiment. Including them as a special group, add the children referred for feeding problems (food refusals, cases #3, 6, 7), and the two children referred for negativism (#9 and 11), and we have included eight of the nine children who show the largest variety of hostile behavior to one or the other object in the set-up. Immediate primitive hostility was displayed by three children in the group. Two of these were referred for negativism, one for stammering and hyperactivity. They are all included in the group referred to. That "hyperactive" children show a high degree of aggressive behavior is a common clinical observation. The reaction of negativistic children likewise, in the form of destructive behavior, appears consistent with our findings. The attack on the breast by the children with feeding problems concerns one younger, and two "only" children. Our material allows only the inference that such children would be especially concerned with the rôle of the breasts because of the feeding problem. Their activity with the breasts consisted of crushing them with the fingers, stamping on them, tearing them apart, manipulating and transforming them into food. They showed no special feature in the hostility to mother or baby doll.

Five children manipulated the breasts into various forms. In Case #1 the breasts were changed to pancakes, and snakes; #3, milk, food, and suppository; #7, fried food; #9, dirt; #11, enema and a ball. In Case #8, clay other than the breasts was used and made into a ball and "do-do" (feces). The interpretation of snakes, based on the sequence of events, is a transformation of the breasts into things that bite the child because of its impulse to bite the breasts. The transformation of breasts into dirt, feces, or suppository, represents, as shown clearly in the detailed records, the use of feces as a weapon of hostility. In one case record the data might furnish a plausible meaning of this transformation (see page 249). The reader is also referred to the psychoanalytic literature on this subject.\* It should be mentioned that clay is itself suggestive of feces, and hence favors that type of transformation. One of the children, for example, called the clay "ca-ca" (feces) before the beginning of the experiment.

By following through the original movement on the object to its logical objective in a series of related acts, Table 8 has been drawn, quite tentatively. Given a movement with hostile intent, its meaning in terms of completed behavior would (if verified by further data) correspond to the table.

\* See especially Klein, Melanie: *The psychoanalysis of children*. The Hogarth Press. London, 1932. In her study, an entirely different method has been pursued. It consists chiefly of observing the behavior of a child and then directly interpreting the behavior by its assumed symbolic meaning in the mind of the observer. When the child reacts with anxiety to the interpretation, the latter is thereby considered valid, it being assumed that if the interpretation were not significant it would have no meaning for the child, and hence produce no reaction.

TABLE 8

Initial hostile movement	→	Completed act
Kissing, bringing to mouth	→	Biting
Dropping, flipping	→	Throwing away
Touching, hugging	→	Crushing or tearing
Slight dent	→	Crushing
Bringing or pushing to breast	→	Crushing
Hitting with weapon	→	Crushing with feet or fingers
Throwing	→	Discarding, crushing
Enema, suppository, smearing	→	Crushing (?) piercing (?) poisoning (?)
Stealing	→	Starving (?) possessing, spite
Giving food to baby	→	Squashing or choking it

IV

Hostility directed against the brother or sister doll, it has been explained, may be regarded as self-punishing behavior. In general, self-retaliatory hostility follows the pattern of hostility to the baby or any other object. Self-punishment, to generalize from this group (and also the older children) is as mild or severe as the hostility that precedes it. The child (one instance) who bit the baby also bit the sister doll. The child (one instance) who slapped the baby also slapped the sister doll. The lack of complete identity of hostility directed toward objects and self-retaliatory hostility has been explained by the difference in material of baby and brother or sister doll.

Self-retaliatory behavior appears in eight of the twelve cases. It is absent in the four cases (#6, 7, 10 and 12) in which hostility to the baby is the mildest of the series; hostility to the mother likewise. Hence in this group mild release of hostility does not call for self-punishing activity. That is the reason, also, why in the table on self-retaliatory hostility the first division of mild forms of hostility does not appear, since only the stronger forms evoke self-retaliation. This observation is confirmed in the experiments on the older children. The less severe the attack, the less severe the consequences to the "self" in terms of retaliatory behavior.

At this stage we may present in graphic form all hostile patterns, prevention of movements, and self-punishing behavior, in the order of their occurrence, as far as they are manifested in overt behavior. Description of the acts enumerated in the lines of the graphs can be followed in the appended records, where the corresponding numbers are indicated. The lines of the graphs represent hostile movements and "preventive" movements. The child, the "self" (brother or sister doll) is represented by the circle on the right; baby, mother, and breasts, in that order, from above downwards, on the left. The letter "v" indicates verbalization without performance of an act, e.g., where the child says, "The brother

TABLE 9  
*Self-Retaliatory Hostility\**  
 (Action directed against brother or sister doll)

Case No.	1	2	3	4	5	6	7	8	9	10	11	12
No. of Trials	4	3	3	6	2	4	3	7	3	1	6	3
Age	3	3	3	3	3	3	3	4	4	4	4	4
Sex	f	m	f	m	m	f	f	m	f	m	f	f
<b>ACTIVE</b>												
Pinching								3				
Hitting								1	1		1	
Throwing					1				2			
Shooting		1										
Slapping			2-4									
Hitting with weapon				1								
Smearing								2				
Kicking	3										2	
Crushing with truck				2								
Crushing	1											
Tearing											4	
Pushing into perineum											3	
<b>VERBAL</b>												
"She's bad"	2											
Killing			1-3									
Eating											5	

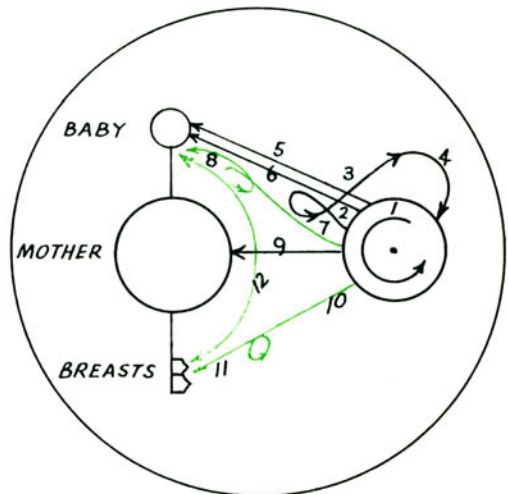
\* Numbers under each case represent self-retaliatory acts, in the order of their appearance.

is killed," but does not actually attack the brother doll. "Proj." stands for "projected."

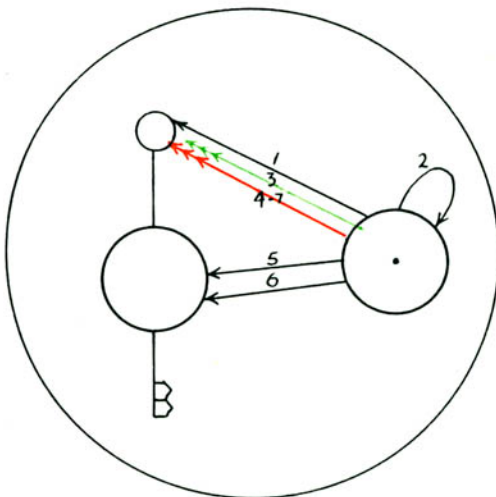
Stealing of the baby is indicated in one of the graphs by means of lines ending in a hook instead of an arrow. The colors represent differences in forms of hostility, classified in the tables. Black represents the mildest forms; green, active assault; red, primitive hostility. Restitution and defensive behavior are not represented.

The order of movements in the graphs do not correspond in every detail with the "flow of hostility" classified at the end of the records under "patterns of hostility." In a few instances, removal of the baby appeared as a clearing of the way for an attack on the breasts, the baby being dealt with in a hostile manner later on.

The lines in the circle represent activity inside the playroom. Where arrows run through the circle, they represent "escape" or other activities outside the room.

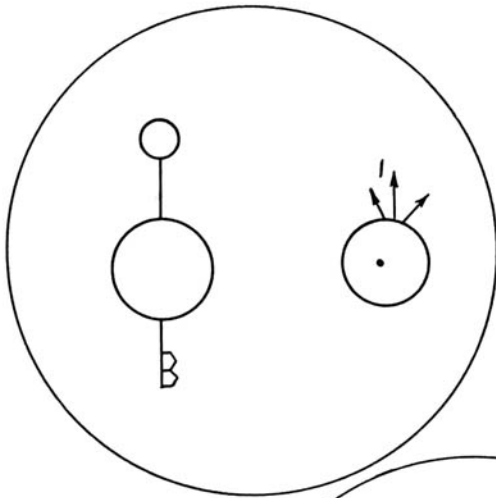


CASE I—TRIAL I

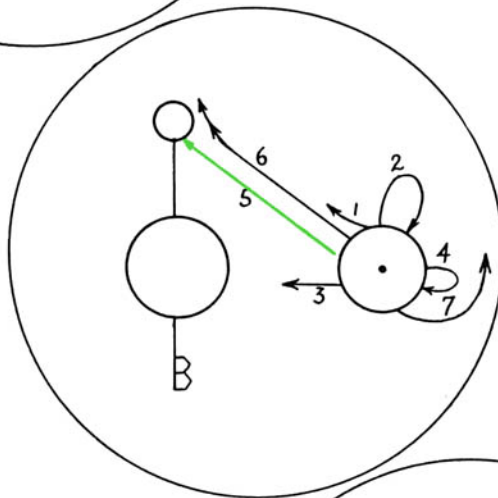


CASE I—TRIAL IV



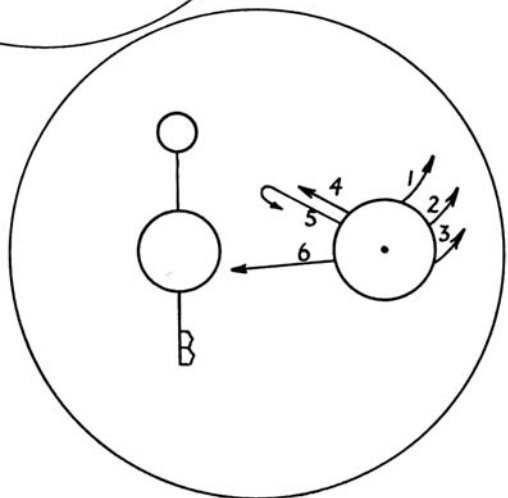


CASE 2—TRIAL I

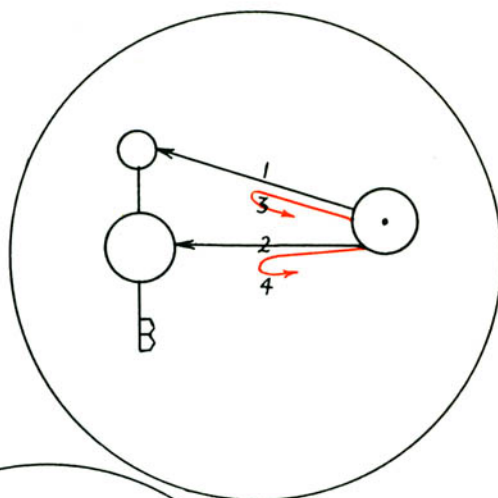


CASE 2—TRIAL II

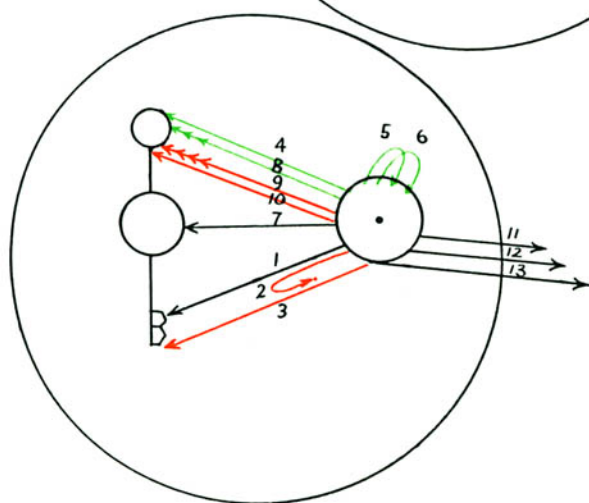
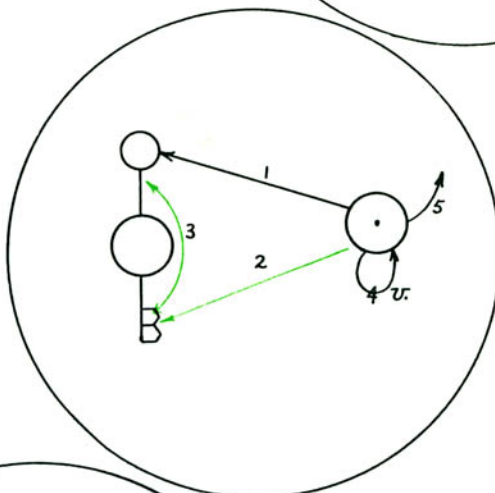
CASE 2—TRIAL III



CASE 3—TRIAL I

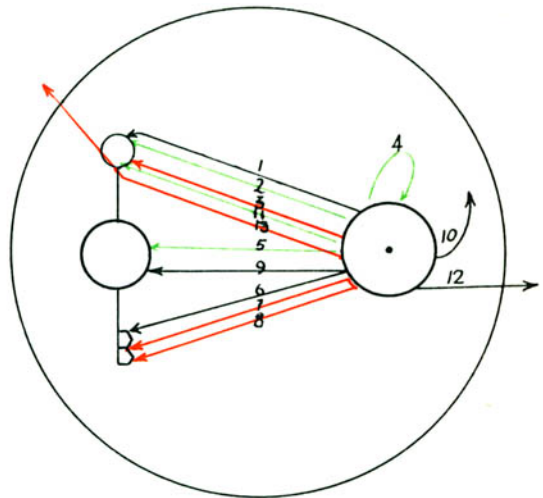


CASE 3—TRIAL II

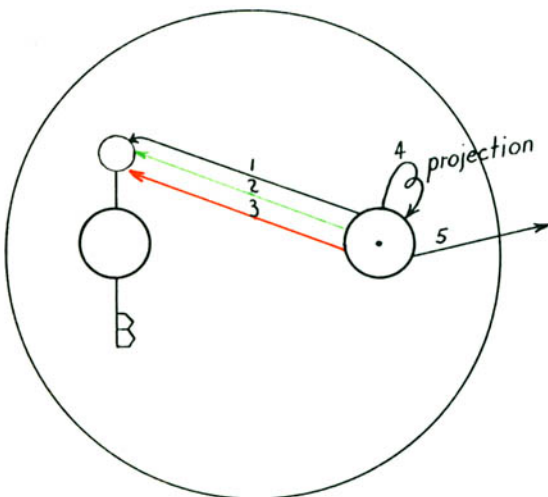


CASE 3—TRIAL IV

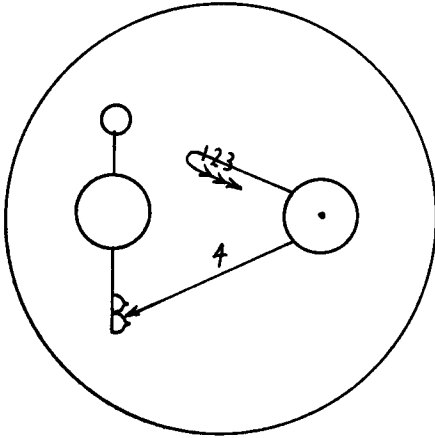




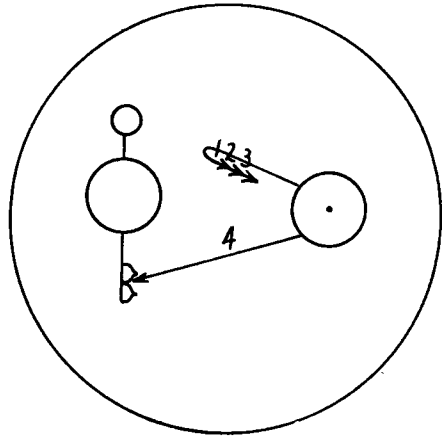
CASE 5—TRIAL I



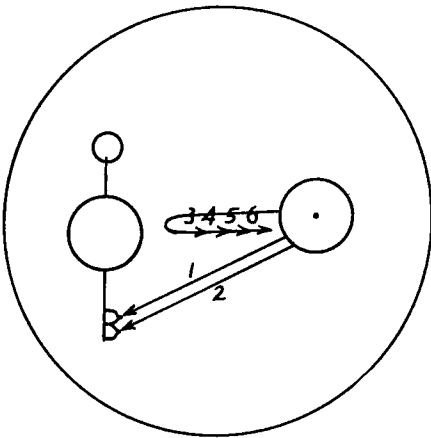
CASE 5—TRIAL II



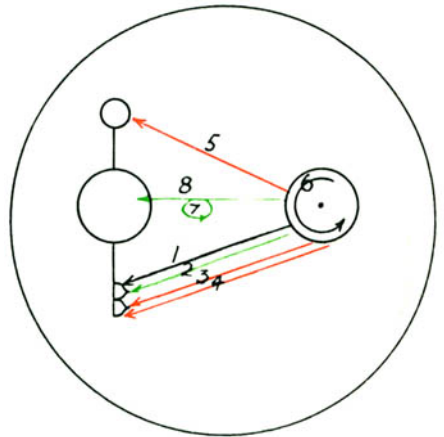
CASE 6—TRIAL I



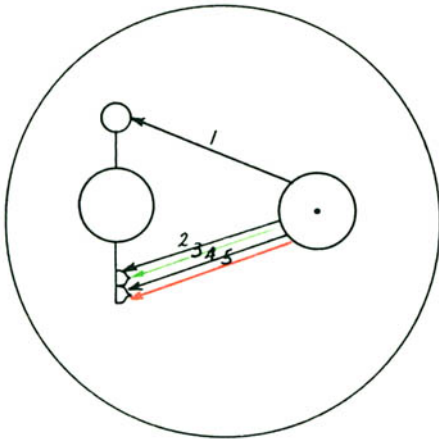
CASE 6—TRIAL II



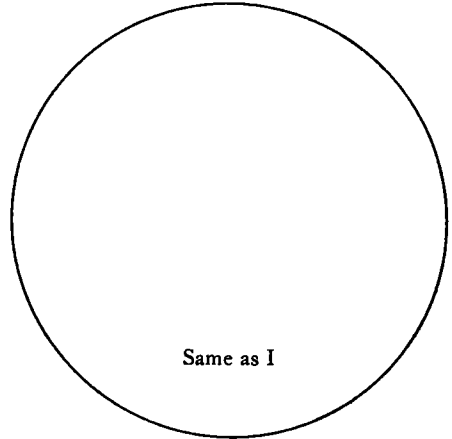
CASE 6—TRIAL III



CASE 6—TRIAL IV

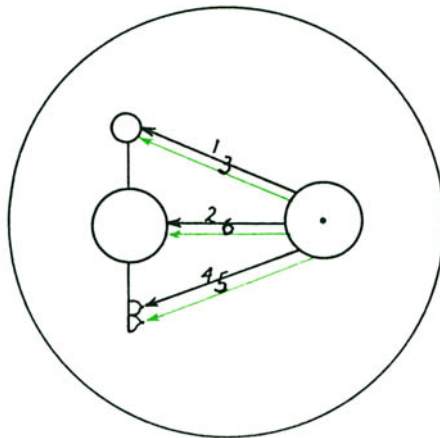


CASE 7—TRIAL I

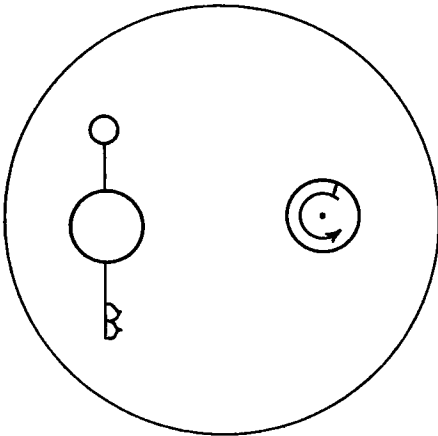


Same as I

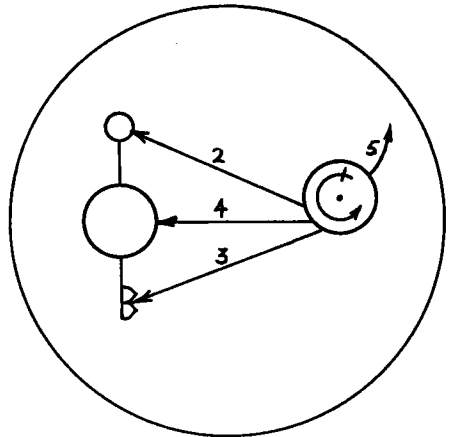
CASE 7—TRIAL II



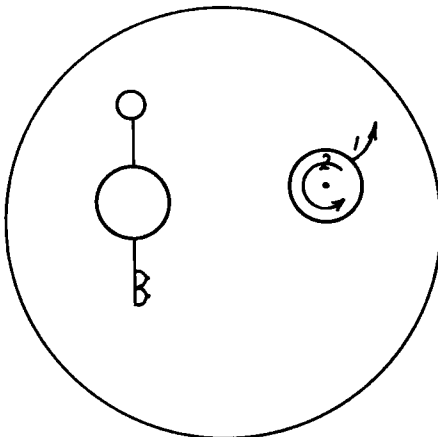
CASE 7—TRIAL IV



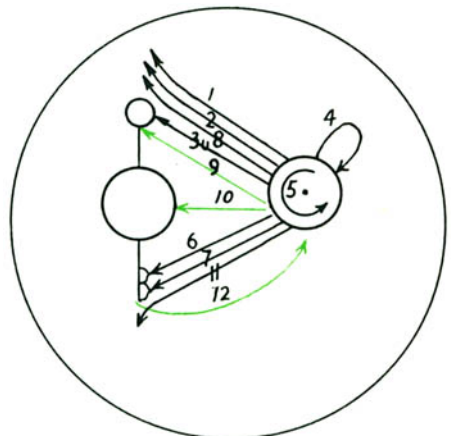
CASE 8—TRIAL I



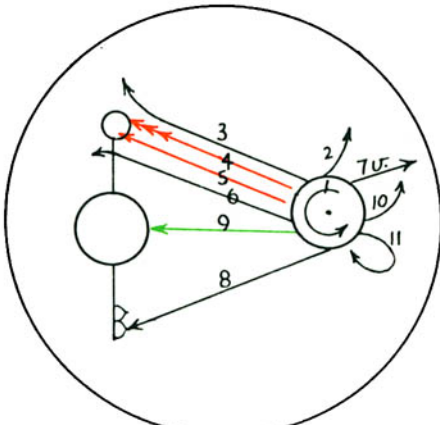
CASE 8—TRIAL II



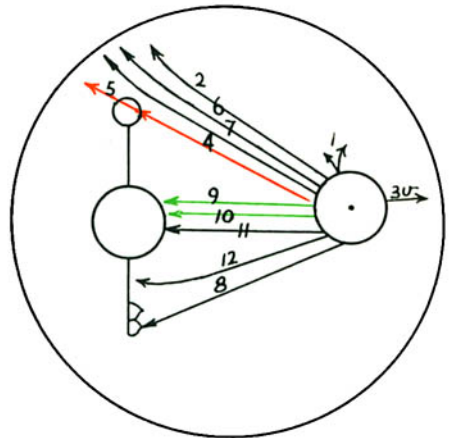
CASE 8—TRIAL III



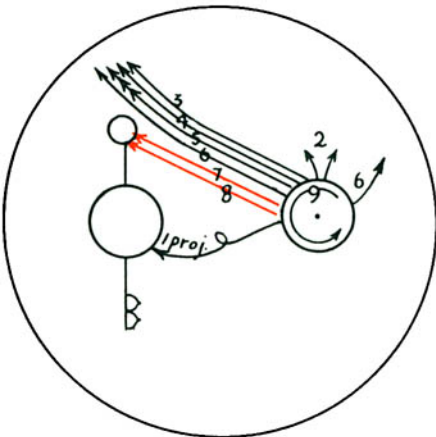
CASE 8—TRIAL IV



CASE 8—TRIAL V

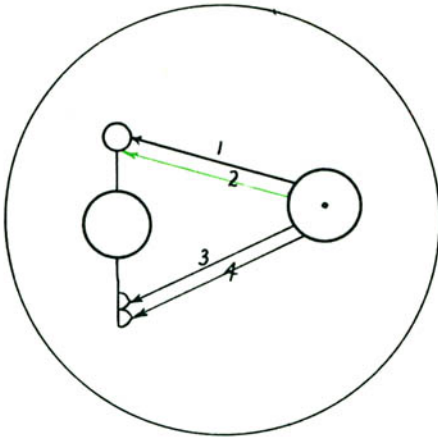


CASE 8—TRIAL VI

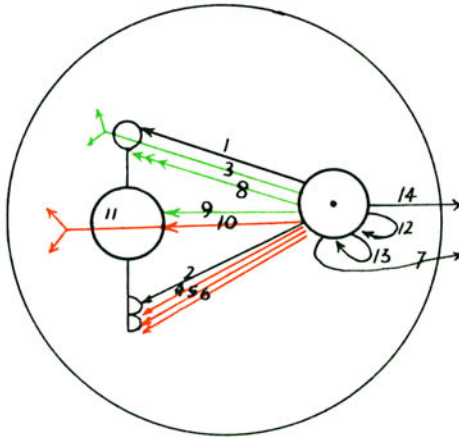


CASE 8—TRIAL VII

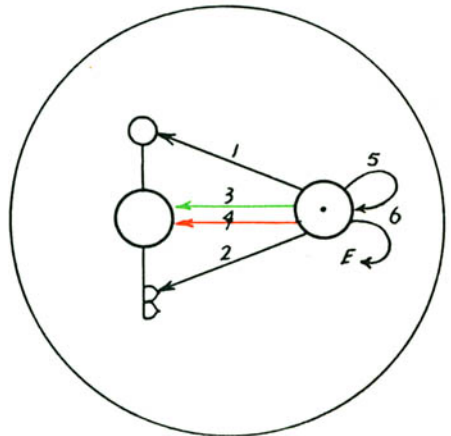




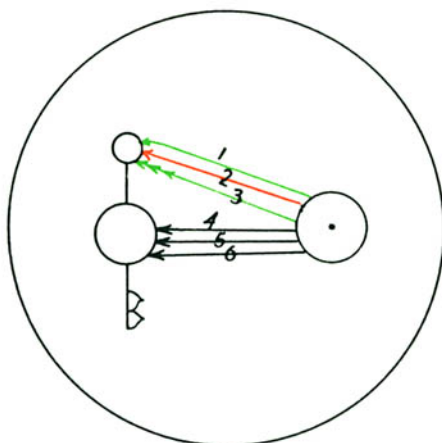
CASE 9—TRIAL I



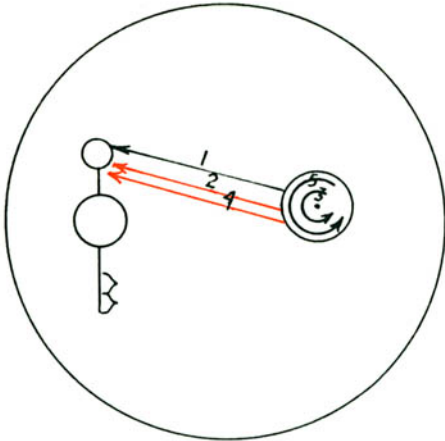
CASE 9—TRIAL II



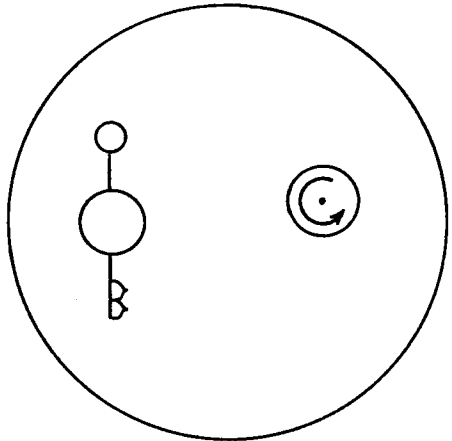
CASE 9—TRIAL III



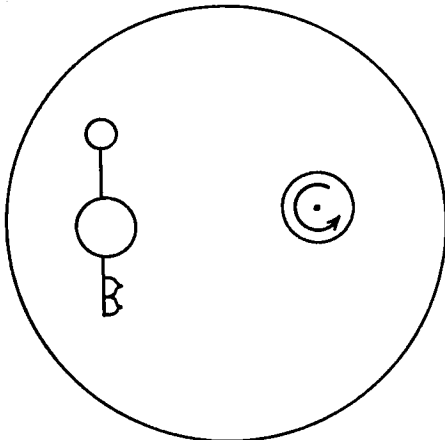
CASE 10—TRIAL I



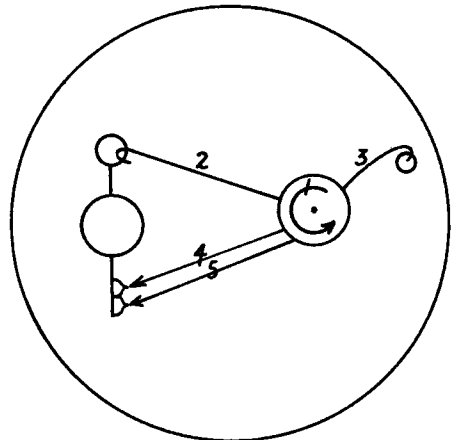
CASE 11—TRIAL I



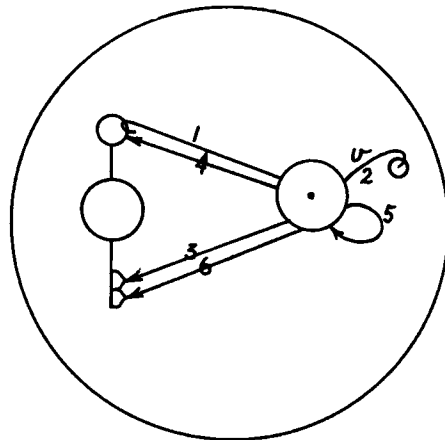
CASE 11—TRIAL II



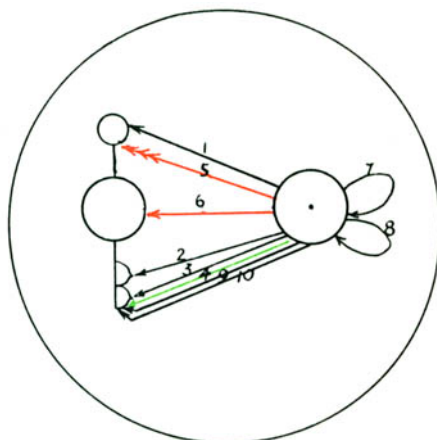
CASE 11—TRIAL III



CASE 11—TRIAL IV

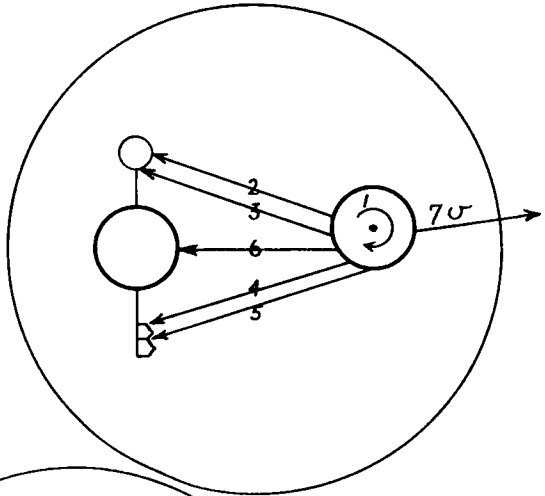


CASE 11—TRIAL V

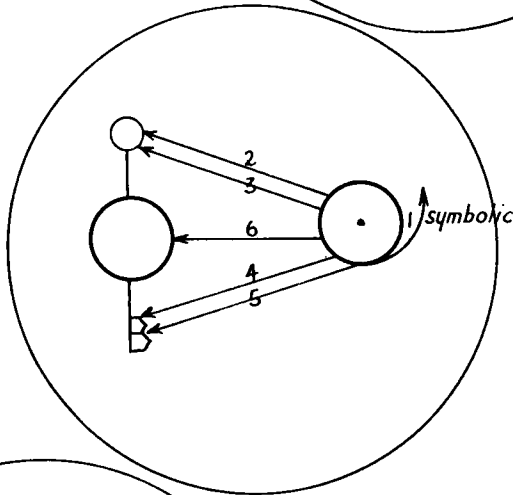


CASE 11—TRIAL VI

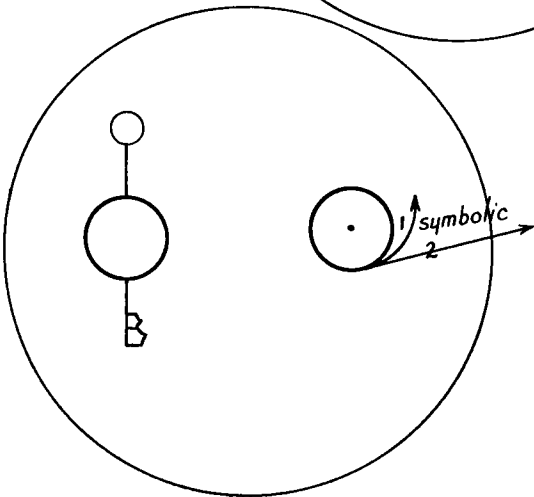
CASE 12—TRIAL I



CASE 12—TRIAL II



CASE 12—TRIAL III



## HOSTILITY PATTERNS

*Case #1—Trial I*

1. Pause in activity: "I don't know."
2. Inhibited movement: her hand moves slowly to the baby doll, almost touching it, then
3. Escape into distraction: busies herself with her toy automobiles, then
4. Self-punishment: squashes the sister doll and says, "She was bad, now she's good." (Why was she bad?) "She wanted to take the baby away."
5. Mild attack on baby: takes it away.
6. Mild attack on baby: lets it drop.
7. Another inhibited movement: she makes a move as if to throw it down, then stops. Then
8. Assault on baby: she throws it down.
9. Attack on mother: amputates the mother doll.
10. Another inhibited movement: makes a move to squeeze breasts and stops.
11. Attack on breasts: squashes them, says they are pancakes.
12. Concealed attack on baby (as shown in Trial II, in which she says baby likes cakes, and pushes the breasts, now transformed into cakes, hard into the baby's face, then presses the clay flat on the board.)

## Trial IV

1. Mild attack on baby: removes baby from breast.
2. Self-attack: with her own foot kicks the sister doll and says, "The sister said nasty, nasty."
3. Primitive attack on baby: steps on it at first slowly, then again and again (frequency indicated by number of arrow heads).
4. Primitive attack on baby: tearing. She picks up the crushed parts and pulls them to bits.
5. Mild attack on mother doll: she scratches the hand and says she is scraping the black off the hand.
6. Mild attack on mother doll: removes the hand and drops it.
7. Primitive attack on baby: she piles up the baby's parts and says, "I'll step on it some more, because it needs a little more step on it," and does so.

In the diagrams given, a jump was made from Trial I to Trial IV. In Trials II and III the diagrams would show transitional forms. In the final graph we see: (1) elimination of inhibited movements, (2) elimination of blocked movements, (3) increase in the number and intensity of attacks on the baby doll; that is, release of primitive hostility. A self-attacking is retained. In clinical language, the child has become sufficiently free of anxiety to achieve direct release of hostility towards the objects. Expressed in the form of graphs, the therapeutic objective is represented by attaining gradual release of feeling in the form of primitive hostility, eliminating blocked, inhibited, shunted and escape movements and self-

retaliatory behavior; that is, straight lines of action in the graphs, indicating specific hostility, and elimination of curved and random lines. To anticipate the section on therapy, a general observation may be made that a beneficial change in the sibling rivalry relationship is achieved most successfully when activity as represented in Graph IV is attained.

The graphs in the remaining cases can be worked out in detail by utilizing the records. *Case #2* illustrates the beginnings of a process that never reached fulfillment in the time allowed. In Trial I, hostility is undirected; the child takes a gun and shoots everywhere. In Trial II, we see evidence of self-punishment (2 and 4), attack from a distance (1 and 3), and direct attack on the baby, hitting it with a hammer, to be followed by a shunted movement, hammering a nail (6), and escape into distraction. In Trial III, the activity is a recession, with the introduction of an inhibited movement (5).

In *Case #3*, primitive release is attained, with tremendous activity on the baby, though with self-retaliatory hostility and three instances of running out of the room. Note in Trial I, mild attack on baby and breast; in II, release of active assault movements on baby and breasts (squashing breasts and strongly pushing baby into them) with verbal self-punishment. ("She wants the baby. Mamma kills her.") and escape into distracting play (mothering, as concealed, or defense against hostility.) In Trial III, release of primitive hostility with increase in number of movements occurs (crushing breasts several times, crushing baby, flattening it out, twisting the crushed parts) with consequent increase in self-punishing behavior, and stronger preventive movements (two instances of getting out of room). One can readily infer that in *Case #3* the experiment should not have stopped at this point, because of the persisting self-retaliatory behavior and strong escape reactions.

*Case #4.* The graphs represent an initial and copious release of hostility, after a rather strong blocking through passivity (saying "I don't want to" several times and crying). It is only after squashing the breast that a self-punishing act occurs, to be followed by primitive hostility to the baby with *spread* of hostility; i.e., destroying more than the one baby doll.

This is followed by increasing restriction of movement and preventive measures. In Trial II, passivity, primitive attack on baby and spread, then escape into distraction. In Trial III, he refuses to have anything to do with the material, and keeps away from it for three interviews. In Trial IV, there is quick destructive attack on all the objects, followed this time, however, by attempts at complete restitution. Because of the impulsive nature of the attack and strong restoring efforts, the experiment continued until activity with the material became freer yet "easier." (See Trials V and VI.)

*Case #5.* After using an object with which to hit the baby, the patient in *Case #5* attacks with his own hands, and then attacks the self. Hostile release continues with breasts, biting and throwing, a restoring attempt (breasts put on mother's shoulders), then amputation of mother doll.

Since restoring movements are not graphed, it is worth noting here that the patient looked as though about to cry after amputating the mother doll, and then reassembled it. Then he escaped into distraction with a toy truck, bringing it back to the play as a weapon with which to crush the baby. This was followed by leaving the room, and a spread of hostility, actually attacking a child in the waiting room.

Instead of a self-attack after movement no. 3, he threw the brother at me (projected self-punishment) and left the room.

*Case #6* is a good example of the need of a gradual freeing of oneself from inhibited movements before hostility can be released. A touch, then a withdrawal, and a request that examiner take the baby off mother's breast. A slight attack and a quick restoring movement. Essentially, repetitions of the pattern in Trials II and III. Final release in Trial IV, after much encouragement to go on.

*Case #7.* The patterns show increase in release of hostility featured by absence of any preventive movements. This may be explained by the fact that in Trials I and II the baby is simply removed, and the attack on the breast is followed by making food out of it for the baby. With active assault on the baby in Trial IV, the baby is restored through "Daddy" who takes the baby out of the garbage pail and returns it to the mother. The attack on the breast which follows again proceeds into a mothering activity. Restitution and maternal behavior appear adequate to mitigate the results of the hostile behavior.

*Case #8.* Various forms of withholding activity from the material are shown in the first three trials, with very mild release of hostility in Trial II. In the ensuing trials, following activation of hostility, each attack on the baby is preceded by various forms of shunted and other preventive movements. Before he attacks the baby, the patient refuses to go on, runs to play with other objects, then makes a sally, attacking various objects, until finally the target is achieved. There appears a gradual elimination of the self-attacking movements and the escapes into distracting play, though simple, direct action is never achieved. Since it became necessary to withdraw the child from treatment at the end of Trial VII, I activated a restitution scene to which the patient responded haltingly. Even so, the follow-up study showed a strong modification of the actual sibling relationship.

The shunting movements feature in the activity in this case. They may be a source of hostility symbols in dream life, when the object of attack is disguised in some other form.

An interesting bit of defiance throws some light on the inefficacy of the self-punishing behavior as a check on further hostility in Trial IV. I asked the patient why he hit the brother doll. He replied, "Because he hit the baby, and he's going to do it every day." In Trial VI, to a similar question, why he stuck himself with a rubber dagger, he evaded by saying, "Because that's to stick people with." However, in Trial V he gave the reason for the self-punishment

by saying spontaneously, "I put clay on the brother because he crashed the baby."

Putting the baby doll on a toilet is clearly to be interpreted as a means of getting rid of it like a bowel movement, if we follow the sequence in Trial VI. He picks up two play toilets, each constructed with a hinged top, and says, "Toilets are wrong, they need two tops. You might fall in." I asked if he were afraid and he said, "Yes, I'd go in with the do-do (feces) and there'd be no more Johnny (his name)." He plays with them, asks for a little doll (baby doll), puts it on a toilet, and says, "She won't fall in." Then he puts another baby doll in, reveals a wish to leave ("We can stay here only an hour"), then crushes one of the baby dolls with his foot, then another; then shows me the "do-do" she made, said, "The do-do is hard," and pressed it down in the play toilet. The idea of riddance follows in immediate sequence, dumping animals in the cellar, dumping them in the fire, one truck-load after another.

*Case #9.* Patient is a negativistic and destructive child, who attacks the objects at once, stopping after he carries the breasts to his mouth. With mounting hostile behavior in the second trial, two instances occur in which the hostility goes into fury—an attack on all the objects at once (line 3), the first, after removing the breasts, and later, an attempt to tear apart the paper board on which the objects were placed (line 11) after stamping on the mother doll. Consistent with the intensity of attack is a marked self-punishing act (hitting her own head with the sister doll) (line 13), as though the punishment meted out to the sister doll by hitting it (line 12) were not adequate; and in the third trial, an attack of the sister doll followed by striking the examiner with her hand (projected self-punishment).

The jump from hostile activity on one object to an attack on all the objects in the set-up is similar, though more controlled, to the behavior of children who explode into wild aggression, attacking everything in the room. It differs from the "spread" in experiments #4, 5, and 8, in that it does not utilize more of the same objects specifically attacked.

The patient stops activity in the first trial after applying breasts to the sister doll's mouth. After attacking breasts in the second trial (tearing and throwing bits to the floor) there appears an abortive restoring effort ("I am making the nipples") and then she runs out of the room. One may infer here that the obstructed act is her own biting of the breasts, since the difficulty arises on each occasion after the same attack on them, with the next move of biting revealed in Trial I. Also, since the impulsive running out of the room represents a most primitive prevention of hostility, we infer that the hostile feelings toward the breast are most disturbing.

*Case #10.* In #10, the various phases of the hostile pattern are revealed, with the exception of self-punishing behavior. The action is free, yet there is evidence of defense, for example, in the "kissing" (concealment of the hostility or restitution) which follows an attack on the mother, and the statement (in answer to



my question) that the mother is drowning "because she isn't being careful" (logical defense). Restitution also occurs in the act of restoring the baby to the mother. In this case the baby is kissed by the "nurse" after it is hit. The kissing is an act probably of restitution rather than defense, as though it says, "Everything is all right now."

As in cases #6 and 7, restoring without self-punishing behavior appears, a finding that occurs when the hostile performance is relatively mild. An example of the mildest hostility occurs in Case #12, the only case in which both restoring and self-punishing behavior are absent.

*Case #11.* The baby doll was snatched and bitten before the introductory phrase could be given. My question was a foolish interruption, evidently regarded as an accusation. It was followed by blocking of movements at the end of Trial I, and through the next two trials. The activating phrase initiated hostility after a defense, asking for the examiner's support ("You do it first"), and a denial indicating clearly its meaning as a fear of releasing hostility. (She said, "I will take the whole thing," then a pause, then, "I don't know how to do it, I don't want to do anything to it. I will be scared.") The patient then improvised a conversation while acting it out. The stealing is indicated by the hooked line (2); "she takes it away and won't come back again" (line 3). The breasts are taken so that the baby will starve, first, however, projecting the act, as the mother's. ("Mamma says, 'I will take this right off.'" Patient removes breasts. "I will do something else with it. She has no milk. Now I take it. I take it away from the little girl. She will die.") Taking the baby as her own vies with hostility toward it in Trials IV and V, with increasing release in Trial VI.

The hostility pattern revolves about the breasts. The baby is first eaten, Trial I, spitefully taken away, Trial IV (there is no mothering activity), the breasts destroyed so that the baby will die, they are turned into an enema with which to harm the baby, the sister is to take her place at the breast (Trial VI), and the resulting self-punishment is "to eat the sister," and put her in the rectum.

There is an interesting modification of hostility from direct line action in Trial I to conversation and stealing in Trial IV, though the stealing is followed by hostility. In older children this defense becomes more frequent, and is in the form of decreasing manipulation of the objects, with increase in verbalizations and phantasy.\*

Note how in this case, as in #9, both negativistic children, the hostile attack is brought to a halt after biting an object.

*Case #12.* As a control case, the hostility was not activated. In the three trials, the hostile behavior is mild and (hence?) no sequelae of self-punishment or restitution. The inhibition of hostile behavior is in the original pause, and four escape

\* Dr. Franz Alexander has suggested differentiating in these experiments children who steal out of spite from children who make use of what they steal. In this case, stealing the baby is not followed by the mothering activity which follows the stealing in Case #3. This is an interesting point to be investigated in the larger series.

movements, one verbal and not acted out ("I want to go to the front room"), two, a subtler form (revealed among the three and four year olds in this case only) in which the sister doll is turned with her back to the set-up, with the words, "She isn't looking. She doesn't see anything"; a fourth, actually leaving the room. The turning around of the sister acts as a complete inhibition of hostility in Trial III. It solves the problem by denying that it exists. That this solution was not satisfactory to the patient is shown by the fact that she wanted to return to the play.

## V

Restitution refers to activities that restore or attempt to restore the attacked objects to their original state. The child tries to undo what was done, in every detail. Breasts are manipulated into their original form and put back on the mother, parts of the mother are assembled and reinserted, the baby is put back to the breast. Since the material is such that the baby alone cannot be restored, a new baby may function as a restoration of the old one. Following an attack, either self-punishment or restitution may occur. Both actions are evidently an attempt to overcome the effects of the hostile display—in the one case by punishment, in the other by making good. The three year old in Case #1 hits the sister doll and says, "She was bad, now she's good." The play of restitution follows, in general, the play of hostility. It will be seen in Table 10 that in those cases where restoring the object did not take place (#2, 9, and 12) the hostility was of the mildest degree. On the other hand, in those cases in which hostility to the baby was expressed in strongest form (#1, 3, 4, 5, 8, and 11) the largest number of restoring actions occur. In two of these cases (#5 and 8) the restoring behavior applies to objects other than the baby. The most frequent instances of restitution consist in putting the baby back to the breast, reassembling the mother and restoring the breasts to her. Most frequent is restoration of the mother. From this fact no special conclusions can be drawn, since the mother doll is so constructed that reassembling it is a natural part of the play. Sometimes a child refuses to assemble the parts, and says immediately after removing: "And I won't put it together again," or, "You'll have to do it yourself." The restoring behavior appears similar to the self-punishing behavior, in that the child acts as though he finds himself compelled, and may try to prevent restoring behavior.

In Case #1, the feeling of pressure to restore the object is shown in the child's verbalization of real anxiety. "The baby said to me you ought to put the head on, but no, I can't put the head on." She tries to fix the head part. She piles up the baby parts together. She steps on the baby and walks away, returning to look especially at the face. At another point, she says, "The baby is all again," bringing the crushed parts together, then attacking the parts again and defending her behavior through an argument. After removing the baby she restores it to the breast and says, "She put it back."

Restoring acts occur more frequently than self-retaliatory acts. They may oc-

cur at that point in a sequence of acts in which self-punishment may occur. They may replace the latter type of activity or combine with it. They give the impression of being more satisfying to the child. On the other hand, restoring the baby often starts a new line of hostile attacks.

TABLE 10  
*Restitution*

Case No.	1	2	3	4	5	6	7	8	9	10	11	12
No. of Trials	4	3	3	6	2	4	3	7	3	1	6	3
Age	3	3	3	3	3	3	3	4	4	4	4	4
Sex	f	m	f	m	m	f	f	m	f	m	f	f
<b>BABY</b>												
Back to breasts	x			x		x				x	x <sup>1</sup>	
Tries to put parts together	x		xx									
A new baby	x			x								
<i>Verbal</i>												
"She put it back"	x											
"Baby is all again"	x											
<b>MOTHER</b>												
Parts assembled and inserted	xx											
A part restored	xx		x	x	x	x		x	x		x	
<b>BREASTS</b>												
Restored to mother			x	x	x			x			x	
<b>SELF</b>												
<i>Verbal</i>												
"Now she's good"	x											
"She put it back"	x											
<i>Indirect verbal</i>												
Father finds baby and gives it to mother							x					

<sup>1</sup> Throws baby to mother and says, "Here's your baby."

## VI

Under "Defense" are included all acts that represent attempts on the part of the child to defend himself against the consequences of his hostile behavior. They consist of justifications, denials, mitigations, or concealment of the hostile act; defensive measures against self-punishing behavior and the need of restitution. Defensive maneuvers of some form were used by every child in the series. Commonest are various forms of excuses (defense by use of logic), utilizing the examiner to permit, approve and share in the hostile play, and projection.

Defense may appear after self-punishment or restitution has taken place. It would seem that these mechanisms are then not adequate in themselves to "neu-

tralize" the feelings resulting from hostile behavior. In some cases, the child definitely anticipates the self-punishing and restoring behavior and acts to prevent their occurrence, for example, by attacking the examiner instead of himself at the end of the hostile performance, or by saying he will not restore the object, while attacking it. In general, as a comparison of the tables will show, the child who manifests a larger variety of restoring behavior manifests also a larger variety of defensive behavior. In other words, as the number of hostile acts increases, there is generally a corresponding increase in the other forms of behavior. In essence, the defensive maneuvers say: (1) "What I did is all right because you let me" (mitigation); (2) "Anyhow, I had a good reason to do it" (excuse); (3) "Really I didn't do it at all" (concealment and denial); (4) "You're the one who did it" (projection); and (5) "Anyhow, I'll fix it up. No, I can't" (restitution defense).

Attempts to get the aid and approval of examiner are recorded under "mitigation." A child asked me to take the baby off the mother's breast. Another wanted me to share in eating the baby. A child asked to have a clay doll made for him which he will crush. Another asked, "Are these the babies you're allowed to crush?" Another said, "You do it first." These are instances in which the child utilizes the examiner to give approval to the hostility and, presumably, derives support for the hostile behavior.

All attempts at a logical defense for the hostility are considered under the caption "excuses." A child says while stamping on the baby doll, "One house can't have two babies," again, "It needs a little more step on it." Later on, "Anyway, we have another baby." Another breaks up the baby and says, "The baby is no good." Another: "Give me a good baby. This one's bad." The mother doll, in another instance, just before amputation, is called "a dumb lady." A child hits the mother "because she isn't being careful." Again, just before the breasts are removed, there is the introductory remark, "Now we'll have to take these away." In essence, these acts say that there was a reason for doing what was done, because it had to be, or it was all right, or the object attacked was bad, or that it didn't matter anyway. The phrase: "Anyway we have another baby," is also considered as a "restitution defense." It allows the hostility to go on, on the basis that restoration will take place.

Concealment of hostility is most difficult to discern. It is inferred by the sequence of events. It appears more commonly in the older children. The child asks the mother a number of questions about the baby, where it came from, how she got it, etc., and then the mother tells the child to get out of the room. The questioning goes on again with the resulting punishment of the brother. It seems clear that the questioning conceals a hostile intent, since punishment follows. In this group, a child (Case #6) touches the mother doll at various points, asks, "Is this more milk?" and then pinches the breast. After partial amputation and restoration of the mother doll, she puts the baby back to the breast, asks if its mouth is open, and looks closely to see. She had previously spoken about eating

the baby doll. In Case #8, the clay which is called "do-do" is smeared over the buttocks of the brother doll. Asked why it is done, the patient replies the clay is paint and is done to "make him pretty." Evidently feces were used for a hostile purpose. One child denies her responsibility for the hostility by saying, "I am not Ethel," the name she gave to the sister doll, after the latter was in hostile activity.

Mothering, as a concealment of hostility, is more difficult to determine. Its use at certain phases in the play activity stamp it as a concealment or denial of hostile impulses, as though to say, "No, I'm not bad to the baby, I am nice to it." In other phases it appears as stealing the baby from the mother and possessing it. In Case #1 the child makes a cake for the baby out of the breasts and feeds it. During the feeding the baby's face is pushed into the clay. (Feeding, attack on baby.) In mothering activity with the baby another child (Case #3) says, "The baby must have a bottle and a nippy," then squashes the breasts on the mother and pushes the baby into them hard. (Feeding baby, attack on breasts and baby.) She then says that "she (the sister) wants the baby. Mamma kills her." (Punishment for wanting to steal baby.) Thereupon she mothers the baby, spending much time putting it to bed, getting a sheet and pillow, etc. In the next trial, mothering activity follows, to the exclusion of any other performance. On activation of hostility, feeding of the baby is followed by mothering, then restoring to the breast, crushing the breasts and slapping the baby, saying "I killed it," then slapping the sister doll, saying, "Kill her, she's bad." Later on, the breasts are put in place on the sister doll, and hostility to the baby proceeds anew. Restoration of the baby, with a final remark, "I love it," and reinsertion of the mother doll's head, end the scene. According to the sequence of events, hostility to the feeding baby overcomes a mothering tendency, which is likewise used to show proof of being good to the baby. Following attacks on the baby mothering occurs, at the same point in the patterns where self-punishment and later restoration occur. It is similar to a restitution.

In the mothering activity of a three year old boy (Case #4), chiefly diapering the baby and having it wet the diaper, washing and cleaning the baby, there appears little relationship of this act to hostility, excepting in a regressive manner. That is, the child would like to be a baby again, as is indicated also by his retention of baby speech—the problem for which he was referred. He removes the breasts from the mother and puts them on the brother doll, but does not utilize the breasted brother doll as a nursing mother. Such an act may mean, in this case, stealing the milk and giving it to the brother. Mothering activity in the form of giving food to the baby may represent a form of restitution.

A child (Case #7) takes the breasts from the mother, throws them away, then picks them up and makes food for the baby. In this case, also, stealing the baby and denial of wanting it occurs several times. Feeding the baby may mean in this case a return to it of the food that was stolen, and also a wish to steal the baby and mother it. In Case #10, kissing the baby is distinctly concealment or

denial of hostility. The child touches the baby several times, says, "I'm kissing her," and then presses it on the floor and hits it a number of times.

Mothering the baby may, therefore, represent concealment of hostility, making up for previous hostile behavior to it (compensatory mothering), stealing it to have it as one's own, or regressive behavior.

*Projection.* Four children of this series attacked the examiner. This occurred also in the older group, usually with the accusation, "You made me do it." After encouraging a three year old boy (Case #4) with the words, "That's good, go ahead," he smashed the baby doll and said, "Why did you tell me to smash it?" Some periods later (Trial VI) he tore baby dolls apart, and threw the parts at me. I asked, "Why did you throw the babies at me?" He replied, "Because you wanted to eat me up." The first accusation evidently serves in saving himself by passing the blame for hostility to the baby on to me. It is, then, a projected self-accusation. After making the accusation he freely attacked baby, mother and breasts in primitive style. When he tore the babies apart and threw them at me because, he said, I wanted to eat him up, he passed on to me the punishment that would otherwise come to him. This is evidently a projection of self-punishment. After making this accusation, he broke up the dolls, put the parts in a glass, said, "Now we must have a dinner," and put some of the parts in his mouth, insisting that I share the meal with him.

In both instances, the projection of self-accusation and punishment guarded him from the "felt" consequences of the preceding acts, and served to facilitate the hostile intention.

In Case #5, hostile behavior was released by a three year old boy immediately. The baby was beaten vigorously and torn apart, the brother doll was then thrown across the room "because he was naughty to hit the baby." Hostility of the primitive variety on the breasts, then on the mother, proceeded like a strong compelling force. Breasts were bitten, thrown on the floor and then restored to the mother doll. The latter was then amputated and reassembled. The boy then looked as though about to cry. The pattern went as follows: attack on the baby, self-punishment; attack on the breasts, restitution; attack on the mother, restitution. In the second trial, after similar activity on the baby, instead of the previous sequence of self-punishment, he threw it at me, saying "I must throw him at you." The sequence of events indicates again that attack on the examiner takes the place of self-punishment. The case is used to illustrate also that either restitution or self-punishment may follow immediately a destructive act.

A four year old (Case #9) threw a doll at me under circumstances similar to the preceding case. She was very vigorous in attacking the objects, and after previously stamping on the mother doll, hit the sister doll with her hand and, apparently unable to complete the self-punishing behavior through use of the doll, hit her own head with it. In the next trial, after the same event, attack on the mother doll, amputating and scattering the parts, she threw the sister doll at me. The act differs only in that the sister doll instead of the attacked object



TABLE 12  
*Forms of Defense*

1. Mitigation—through aid and approval of examiner
  - A. It's all right if you let me—or—You let me so it's all right.
  - B. You do it, too.
  - C. It's all right, isn't it? (for approval of logical defense).
2. Excuse—logical defense of completed hostile act
  - A. I had to do it.
  - B. I couldn't help it.
  - C. It's all right. The baby (or mother) was bad; i.e. he deserved it.
  - D. It's nothing at all.
3. Concealment and denial
  - A. Denial of identification with the actively hostile doll.
  - B. Denial by concealing the meaning of the hostile act.
  - C. Concealment through questioning.
  - D. Concealment through mothering and avowal of love.
4. Projection—defense against self-accusation and self-punishment
  - A. I didn't do it, you did it, (or he did it).
  - B. You made me do it.
  - C. You want to hit me (or eat me up, etc.).
5. Restitution defense
  - A. I can't put it back, etc. (impotence)
  - B. I'll put it back, etc. (promise to make good)

## VII

### REGRESSIVE BEHAVIOR, RIVALRY, EXULTATION

*Regressive behavior.* Removing the baby from the breast and putting the brother or sister doll in its place represents the commonest form of regressive behavior seen in the experiment. It occurs a few times in the three and four year olds. In Case #3, the older sister becomes the baby by reversal of names. The sister doll is brought to the mother after the baby is removed and the child says, "It's her titty." Diapering and washing the baby's diapers were regarded as regressive behavior for reasons previously stated in Case #4. In Case #3, the action is primarily directed to the breasts. The breasts are removed, apparently to take them away from the baby. In terms of the known facts about the child it may relate also to her refusal to give up the infantile relationship, especially in regard to feeding. The child refuses to eat unless the mother feeds her, and when the mother "talks her into eating by herself," she vomits. She has a hair-sucking habit since the first year of life, and has shown difficulty in feeding since she was weaned at the age of 10 months. Her persistence in baby talk is symptomatic also of the same problem.

The breasts are taken away with the words, "I'll do something else with it. She has no milk. Now I take it away from the little girl. She will die." This activity (Case #11) represents a spiteful move against the baby. It is followed by stealing of the baby with the words, "She takes the baby away. You are my baby. I'll take the baby away from mother." After taking the baby away, she hits it and also the sister doll and throws the baby back to the mother saying,



"Here's your baby." In the next trial she removes the breasts and refuses to return them to the mother, telling me I'll have to do it myself. I say, "I will give her some breasts so she can feed the little sister." Patient replies, "No, the big sister." In the activity of this child there is evidence of a wish to steal and have the baby for her own (at the end of the experiment she asks to have a new baby for herself) and also to take the baby's place at the breast. In this case the transformation of the breasts into enema is of interest. She removes the baby from the breast, saying that the baby will die, and makes an enema out of the breasts. She hits the baby and the sister doll, then again rolls up clay. At another point she removes the breasts, saying, "I will take this and use it right up," rolls them into a ball, throws them down, then crushes the baby. She restores them and then kicks the sister doll with her foot, and then pushes the sister doll into her own perineum, saying, "I would like to eat the sister, I don't like her." In this case it would appear that the breasts must be taken away from the baby and transformed into something harmful, an enema. The sister doll is punished for the attack on the baby by being pushed up into the perineum, evidently again to attack it with feces, doing to herself what she wanted to do to the baby doll (the enema). Our inference is that the milk or food which the baby is consuming must be turned into something obnoxious. The use of clay helps to make the quick association to feces, then to the enema play. In other words, the attitude towards the baby feeding at the breast is to take its milk away so it will starve, as she says, and then to change it into feces and destroy her with it.

*Rivalry.* It was explained as probably due to the limitations of the experiment that certain features in sibling rivalry were not brought out by it, for example, rivalry and attention-getting behavior. At least, they do not appear so readily in the three and four year old group. Evidence of rivalry in the experiments is shown in several cases, however. The first child in our series has the mother doll do a somersault and then says, "I stand on my head, too." In Case #8, rivalry play is brought out clearly. The brother is "first," "older," "he wins, the brother wins against the sister. Didn't he throw her in the fire?" In the older group, rivalry with the mother is brought into greater evidence, especially in the statement that the sister doll will make a better mother than the real mother. Transposing the breasts occurs several times in this series. It may, as previously explained, represent taking food away from the child and giving it to the brother or sister. It may represent also a jealousy of the mother and stealing her breasts as part of the maternal function. The transposition is utilized by boys as frequently as by girls.

*Exultation.* In several cases, after demolition of the baby, the child ran around the room shouting in an exultant manner. This activity represented apparently satisfaction of victory—successful completion of an impulse. At the same time, it appeared like a defiant gesture, a defensive form of reaction, a point that needs elaboration through further study.

## VIII

## THERAPY

There is abundant evidence that the behavior of children is modified by "play therapy," more specifically, that activity with dolls representing mother and baby affect the relationship with the real mother and baby. A general observation was made (v.s. page 215) that a functional change in this relationship is best achieved when hostility of the primitive degree occurs, generally unhampered by preventing, self-punishing, restoring and defensive behavior; in other words, a free release of hostile feeling.

Of the three and four year olds comprising the present series effects on the real sibling relationship could be determined only in the minority of cases, since, in the others, experiments were too few to achieve a free release of hostility, or performed on children subject to a variety of therapeutic efforts by other psychiatrists.

Difficulties in determining the influence of the play experience on the life situation are complicated by the multifarious influences on the growing child, especially when a change occurs gradually and slowly. For example, our first patient, called by the parents the brother's "echo," since she always imitated whatever he did, showed no evidence of overt hostility or any self-assertion in relationship with him. She was an overly disciplined child, as described in the appended record. After her experience in the play situations she became more self-assertive generally, stopped imitating the brother, and on occasions fought with him. The mother thought her reaction a healthier one, and the relation to the brother more outgoing and friendly. However, no immediate relation to the therapy was noted. The child was referred for fingersucking which was treated in a symptomatic way. The "sibling rivalry therapy" was suggested by me because of the repressed behavior. The change, however, was quite gradual. Its beginnings were observed by the mother after the treatment was over. Its relation to the therapy is a conjecture.

When a sibling rivalry relationship, or any other problem in behavior, has held for a year or longer to essentially a set form, changes that occur after treatment is instituted are usually attributed to it, as though, all other conditions being equal, the treatment alone can explain the change in behavior. "All other conditions," however, in the case of a young child, is a mere assumption. However, changes in behavior that follow immediately the play situation and are logically related to the child's activity in the playroom are obviously in causal relationship with it. For example, a child (Case #5), after a play session in which he hit the baby doll, hit a strange child in the waiting room. Rather convincing evidence that anxiety was released by the experience in the first trial is shown in Case #2, in which the child woke up and cried frequently on the night of the experiment. It was an unprecedented experience for the patient and indicates again a carry-over of feelings from the play into the life situation.

In the latter two instances, the activity carried out beyond the play room was consistent with the major type of activity displayed. In the first instance the aggression mounted and spread. In the second, the activity was featured by preventive movements, i.e. by energy directed against the hostile impulse, and resulted in generally disturbed behavior and anxiety.

Observations of behavior, gathered within the day of the experiment, are of especial value in the study of the therapeutic function of play. Though our examples of immediate influence have been in the form of untoward symptoms, they demonstrate, at least, a penetration of the play therapy in the real life of the child. Examples taken from children in the other age groups should in fairness be mentioned here. They show varying effects in the immediate relationship, chiefly of friendlier behavior, in some cases, spontaneously observed with surprise by the other siblings. A study of these immediate effects must be left to a future review of the entire series.

Immediate change of behavior, though convincing evidence of the causal relation of activity in the experiment and beyond, may be quite transient. Therapy, however, is concerned with a growing change—with a reduction of hostilities and envies in the sibling relationship, to a point that makes possible a constructive experience, one in which other phases of the relationship have opportunity to function—friendly and mutual enterprise, response to the activities of another personality. For, when the rivalry is prolonged and bitter, the patient sees in the rival only that part of his behavior which concerns hostile and possessive impulses. The relationship is then constricted to a type of experience that stimulates chiefly aggressive and possessive responses, that closes off all other types of response. In that sense, the hostile attitude to the sibling, whether expressed overtly, or in the form of regressive or other symptoms of behavior derived out of it, may pervade the entire relationship and prevent other possibilities of response. In other words, when the rivalry feelings are reduced, the relationship can absorb other types of experience. This does not mean that feelings of hostility, jealousy, and the like, are wiped out entirely when treatment is successful. It means they no longer monopolize the relationship.

There are five cases in the three and four year old series in which follow-up notes, over varying intervals of two to twenty-four months, are available. One of these cases (#1) has been considered. Of the others, Case #2 is of interest since the patient was withdrawn from treatment after Trial III, when the hostile behavior had not yet arrived at the stage of directly attacking the object. The mother had to travel to a distant city at that time. The immediate response to Trial I has already been noted. However, a letter from the mother two months after he left, contains the information that he impulsively hit the children in the nursery school in which he was entered, a response which continued for a few weeks before he adjusted to the group. Meanwhile, his behavior with the younger sibling improved. There were fewer temper tantrums in response to

sibling rivalry and of shorter duration. In this case, it is remembered, the first difficulty in sleeping occurred after the first interview, which we interpreted as a release of anxiety previously repressed, now precipitated by experiencing in the play a situation out of which it had developed. It may be that the play situation in which hostility to the brother was partially released put in motion the process that might have developed if treatment had continued. In that sense, the attack on the children in school would correspond to the "hostility spread" seen in the experiments in which the child attacks a number of babies. Such activity may also indicate a child's own way of solving the problem of hostility. In that case, treatment would represent either a short cut in the process, or an insurance of the "natural" recovery from the hostile stage.

In Case #4 overt hostility to the baby did not occur until about the sixth or seventh interview. It was at about this time that the "baby speech," for which the child was referred, showed a marked improvement. Hostility to the baby took the form of hitting and pushing her when in the presence of adults—who invariably petted and complimented the younger child, completely neglecting the patient. The hostility rose to its high point a month after its onset, and receded in another month to its present status (two years after the first trial). It consists in competing for the attention of adults when they make a fuss over the younger sibling.

The change of behavior during treatment involves the problem of selectivity of response to the sibling rivalry situation. The child took a regressive direction, in the sense of retaining infantile speech. He became also very greedy. This characteristic was shown in the free play that followed the sibling rivalry experiments. He was constantly trying to take home all the dolls in the office, to take home all the clay, all the guns, etc. He said he didn't want anybody else to have them. In the real situation, he did not steal the baby's things, but "shunted" the possessive response to accumulating as many things as he could for himself. This was shown partly in Trials V and VI, when he took all the objects he could and filled up every truck with them. Once he expressed his attitude by saying, "I like too much." It is evident, also, from the data in the record appended, that the aggressive attack was very powerful, likewise all the preventive movements. He went through a cycle of releasing hostility in an impulsive manner, marked withdrawal from hostile behavior, and then again a plunge into primitive attack. We would judge, therefore, that the original and true hostile response to the baby was sharply withheld, giving rise to other forms of response, in his case regressive behavior and a change in attitude toward possessions. The regressive play in the experiments is shown in the activity of diapering and washing the baby's diapers. It would appear that, when hostile responses to the sibling are withheld from some form of overt behavior, other forms of untoward behavior are strengthened.

In Case #8 follow-up notes nine months and twenty months after the first

experiment indicate clearly that a marked change in attitude occurred during the process of treatment. The change was described by the mother in these words: "A complete change. Everything was hostile and everything was jealous, now he is a protecting brother, shows no jealousy when adults play with younger sister, and no fighting for attention." I was able to check this observation through two other adults who had frequent contact with the child. The experiments are featured by a gradual development of the release of hostility. They start with various forms of preventive movements, proceed to mild attacks in the second and third trials, and rise to primitive hostility in Trial V. Even in the last trial (VII) there remain movements of a preventive type, though the primitive hostile movements are finally attained. Since this patient shows the most direct and marked therapeutic change in the three and four year old group, it is of special interest to note the "step by step" quality of the response. Judging by the entire series of cases in all the age groups, this appears to be the most favorable response from a therapeutic viewpoint. It contrasts with the previous case, in that the change in behavior runs in a slow ascending line, instead of a series of cycles.

In Case #11, a conversation with the mother about three years after the first trial revealed a disappearance of symptoms, some of which, the temper tantrums and enuresis, were directly related to the birth of the baby. The patient was referred to the Institute for Child Guidance. She was seen in the first two interviews for the sibling rivalry play and then returned to the psychiatrist to whom she had been assigned. Since other forms of therapy followed, there is little point in attempting to relate the change in behavior to one portion of a long therapeutic procedure, although a study of the graphs shows a therapeutic process of a favorable type. It is worth indicating that the child's hostility, which had been expressed to the mother in terms of eating, started along those lines immediately in Trial I. In this case, "sibling rivalry therapy" should be merely an introduction to a free play therapy—since removal of this particular stress would appear inadequate to the needs of the child.

It will be interesting to follow the course of activity in the experiments and study its relation to therapy and to the general behavior dynamics of the patient. The general flow of activity shows gradient forms of ascent, starting with blocked and mild assault, gradually attaining primitive release (Cases #1, 2, 6, 8, 9 and 11); and cyclic forms, starting with primitive or active assault, then blocked behavior and mild assault, then a new outburst, which heralds a similar cycle (Cases #4, 11). In Case #7 the course is from specialized to diversified release, the attack being limited in Trial I almost entirely to the breast, then gradually spreading to the other objects.

Besides an ascent, a cyclic, and a fan-like form, we have in Case #12 a descending line, the activity of a mild assault variety gradually diminishing, and in Case #11, a combination form, since a gradient form follows an initial release of primitive hostility.

## IX

## SUMMARY

In this study an analysis has been made of the activity of twelve three and four year olds, the youngest of a group of children in sibling rivalry experiments. The latter represent play situations given under certain standardized conditions in which a child is exposed to a play of dolls, a brother or sister doll observing a new baby at the mother's breast. Activity is stimulated by simply encouraging the child to go on in the first few trials; by activating hostility in later trials. The dynamics of the behavior observed is essentially the same in the entire series, though first presented in detail for the youngest children because of its more important genetic aspect and clearer revelation in overt behavior.

Observations of the child's behavior, including his and the examiner's verbalizations, were recorded in detail during the experiments. The items were classified according to their obvious meaning in terms of purposive activity. Certain interpretations of particular acts or trends were made according to frequently repeated sequences.

Under "prevention of hostility" are comprised all items of behavior observed as withholding attack on the objects. They are comprised of four types of movements: (1) blocked (inactivity in the form of denials, passivity, self-warning, refusal to cooperate); (2) movements away from the objects (escape movements in the form of running out of the room, busying oneself with other material, asking if it is time to leave); (3) movements toward the object partially released (inhibited movements, in the form of attacks that are inhibited before completion); (4) shunted movements (movements directed to the object which veer off and hit some other object). A tabular summary of the kinds of activity utilized to inhibit or prevent hostile behavior shows that such withholding of hostility occurs more forcibly among the children who actually experience overt difficulty in the relationship with a sibling, than with others.

In following the play of hostility as it passes from one object to the other, patterns differ, though, with few exceptions, they repeat themselves for each child. This repetition of the order of objects attacked is determined, not by accident, but by certain features in the psychic life of the child. Consistencies are shown in a major attack on the breast by the children with feeding problems, in a self-punishing act preceding each attack on the baby by a very repressed child; in attacks on the doll representing the patient after each attack on the baby doll, in general, by certain relationships between the order of attack and the previously known response in the sibling rivalry relationship.

Manifestations of hostility on the objects vary from slight movements to primitive crushing, tearing and biting. By following the order of movements when they proceed from mild to severe forms of attack on the different objects in the experiment, a rough measure of hostility may be drawn. For example, mild attacks on the baby doll include dropping, flipping, slight denting; assault in-

cludes throwing, slapping, hitting; primitive forms are crushing, tearing apart, biting.

In general, the child displays an increasing variety of forms and intensity of hostile behavior with increasing repetitions of the experiment. However, as hostility is facilitated to more primitive forms, it may favor one object over the others, although the baby doll is more frequently and increasingly attacked. Tables are included showing all the varieties of attack, in the order of their appearance on the different play objects.

By starting with the original mild hostile movement, and ending with its full-formed release, a tentative table was drawn up consisting of the first and final links of such chains of related acts, showing, for example, that bringing the baby to the breast ends in crushing it.

Self-retaliatory or self-punishing behavior was indicated by attacks upon the brother or sister doll, or by the patient on himself, and in general was as mild or severe as the preceding attack on any other object. Self-retaliatory behavior was not manifested in four children. In their cases, the degree of hostility was of the mildest form. A division of all forms of attack on the objects into three degrees, ranging from mild to severe, showed that self-retaliatory behavior appears sequentially only to the stronger forms of hostility (second and third degree).

Graphs for the various patterns of hostility are constructed to illustrate the course of hostile and preventive movements. They show in general a gradual elimination of various curved lines (inhibited, blocked, shunted, escape, self-punishing movements) in favor of straight lines (action indicating specific and primitive attacks). The therapeutic objective is thereby indicated as a gradual breaking through of barriers to primitive feeling in the play situation until a full release is achieved, in order to effect a change of feeling, hence, of attitude in the actual human relationship.

Each pattern has its own particular features, showing selective processes at work in the method of dealing with hostile feelings. Escape movements, for example, are favored by certain children. Others favor shunted movements, in the form of attack upon various non-specific objects before the specific attack is made.

The mounting of hostility once it is initiated may explode into fury (wild attack on all objects). It may spread beyond the material, requiring more of the same type of object (e.g. insisting on more baby dolls to attack.) It may end in many repetitions of the primitive forms.

Under the term "restitution" are included activities relating to restoration of objects after they have been attacked. They represent attempts to undo the harm that was done, and occur at the same point in a sequence in which self-punishment may occur. Either type of activity may replace or follow the other. The most frequent types of restoring behavior consist in putting the baby back to the breasts, reassembling the mother doll and restoring the breasts.

Under the term "defense" are included all activities indicating the child's attempt to defend himself against the consequences of his hostile behavior. They

consist of justifications, denials, mitigations or concealment of the hostile act; also defense against self-punishment and restitution. Every child in the series used some form of defensive maneuver. Commonest were various forms of excuses, utilizing the examiner to share, approve, or permit the hostile act, and projection. Defensive acts increase in frequency with increase in number and intensity of hostile acts.

Mothering the baby may represent concealment of hostility, making up (restitution) for previous hostility, stealing in order to possess it, or regressive behavior (wanting to be treated like the baby).

A common form of projection is an attack on the examiner. It serves to pass the blame for the hostility on to him, hence to punish him instead of the subject. It is clearly verbalized in the experiment, and represents projected self-accusation and punishment. Blame for hostility is passed on also to the mother and baby.

A table condensing the forms of defense into five types is included. The forms are (1) mitigation, (2) excuse (logical defense), (3) concealment and denial, (4) projection, (5) restitution defense.

The commonest form of regressive behavior in the experiments consists of removing the baby from the breasts and putting the brother or sister doll in its place. Rivalry with the mother is seen in transferring the breasts from her to the brother or sister doll.

The therapeutic function of the experiment was studied by means of observations made by the mother immediately after the first trial, and follow-up notes extending from a period of months to years. Observations immediately following the first experiment indicate effects, though transient, in the form of spread of hostility, release of anxiety, or friendlier behavior toward the sibling. The number of cases in the three and four year old group in which follow-up notes over long periods of time are at hand is too small to allow conclusions. Data from the total series of cases in all age groups show a more favorable therapeutic change when there is gradual positive acceleration to primitive release of feeling. The general flow of activity in each series of experiments indicates gradual acceleration in release of hostility (gradient forms); cycles beginning and ending with outbursts of activity, with intervals of blocked and preventive movements (cyclic forms); gradual extension of hostile release from one object to others as the experiments go on (fan-like forms); and a gradual negative acceleration, starting with release of hostility and tapering down to increasing diminution of activity.

Records of each case are appended. They include all the data elicited by the experiments; an analysis of items of the pattern of hostility; certain comments, and "follow-up" notes.

## X

### CONCLUSION

The feelings of children can be revealed through activity in play situations, so organized as to satisfy the requirements of experimental procedure (the "controlled situation") and yet sufficiently flexible to allow abundant variety of



behavior. The meaning of this behavior can be determined by careful study of the sequence of events, considering the relations of the items in terms of purposeful activity, as in any empirical investigation.

In play situations constructed to release the feelings of children in a sibling rivalry experience, essentially similar patterns of activity appear that represent dynamic principles of behavior. The child's response to the mother-baby combination, when hostile, is felt chiefly as an urge to destroy, by immediate primitive release of feeling in the form of biting, crushing and tearing. Checks to this impulse are already manifest at the three and four year levels. They operate typically in the initial phase of the act, either blocking it or allowing only its partial release. Once hostile behavior is set in motion, it runs a well defined course, felt by the child as a "push" or "compulsion" to act—along the prescribed lines of the pattern. Following the release of hostile feelings through an attack on the object, the child must pursue one of three kinds of self-redeeming behavior, of necessity, all three, if the hostility is to go on. They consist of self-punishment, equal in amount to the hostility displayed; of attempts to make good the damage done, by restoring the objects to the prebellum stage; and of various defensive measures—lies, evasions, and justifications. As the full pattern unfolds, the child may resist at any point, anticipating and protesting the next move.

Checks to action are evidently derived out of fear of consequences, felt as a fear of the destructive impulse. Clearly, also, the "self-redeeming" behavior acts to allay the anxiety rising out of the destructive act, and enables further hostility to go on.

The completion of such patterns of behavior, observed in gradient or cyclical forms, affect the child's behavior toward the object of rivalry in a beneficial way, presumably by reducing feelings of hostility, thereby allowing the growth of other forms of response.

#### APPENDED RECORDS

*Note:* In the records appended, the numbers appearing in the context of the "trials" refer to numbers on the lines of the graphs. Each case is followed by an analysis of all items of the pattern of hostility, arranged according to the plan described in the text.

Certain comments written immediately after the experiments were made are included, besides several "follow-up" notes.

#### CASE I

Date 1st experiment: 3-8-34

Age: 3 years, 1 month

Sex: Female

No. of siblings: Two

Age of rival: 4½ years

Sex of rival: Male

Problems for which patient referred: Thumbsucking

Present status of sibling rivalry: Mother says children get along very well together. Play together well, ask for each other, and like to include each other. She follows brother around and tries to imitate everything he does. (Mother says she herself shows preference for the older child. The nurse also "lavished all her affection" on the boy.)

Interview in which experiment made: First

Experiment: Trial I: "I don't know" (1). Her hand moves slowly to baby doll, almost touching it (2), then she goes on to play with her toy automobiles (3), with which she entered the room. In a few minutes returns to squash the sister doll (4), and says, "She's bad. She was bad, now she's good." (Why was she bad?) "She wanted to take the baby away." (Go ahead.) Takes baby away (5). Says she can stand. Then lets it drop (6). (I ask: "What did sister want to do with baby?") She makes a move as if to throw it down, then stops (7). (I tell her to go ahead.) She throws it down (8). Then takes the mother apart (9) and makes a move of squeezing breasts and again stops (10). (I say: "Don't be afraid. Go ahead.") She takes breasts, squashes them (11), says they are pancakes and puts them to baby doll's face (12).

Trial II: Removes baby, joins her hand to sister doll and says, "She takes the baby for a walk." Has both dolls walk. Then picks up baby doll, and adjusts her to the breast, and says, "She put it back." Then tries to make sister doll stand up, picks up mother, removes the baby, all movements gentle, starts amputating mother doll and says, "I'm going to put them back in." After complete amputation she says, "See, doesn't she look funny that way?" Then puts her together again and says, "I can do every one, can't I?"

Then removes the breast, says, "I make a big cake, I feed the baby with the cake. Babies like cakes, don't they?" Pushes clay to baby, then presses the clay flat on the board, and then takes mother doll apart and puts it together again, movements deliberate and well done. Stops before she's through and presses clay, then resumes joining mother doll. Before inserting final pieces, stands up and prances about the room. Finishes the job, then keeps prancing about and to my question says she wants to go to the toilet. Returns and plays with mother doll. Says, "She's doing a somersault. I stand on my head, too."

Trial III: "She stands up and she makes a cake." Takes off breasts, squashes the, picks up baby and says she's going to be a big girl. "I can make snakes out of clay. Look, I can make a big one." Laughs and rolls the clay into a snake, then runs away and says, "The snake is going to bite me." (I ask why.) She says, "Because he has a mouth." Comes back, laughs and says, "I make a big long one." Then says, "The snake will creep up your back. Real, real, real snakes go in floors, don't they?" Then hears ambulance siren and looks out the window.

Trial IV (Activated): (I used the phrase: "The sister said 'The nasty baby, the bad baby at my mother's breast.'") She took the baby off (1), stood up and kicked (I thought at the mother and baby) and the foot struck the sister doll (2). Then said, "The sister said nasty, nasty, nasty." Stepped on the baby doll (3) at first slowly, then again and again. "I step on it my two feet." Then pulled a

leg, hard (4). "The baby is all again," picked up crushed parts, pulled them to bits and said, "I broke the baby. I took the leg off. Look. All that was stepped on. All of it." She continued pulling the parts to bits, then picked up the parts and said, "Anyway, we have another baby. Have you a hard baby here?" (doll was celluloid). "Anyhow we can't have two babies at a time in one house. One house can't have two babies. Two houses can have two babies in it. Anyway, we can't have this baby, can we?" Scatters the parts. "If we had two houses we could have two babies. So one of the girls stepped on all the parts of the baby, but anyway we can have another one. The baby said to me, you ought to put the head on, but no, I can't put the head on." Tries to fix a head part.

Then takes the mother doll and says she is scraping the black off the hand (5). Picks up the hand and drops it down (6). Piles up the baby parts together, says, again, "All the parts of the baby are broken. I'll step on it some more because it needs a little more step on it." Steps on it (7) and walks away. Returns and looks especially at the face part.

Takes a board, puts mother doll on it and says, "This is a boat." Then comes back to the doll and gathers the parts again. (I bring a basket without saying anything.) She dumps the parts in it and says, "There go the dead parts." (I then give her another doll to overcome immediate anxiety. I ask, "What about the sister?") She replies, "She's lying down for a rest." Ends the session playing with a truck.

*Comments:* The child seems overly disciplined. She asked permission to open the drawers of toys even after she was told it was all right. In Trial I a restraint is seen in all her movements—a touch, then a withdrawal; hence the frequent need of encouragement ("Go ahead"). As indicated by the later patterns, one may infer that her first impulse was to destroy the baby and then the mother doll. She barely touches the baby and then runs into distracting play. Returns to squash the baby but instead attacks the sister doll, because the sister wanted "to take the baby away." Put in terms of motivation, she attacks herself because of her "bad" impulse. Nevertheless, the attacking impulse proceeds. She does take the baby away and lets it drop, an act of restraint far short of the later completed destructive performance. She goes through the movements partially of throwing the baby doll down, stops, then when encouraged, does throw it down.

With this increase in release of hostility, she attacks the mother doll by amputating her. The destructive activity towards the breast is partially checked, amputating then withholding the movement of squashing the breast. This withholding movement may have other possible motivations, e.g., refusal to handle dirty clay. It may be regarded as a checked destructive movement consistent with previous patterns (e.g., touching baby followed by squashing it; talk of taking it away, then later doing so; "letting" it drop, then throwing it down). However, resemblance to previous patterns may be fallacious. Any object stuck on another is invariably pulled off in the play sessions. That such activity is hostile may be inferred from the sequence of events.

## PATTERN OF HOSTILITY

I. *Prevention of hostility to objects in set-up*

1. "I don't know" (Denial)
2. Touching and withdrawing (Inhibited throwing, inhibited squeezing)
3. Going into other activities (Distraction)
4. Leaving room (Escape)

II. *Direction*

1. "Self," baby, mother, breasts
2. Mother, baby, breasts
3. Breasts, examiner
4. "Self," baby, mother

III. *Forms*

Baby: 1. touching; 2. removal from breast; 3. dropping; 4. throwing; 5. pushing breast to baby; 6. crushing with feet; 7. pulling apart; 8. scattering parts  
 "Self": 1. squashing (crushing with fingers); 2. (verbal) "She's bad"; 3. kicking  
 Mother: 1. general amputation; 2. distortion; 3. scratching; 4. amputation of hand  
 Breasts: 1. removal; 2. squashing; 3. pressing; 4. manipulating  
 Examiner: "The snakes will creep up your back."

IV. *Self-punishment and accusation*

1. Self-accusation: "She was bad."
2. Self-retaliation
3. Retaliation of breast (?): "snake is going to bite me."
4. "The baby said to me, 'You ought to put the head on.'"

V. *Restitution*

of "self": "Now she's good."

of baby: puts back to breast. "She put it back." Tries to put parts together again.

"Baby is all again." A new baby.

of mother: Put together.

VI. *Self-defense*

1. Justification: "One house can't have two babies." "Anyway we have another baby." "It needs a little more step on it."
2. Appeal to examiner: "Anyway, we can't have this baby, can we?"
3. Impotence: ". . . but no, I can't put the head on."
4. Against harm: "Real, real snakes go in floors, don't they?"
5. Promise of restitution: "I'm going to put them back in (parts of mother)."
6. Mothering: Feeding baby. Takes baby for a walk. Cake for baby

*Follow-Up*

Interview with mother 15 months after first experiment. Mother says at time child came was very imitative of older brother; they called her "the echo." There was little fighting and that always initiated by brother. Since treatment, patient is much less imitative, more assertive, occasionally hits brother. Mother thinks relationship has gradually grown freer and more independent; but no immediate and direct relationship to treatment was observed.

## CASE 2

Date 1st experiment: 11-19-33

Age: 3 years, 7 months

Sex: Male

No. of siblings: Two

Age of rival: 18 months

Sex of rival: Male

Problems for which patient referred: Temper tantrums, fears

Present status of sibling rivalry: Has always fought with sibling

Interview in which experiment made: First

Experiment: Trial I: Takes a gun and shoots it many times. Keeps away from set-up.

Trial II (2nd interview): Shoots baby (1), brother (2), mother (3), me (4). Says, "Brother scratches baby." (I say, "Let him do it") but patient won't touch baby. Later, when hammering, hammers baby (5) then pushes it away. Sees a toy snake in desk drawer; asks me to take it. (I ask him to take it.) He refuses. (I put it on floor.) He shoots it (6). (Attacks from a distance.) Shoots at a doll in drawer he calls "daddy doll" (6). Runs to distraction (7), to hammer and play with locomotive.

Trial III (3rd interview): Selected gun (1) and later (2) hammer and nails. Hard to keep his attention. Distractions (3). Shoots baby (4), then brother (5), then mother (6).

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Non-specific aggression: shoots everywhere
2. Distance: keeps away from set-up
3. Distraction: with other toys

##### II. *Direction*

1. General
2. Baby, "self," mother, examiner, baby, a snake, daddy
3. Baby, "self," mother

##### III. *Forms*

Baby: 1. shooting; 2. (verbal) "Brother scratches baby"; 3. hammering  
 "Self": shooting  
 Mother: shooting

##### IV. *Self-punishment and accusation*

Shoots "self"

##### V. *Restitution*

##### VI. *Self-defense*

Aid of examiner: has examiner handle snake for him  
 Shoots examiner

#### *Follow-Up*

After first interview, mother said, generally disturbed. Waked up through the night, crying at least ten times. This never occurred before. After second interview, quieter than usual. Slept through the night without crying, and likewise the two nights following.

After third interview family moved far away. A letter from mother two months after Trial I states that patient had difficulty of a few weeks duration in nursery school, hitting other children and taking their things, then adjusted well. With younger sibling, "he is behaving better, is having fewer temper tantrums and of much shorter duration."

#### CASE 3

Date 1st experiment: May, 1933

Age: 3 years, 7 months

Sex: Female

No. of siblings: Only child

Problems for which patient referred: Food refusal, vomiting

Interview in which experiment made: Second

Events in interviews preceding experiment: "Neutral" chatting. Frequent leaving for toilet to wash.

Experiment: Trial I: Names baby "Mary" and the sister "Lucy." Patient takes baby from mother (1), puts it on floor, removes breasts (2), brings them to her mouth (3), then presses breasts back on mother. She then brings baby to her mouth (4), then puts it on the floor.

Trial II: She says baby must have "a bottle and a nippy." Then calls the baby "Lucy" and the sister "Mary." Removes the baby (1), says "Baby has a behind," then squashes the breasts (2) on the mother and pushes the baby into them hard (3). She repeats the words, "Comes in and sees the baby, what does she do?" Then says, "She wants the baby. Mamma kills her" (4). (Why?) "Because she mustn't take the baby." Thereupon patient mothers the baby. Goes to toy drawer, selects a cat and asks for a mattress, a sheet and a pillow. Uses paper for bedding and then says she wants a big baby. Spends about ten minutes putting baby to bed, etc.

Trial III: Further mothering activity, putting baby in crib which becomes a carriage, etc.

Trial IV (Activated): (Sister doll is given patient's name and the stimulus "The nerve, the nerve, at my mother's breast" used.) Patient removes the breasts (1), brings them to her mouth (2), puts the breasts in the crib, then brings sister doll to the mother and says, "There's her titty." Then patient brings breasts to her nose and puts them again in the crib. She then mothers the baby as above and puts the baby to the breasts that are in the crib, saying, "That's milk."

She takes breasts out of crib, crushes them (3) and says, "I don't want that." Then wraps the breasts in paper, puts them in the crib and says, "Save that for tomorrow." She slaps the baby (4), slaps it harder and says, "I killed it." Then slaps sister doll (5) and says, "Kill her, she's bad." She then shakes the sister doll vigorously by the head (6). Patient then pulls off mother's head (7), is distracted by the sight of a rubber tube, touches the baby's arm with it and says, "An enema" (8). She then picks up the breasts and puts them in place on the sister doll; then gives the baby "an enema" (8), applying rubber tube to baby's buttocks, and says, "Hear her make a-a," then, "water, water." She picks up the crib, smells it, takes a piece of the breast, put it on the baby's arm and says, "That's a suppository" (8). Then she crushes the baby hard with her fingers (9), crushing the abdomen, head and legs until she has flattened it out (9). Then she twists it (10). Patient than says, "Give me a good baby. This one's bad. It hit the mamma." She tries to press the baby back in shape and says she "wants to go peepie."

She leaves the room (11) promises to come back, returns, picks up the head of

the mother doll, and when about to insert it, asks what time it is and says, "I haven't a clock in me, I want to go and ask mamma" (12). She leaves the room (13), then returns but won't come in until she is persuaded. She tries again to fix the flattened baby, and says, "It's all broken up. Throw it out." She asks for another doll and is given one. She says, "I love it." Then she inserts the head on the mother doll.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Inhibition of biting. Brings breasts to mouth, then baby to mouth, but puts them back
2. "She mustn't take the baby."
3. Escape: leaves room twice
4. Suddenly asking what time it is
5. Distraction: by a rubber tube

##### II. *Direction*

1. Breasts, baby
2. Breasts, baby
- 3.
4. Breasts, baby, "self," mother

##### III. *Forms*

Breasts: 1. removal; 2. to mouth; 3. crushing; 4. pushing into chest of mother doll; 5. transforming; 6. crushing; 7. stealing—breasts to sister doll; 8. transforming—suppository

Baby: 1. removal; 2. to mouth; 3. pushes into breasts; 4. slapping; 5. (verbal) "I killed it"; 6. enema (?); 7. crushing with hands to flattening; 8. twisting

"Self": 1. (verbal) "Mamma kills her"; 2. slapping; 3. (verbal) "Kill her, she's bad"; 4. spanking

Mother: amputation of head

##### IV. *Self-punishment and accusation*

1. (verbal) "She wants the baby. Mamma kills her. Because she mustn't take the baby."
2. "Self" slapping and shaking by the head
3. Says, "I killed it (the baby)."

##### V. *Restitution*

Baby: tries to press baby back in shape. Two attempts

Mother: inserts mother's head. Restores breasts to mother in Trial I

##### VI. *Self-defense*

By accusation against baby and projection: "Give me a good baby. This one's bad. It hit the mamma."

By saying: "It's all broken up. Throw it out."

Mothering: "I love it (the baby)."

##### *Other Patterns*

Stealing: Baby: "She wants the baby. Mamma kills her." Mothering appears to be as much a possessive, as modification of hostile attitude.

Rivalry: Breasts: puts breasts on sister doll (followed by giving an enema, which is immediately followed by crushing baby).

Regressions: Older sister becomes baby by reversal of names, Trial II.

Activity with breasts (besides crushing, etc.): Breasts are squashed and baby pushed into them, immediately after saying "Baby has a behind." They are brought to mouth,

called "titty" and "milk," wrapped up as food. They are smelt, and made part of enema play, put on baby's arm and called a suppository.

No. 3 featured by activity with breasts, stealing and aggression. Mild hostility to mother.

#### CASE 4

Date 1st experiment: 3-8-34

Age: 3 years, 8 months.

Sex: Male

No. of siblings: Two

Age of rival: 20 months

Sex of rival: Female

Problems for which patient referred: Speech difficulty—retains "baby" speech.

Present status of sibling rivalry: No overt hostility with baby. No "bad reaction" at first meeting. (Problem considered a regressive response to sibling rivalry.)

Interview in which experiment made: First

Experiment: Trial I: Appeared very interested, then took brother doll and made him walk to mother. He then said, "I don't want to," cried a bit, said, "I don't want to," several times (1), then, using the brother doll as a weapon, smashed the mother doll (2), threw the baby down (3), and looked at me anxiously. (I said, "That's good. Go ahead.") He then took the baby doll (a china doll) smashed it to bits (4), and said, "Why did you tell me to smash it?" (I said, "Because you wanted to.") He took every large bit of the doll and smashed it with a stick (5), then a hammer (6) into still smaller bits. Then he took the mother apart (7) and struck her with a hammer (8). He removed the breasts (9), squashed them (10), then put them on brother doll (a rubber doll), and then hit the rubber doll (11), saying, "I can't break it, it's rubber." (I asked, "Why are you hitting the brother?") He didn't answer. Then insisted on more baby dolls. He smashed another (12) and after getting a third said, "No, that's a pretty one." Then got distracted and played with animal toys (13).

Trial II: Says, "I don't know" (1). Then takes an automobile and says, "It's the mommy's automobile." Picks out another doll and says, "Where did you find it?" Asks for the hammer. Then picks out a china doll (in Trial II a celluloid doll was used as the baby) and smashes it to bits (2). Says, "I broke that baby up," and sings, "I broke that baby up." Finds another doll and asks, "Can I break this one?" (I say yes.) He smashes it again with a hammer and says, "That's very hard," then, "Now I break the head, and now I broke that up" (3). Distracted (4) and can't be led to the sibling rivalry play.

Trial III: Refusal to play with material.

Trial IV (6th interview): (He kept away from sibling rivalry material for three interviews, meanwhile playing chiefly with water and baby dolls, wetting their "diapers," washing them, etc.)

(When shown the sibling rivalry set-up, I gave the phrase, "The brother (using patient's name) says it's a naughty baby.") He jumped on mother and baby, squashing baby (1) and mother (1). Then removed her breasts (2). Then



carefully put her together again, got another baby and tried putting mother with arms around baby exactly as placed originally. Then went on to other play.

Trial V (7th interview): Plays chiefly at diapering babies and wetting the diaper. He won't come near the sibling rivalry set-up. Takes as many things as he can get, every truck and every little animal figure. Dumps them all in wagon. Sticks lumps of clay in water, takes them out and puts them on trucks. Then runs the trucks, takes out the clay. Makes one truck bump another. Then runs them to the sibling rivalry set-up, which was placed on the floor, runs over mother and baby. Lifts trucks to hammer them down, then crushes brother doll, and then rolls trucks along and crushes down clay.

Trial VI (8th interview): During patient's play, consisting mostly of putting marbles in a glass of water, then pouring the water from one glass to another, getting as many trucks as he could into the playroom, I added three baby dolls to his material. In pouring the water he got a lot of it on the table and on the floor. Then suddenly he pulled the legs and arms off the dolls, looked flushed, and threw them at me. He laughed and said, "What is that for?" pointing to some books. (I said, "Why did you throw the babies at me?") He said, "Because you wanted to eat me up." He then took the torsos of the dolls, broke them up with his fingers, and put all the parts together in a glass of water, then said, after a few minutes play in silence, "Now we must have a dinner," and enumerated the parts of the meal. "You must have some." He gave me the parts of the doll in a glass. I took some and we both put them in our mouths. Then suddenly said he wanted to do "wee-wee" in the glass that contained the parts of the doll, and quickly prepared to do it, though I didn't let him. He struggled but I finally got him to the toilet.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Verbalizes attempts at inhibiting hostility: "I don't want to," "I don't want to," and cries. (Fights against hostile impulse.)
2. Distraction: escape to safer play with animal toys.
3. Denial: "I don't know."
4. Refusal to have anything to do with set-up.
5. Refusal to break a doll, saying, "No, that's a pretty one."
6. Symbolic hostility: against balloons, trucks.

##### II. *Direction*

1. Mother, baby, breasts, "self," more babies (spread of hostility)
2. Baby, and more babies
3. Refusal
4. Baby and mother together, breasts
5. Baby and mother together, "self"

##### III. *Forms*

Mother: 1. hits mother with weapon (brother doll), 2. amputation; 3. striking with hammer; 4. jumping on mother, crushing with feet; 5. runs over mother with a truck; 6. crushes with truck as weapon.

Baby: 1. hits baby with weapon (brother doll); 2. smashes it with stick; 3. smashes

it with hammer; 4. jumping, crushing with feet; 5. crushes with truck as a weapon;  
6. tearing with fingers; 7. eating; 8. urinating.

Breasts: 1. removing; 2. squashing

"Self": 1. hits and says, "I can't break it, it's rubber;" 2. hammers down with a truck.

IV. *Self-punishment and accusation*

Self-retaliatory hostility

V. *Restitution*

Restoration (complete) of mother and breasts, and gets a new baby to put back to breast.

VI. *Self-defense*

Projection: accuses examiner, "Why did you tell me to smash it?"

Attack on examiner: throws broken doll at examiner.

Mothering.

Support from examiner: has examiner break the balloons. Looks anxiously to examiner for right to go on, asks for permission and has examiner share act of eating.

*Other patterns*

Stealing: of breasts. Puts breasts on brother doll.

Mothering: Diapering and washing baby's diapers.

Regression: identification with baby.

Feature: quick release of primitive hostility (phase 3?) after initial inhibition and avoidance of material, with marked spread of infantile behavior.

*Follow-Up*

The speech difficulty was no longer a problem by the sixth interview, at which time overt hostility to the baby was manifest. It took the form of hitting and pushing when in the presence of adults, who usually made much of the younger child, to the neglect of the patient. The hostility rose to its high point a month after onset, and receded to its present status after a period of about four weeks. At present (two years after the first trial), the manifestation of sibling rivalry occurs only when strange grown-ups make a fuss over the child in the patient's presence, whereupon he makes bid for their attention; an interesting change from a regressive response to an overtly hostile one.

CASE 5

Date 1st experiment: March, 1933

Age: 3 years, 8 months

Sex: Male

No. of siblings: Two

Age of rival: 2 years

Sex of rival: Male

Problems for which patient referred: Stammering, hyperactivity

Present status of sibling rivalry: Bossy with baby and won't let him touch possessions, but no evidence of hitting; they generally play well together.

Interview in which experiment made: Second

Events in interview preceding experiment: Neutral play activity

Experiment: Trial I: Patient named the baby "Mink." (Examiner named the brother "Ray," patient's name.) Patient immediately said, "Ray tears the baby." He then took the brother doll and with it knocked the baby from the mother's arms (1) and beat the baby vigorously (2). He then took the baby doll with his own hands and tore it to bits (3). When asked what he was doing, he said he was tearing up the baby and hitting it hard. He then took the brother doll and threw

it across the room (4). (Examiner asked: "Why did you do that?") He replied, "He was punished because he was naughty to hit the baby." He took the brother doll and with it beat the mother (5), then snatched her breasts (6), put them in his mouth, bit them (7), threw them on the floor (8), picked them up and put them back on the mother doll's shoulder, and then amputated the mother doll (9). He then looked as though about to cry, though there were no tears. He next put the mother together again (the examiner helping since he had difficulty in doing it). He then asked to play with the toy truck, opening the desk drawer where he previously had seen the toys (10). In playing with the truck, he said he was running over the pieces of the baby and crushing the toes (11). Then he insisted on going back to his mother who was in reception room (12). He left examiner's office, returned to waiting room, walked over to a small boy sitting quietly in one corner and either hit him in the eye or stuck a finger in the eye (13). Patient's mother went to the child's rescue, the patient repeating, "He's a baby."

Trial II (Activated): (Examiner named the baby "Mart" (correct name) and the brother "Ray," patient's name.) Same reaction to the baby followed as in Trial I. Patient then said, "I must throw him at you," and threw baby doll at examiner (4). Then said he had to go to the toilet (5). Examiner went with him to the toilet and patient demonstrated how he can urinate a high stream.

*Comment:* Note the primitive pattern, killing baby by tearing, removing breasts and biting them, also the need of punishment for the activity. Note the evidence of guilt in the digression (wanting to play with the truck, although it is used as a destructive weapon; later going to toilet). Baby has been taken care of almost exclusively by maid. Mother's contact with patient has "hardly been altered" by coming of baby.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Distraction to toy truck
2. Escape to real mother
3. Escape to toilet

##### II. *Direction*

1. Baby, "self," mother, breasts, *spread* to a real child in waiting room.
2. Baby, examiner.

##### III. *Forms*

Baby: 1. (verbal) "Ray tears the baby"; 2. knocks it away with brother doll as a weapon; 3. beats it vigorously with brother doll as weapon; 4. tearing to bits; 5. runs over parts with truck (crushing with implement)."

"Self": throws

Mother: 1. beats mother with weapon (brother doll); 2. amputates.

Breasts: 1. removes; 2. bites; 3. throws

##### IV. *Self-punishment and accusation*

Throws "self" across room because "he was naughty to hit the baby."

##### V. *Restitution*

Restores breasts to mother.

Assembles mother.

VI. *Self-defense*

Throws doll at examiner.

Featured by primitive pattern of hostility and of escape, in first trial.

## CASE 6

Date 1st experiment: 5-23-33

Age: 3 years, 9 months

Sex: Female

No. of siblings: Only child

Problems for which patient referred: Food refusal, vomiting

Interview in which experiment made: Fourth

Events in interviews preceding experiment: Child was outgoing, assertive, asked numerous questions in rapid succession and chatted about her activities. In the physical examination she was difficult to examine because of her constant activity and refusal to cooperate. She rummaged through everything in psychiatrist's desk drawers and played a bit with the clay. In the third interview she played with the dolls, making comparisons of the baby and mother. She called the clay "ca-ca" and went through some toilet play, repeating the mother's activity with her. She played also with the amputation doll. She spoke of eating the mother and eating the baby doll.

Experiment: Trial I: Patient touches the mother doll with her finger (1), first at one foot (2), then the other, then the knee (3). At various points she stops her activity. (Is urged to go on.) She asked examiner to take baby off mother's breast, which is done, and baby doll put in her hands. She asks if the mother's head comes off. She removes the head (4) and appears anxious to put it back quickly. She puts the baby back to the breast and asks if its mouth is open and looks closely to see.

Trial II: She makes the same touching movements (1, 2, 3). Asked, "Is this more milk?" pointing to the second breast. She pinches the nipple of that breast hard (4), flattening it out, then points to the breast at which baby doll has been placed and says, "It drank the milk already."

Trial III: Same touching movements; patient touches each breast (1, 2), and then brings both hands to her vagina, making movements which appear like pulling the labia away from each other. She then puts both feet close to mother doll, then raises them over the mother and to the other side. She does this several times (3, 4, 5, 6), at one point keeping her feet for some seconds right over the mother's head.

Trial IV (Activated): (To suggestion, "The nerve of that baby, at my mother's breast") she takes both breasts off mother doll (1), crushes them together (2), steps on them (3) and then jumps on them (4). She insists the examiner make "a little girl" out of clay, "and make hands too." (Examiner does so.) She crushes the clay doll (5). She stopped playing at this point (6) and did not respond to encouragement to go on. (The examiner asked, "Why did you take the breasts away?") She replied, "I don't want mamma to have any." Her feet were placed above the mother's head as previously and she was asked to do what she wanted to at that time (7). She let her feet come down on the mother doll (8). She was asked what she really wanted to do when she touched the mother's feet and knee.

She was encouraged to repeat the performance and continued touching the mother at various places, and finally placed her finger to the perineum from behind.

*Comment:* Primitive hostility to doll and breasts preceded by "compulsive" touching, highly modified hostility and anxiety.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Inhibited movements: touching then stopping. Swings foot over mother's head several times and stops before crushing it.
2. Refusal to continue at end of Trial IV.

##### II. *Direction*

1. Mother, baby
2. Breast
3. Breast, mother
4. Breast, baby, mother

##### III. *Forms*

Mother: 1. touching at foot, at knee; 2. asks "Does head come off?" 3. removes head.

Baby: 1. asks examiner to remove it; 2. crushing.

Breast: 1. pinching; 2. flattening; 3. touching; 4. removing; 5. crushing with hands; 6. crushing with feet, by stepping and jumping on them.

##### IV. *Self-punishment and accusation*

##### V. *Restitution*

Quick restoration of mother's head

Puts baby back to breast

##### VI. *Self-defense*

Asks questions about mother and baby and milk.

Asks examiner to take baby off mother's breast

Pinches one breast, points to other and says, "It (baby) drank the milk already."

Has examiner make a clay doll to crush

Featured by highly modified hostility and activity on breasts.

#### CASE 7

Date 1st experiment: 4-7-33

Age: 3 years, 10 months

Sex: Female

No. of siblings: Two

Age of rival: 9 years, 5 months

Sex of rival: Female

Problems for which patient referred: Hair-sucking, baby talk, refusal to eat unless mother feeds her, temper tantrums.

Present status of sibling rivalry: Much quarreling with older sister, and hitting.

Interview in which experiment made: First

Experiment: Trial I: Named older sister "Ethel," and baby "Allen." Said the sister takes the baby away. (Examiner said, "Go and do it.") She says, "I'm not Ethel." She takes the baby away (1), puts it aside and then quickly takes away the breasts (2), and throws them on floor (3). After she threw the breasts away, rolled them together and said she was making something to eat (4). She

was "frying" it—"the baby will eat it." She crushed the clay, patted it hard with her hands, took it apart in small bits (5) saying it was for the baby.

Trial II: "Ethel" takes the baby away as before. Now says she wants the baby. Patient takes away the breasts, saying, "She throws them away," and repeats the activity as in Trial I.

Trial III: Omitted.

Trial IV (Activated): She repeats: "The nerve, the nerve, at my mother's titties." She takes baby away (1). "Yes," she says, "The nerve of that baby." "She throws the mother away" (2). Demonstrated. "She throws the baby away" (3). She doesn't want the baby. Then the mother cries for the baby. No baby comes back to the mother. The mother cries. Daddy wants the baby. He opens the garbage pail and takes out the baby and says, 'Here is the baby.' " (Examiner asks, "What does the sister do?") Patient replies, "She takes the baby away from him." She removes the breasts (4) and slaps them hard on the clay (5), says that she is making something to eat again. (Most of the action in both trials is manipulation of the clay.)

*Comment:* The responses are (1) action on the breasts; (2) hostility to the baby; (3) hostility to the mother; (4) recovery of the baby by the father. The hostile pattern is simple which may be in keeping with the fact that there is no younger sibling. The only possible guilt reaction is the restoration of the baby by the father with, nevertheless, further withdrawal of the baby from the father.

The action is primarily directed to the breasts and apparently relates not so much to the sibling rivalry play as to the refusal to give up the infantile relationship, especially in regard to feeding. She still sucks her hair (since the first year of life), insists that the mother feed her, and when the mother "talks her into eating by herself," patient vomits. Ever since weaning, at age 10 months, there has been difficulty in feeding.

The removal of the breasts, throwing them away, appears as a hostile reaction to the rivalry situation. Hostility to the breasts may have as its basis (1) hostility to the mother for refusal to feed her; (2) sibling rivalry. Baby talk is symptomatic also of the attempt to keep the infantile relationship. It was demonstrated that she can pronounce words accurately.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

##### II. *Direction*

1. Baby, breasts
2. Baby, breasts
3. Omitted
4. Baby, mother, breasts

##### III. *Forms*

Baby: 1. (verbal) "Sister takes the baby away"; 2. removing; 3. throwing; 4. (verbal) in garbage pail

Breasts: 1. removal; 2. throwing; 3. transforming to food; 4. tearing; 5.

Mother: 1. throwing; 2. (verbal) "Mother cries for baby, baby doesn't come."

IV. *Self-punishment and accusation*V. *Restitution*

Restoration of baby, verbal. "Daddy opens the garbage pail and takes out the baby and says (to mother) 'Here is the baby.'"

VI. *Self-defense*

Giving baby food (?).

Denial of identification with sister doll: "I'm not Ethel."

Activity chiefly on breasts.

## CASE 8

Date 1st experiment: 6-27-34

Age: 4 years, 1 month

Sex: Male

No. of siblings: Two

Age of rival: 12 months

Sex of rival: Female

Problems for which patient referred: Night terrors. Past three weeks negativism, as at age 2, also timid with children whereas previously aggressive.

Present status of sibling rivalry: No "outward signs" when he first saw the baby, though for several weeks denied having seen her when asked about it. When a parent plays with baby is very jealous, fights for attention and hostile. When alone with baby is "friendly and tolerant."

Interview in which experiment made: Second

Events in interview preceding experiment: Random play

Experiment: Trial I: He says, "The brother watches" (1).

Trial II: Waits. Asks, "What does he (brother) want to do?" (1). Removes the baby gently (2) and says, "Now we'll have to take these away." Removes breasts (3), places mother doll in a lying position and gently amputates a leg (4) and re-inserts it. (I ask, "What will the baby do?") He replies, "She'll cry." Then he searches drawers for other toys, shoots a gun, plays with pliers, roams about office looking for toys, and plays with trains.

Trial III: Continues to play with trains (1) and says, "I did it before" (2).

Trial IV: (Usual stimulus.) Listens attentively, says, "He gets mad." Then he quickly pushes a train (1). Then roams around, finds pliers and cuts a wire (2). Gets interested and cuts a number of times. (I bring him back to the play material.) He says, "The brother hit the baby hard" (3), and shows how by hitting the brother doll against the floor (4). (I said, "Let him hit the baby.") Patient says, "I don't want to" (5). Then he removes the breasts (6), makes a "ball" out of them (7) and puts little breasts of clay back on the mother doll. (I asked why the brother hit the baby.) He replied, "He wanted to," and hits the couch (8) with his hand. Then he picked up baby doll, hit it against the floor (9), then did the same to the mother doll (10). (I asked why he hit the brother doll.) He replied, "Because he hit the baby and he's going to do it every day." He then makes a big ball of clay, and says he made a big one last summer, and "Look how big it is now." Sticks pliers (11) into the clay and pulls out pieces of it. Then puts some with pincers on the brother's buttocks and squeezes them. (I ask why he did

that.) He said, "To make him pretty," and smears the entire back with clay (12). He says, "It's paint," and then takes it off with a stick.

Trial V (3rd interview): Enters rapidly and immediately opens drawers and picks out trains. (I set up the sibling rivalry material.) He asks, "Do I have to play with that?" (1) (I say, "Not unless you want to.") He says, "I don't." (I say, "I'll put it down anyway, you might want to play with it later.") He asks, "Why do we need a brother?" Plays with trains (2). Gets interested in rubber dagger and belt and wants to wear it. Wears it through hour, then puts clay in a wagon. (I asked why he put clay on the brother's back.) He said, "To fill up a hole." (The rubber doll has a hole for a whistle in the upper dorsal region.) Then he said, "The brother stamped on the baby like this" (3), and he stamped his foot on the ground. (I said, "Let him do it to the baby if he wants.") He then stamped on the baby many times (4) and then said, "Can I pull it apart?" Pulled baby apart (5) and said, "I put clay on the brother because he crashed the baby." (I said, "Why clay?") He said, "Because he doesn't like clay." Then he rummaged through the drawer, found a male amputation doll and asked if he could pull it apart (6). (I said yes.) Then he pulled it apart. (I asked who he was pulling apart.) He said, "A man." (I asked who the brother wanted to pull apart.) He said, "The baby and the lady but he doesn't want to." After pulling the man apart he said, "Is there anything else to pull apart?" and answered his own question—"The lady." He then put the man together, asking meanwhile if he has to come tomorrow again, "'cause maybe there's a party (7)." (I said I'd like to see him again and would he come?) He said yes.

After pulling the man apart he picked up the mother doll, removed the breasts (8), and said, "I'm not going to play with her any more." Took her apart (9) quickly then put her together. Asked a lot of questions about when I got the dolls, when did I buy the mamma, what day, and when I answered he replied, "My, how old." (I asked when the baby was born.) He said the 31st of May, and he was born the 29th of May. "Was I before her?" (I asked on what day.) He said Saturday. (These are true dates of his and sister's births.) Then played with trains (10). Stopped, asked what time it was and playfully stuck himself with a dagger (11). (I asked why he did it.) He said, "Because that's to stick people with." Then plays with a rubber stamp (12) and spends about ten minutes stamping. Is surprised that each time it stamps the same thing. Then spends rest of time with cars, shooting, and then makes cars race.

Trial VI (4th interview): He first asks for the gun, then shoots several times and says he's going to make a circus. He brings animals together while I put up sibling rivalry group. He says here's where the brother stands while setting up his animals. He gets two trucks. Then asks me to blow up a balloon, while he lets the air out, pinching the end to make a noise. Repeats several times. Then picks up a milk bottle. Asks why babies need the rubber end. Then takes a gun and shoots several times (1). Picks up two toilets. Says "toilets are wrong, they need two tops, you might fall in." (I asked him if he were afraid.) He said, "Yes, I'd



go with the do-do and there'd be no more Johnny" (patient's name). Plays with them, puts one on top of the other (2), asks for a little doll, then another, puts one on a toilet and says, "She won't fall in." Puts another doll on and says, "We can stay here only an hour" (3). Says, "Can I press this one?" Stamps down on a baby doll with his foot (4), crushing it, and says, "Are these the babies you're allowed to crush?" (I say, "You can crush all you want to.") He stamped on another (5), first showing me the "do-do" she made. Said, "The do-do is hard," and pressed it down in the toilet. He asked when I told him he could crush anything he wanted to, "Can I crush the bottle too?" He then put animals in a truck, said he was dumping them in the cellar (6) and put them in the fire and burn 'em up. "Here they go. Here comes the cellar. They're dumped in the fire. Here's another truck. In the cellar and burn 'em all up. In the fire they go." (I said, "Who did the brother really want to dump?") He hesitated, smiled, and said, "The baby. Isn't that right?"

He then has a race with trucks and says, "He wins, the brother, he wins against the sister, didn't he throw her in the fire?" He then has another race and says, "Who'll win this time?" (I say the brother.) He says the sister's truck wins. He then "crashed" a toilet (7), first asking permission. Then he took the mother doll apart (9), first removing her breasts (8). Says, "I'm taking off her breasties." After amputating mother doll, says, "She's mad because she has no baby." Puts mother together. When one leg is set in, asks, "Can she walk?" Makes her walk. After inserting the last part, said, "I'll take her all apart again (10). She's no good. Is she good?" (I reply, "What do you think?") He said, "No. She's no good, is she?" Takes her apart and slaps the torso (11). Then puts clay in the toilet and says, "I need lots and lots of clay. The do-do is here, right here." Slaps the do-do (12). At quitting time, says, "I won't put anything away. We can leave it here till tomorrow. Let me take one more shoot of the gun" (13).

Trial VII (5th interview): He had asked me to leave his stuff just as it was and I did. He came in, picked up a gun, asked if I was going to write again and why didn't I play with him. (I said, "I help you get the toys and fix things.") Picked up a toilet, then picked up the dismembered mother doll and said, "She's a dumb lady" (1). (I asked, "Why is she a dumb lady?") He said, "She's dumb because she works so funny. She's dumb because she dumped the baby in the cellar." He then stopped putting mother doll together and took a few shots with the gun (2). (I ask who he is shooting.) He said, "The ceiling."

He finds a hammer and hammers a nail (3), close to the baby. Then hammers around the baby (4). (I said, "Let the hammer hammer who it wants to.") He then tapped a toilet top (5). Then hammered another toilet. Asks, "Can I break it?" (I said yes.) He said, "I'll break all the toys. Can I break the table?" (I said toys, but not the furniture.) Picks up a wagon and says, "Shall I break it?" (I said, "If you want to.") Did nothing with it. Found a box of cloth and said, "Those are girl's things. I'll make a mess of them" But he did nothing. Found a box of tools (6) and got interested. Asked the names of the tools. Then asks which

tool is new and which is older. (I tell him, and say he is older than the baby.) He uses a screw driver (7) to scrape up clay, pierces the baby doll with it, and then squashes the doll with his finger (8). Then tried to pry up the nail he hammered. Has me help him pry it up and he does the rest with a plier. Does this several times. Then looks for more toys and finds a doll in a trunk. Says, "More babies" (9), closes it and puts it back. Then says, "Is that enough for today?" Then lies on the couch. Then tells me to tell him to get up.

At the end of this interview, since a vacation intervenes, I encourage ending the interview with a new baby and loving brother and mother. He refuses to put the rest of the mother together, says mother doesn't love him, nurse does, and mother doesn't love the baby. Then said the mother does love the baby and threw the baby to the mother. Refused to put the mother together and told me to do it. I put her together and asks him to bring the baby to the mother. He carried it with pliers and joined in the play of having the family together, had mother kiss baby and brother, helped to pick up toys, said he had to go and ran out before the last piece, the baby, was to be picked up. (I called him back.) He came, picked up the baby doll, and threw it in a drawer.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Passivity (inactivity) Patient says, "The brother watches."
2. Distraction: escape to other play, pliers, train, boasting about big ball of clay.
3. Refusal to play with set-up: "I did it before."
4. Denial of hostile impulse: "He doesn't want to."
5. Escape: asks what time it is, says he has to go, and "We can stay here only an hour." "Is that enough for today?"
6. Shunted hostility: hostility directed to other objects. Shooting trains, pushing trains, cutting a wire, slapping couch, stamping foot on floor, sticking pliers into clay, hammering toilet, shooting ceiling.

##### II. *Direction*

- 1.
2. Baby, "self," mother
- 3.
4. "Self," breasts, baby, mother, "self"

##### III. *Forms*

Baby: 1. gentle removal; 2. (verbal) "The brother hit the baby hard"; 3. hits against floor; 4. (verbal) "He stamped on the baby like this"; 5. actual stamping; 6. tearing; 7. dumping in cellar; 8. verbal "burning"; 9. piercing with screw driver

Breasts: removal

Mother: 1. amputation of leg; 2. hits against floor; 3. general amputation; 4. slaps the torso.

"Self": 1. hitting; 2. smearing with clay; 3. pinching buttocks with tool.

"Man": (another amputation doll he brings into play) amputation.

##### IV. *Self-punishment and accusation*

Hits "self"

Puts clay on "self" for "crushing the baby."

Sticks self with a dagger.

After amputation of mother, says, "She's mad because she has no baby."

Slaps the "do-do" (which was evidently used as a hostile instrument).

V. *Restitution*

Mother: quick reinsertion of leg. General reinsertion.

Breasts: restoration of smaller breasts.

Man: reinsertion of parts.

VI. *Self-defense*

Removes breasts, saying, "Now we'll have to take these away." (?)

Concealing meaning of act: to question why is he smearing buttocks of brother doll with clay, replied, "To make him pretty." Called the clay he used "paint."

Asks: "Are these the babies you're allowed to crush?"

Says of mother-doll before amputation, "She's no good." "She's a dumb lady."

Projection: mother is "dumb" because "she dumped the baby in a cellar."

*Other Patterns*

Rivalry: Brother is "first." Brother is "older." "He wins, the brother, he wins against the sister, didn't he throw her in the fire?"

*Follow-Up*

Interviews with mother nine months and twenty months after first experiment. "A complete change. Everything was hostile and everything was jealous, now he is a protecting brother, shows no jealousy when other adults play with younger sister and no fighting for attention." Change occurred as a marked difference in relationship during period of therapy.

## CASE 9

Date 1st experiment: 6-26-33

Age: 4 years, 1 month

Sex: Female

No. of siblings: Only child

Problems for which patient referred: Disobedience, negativism; sudden destructive acts toward toys, flowers, or anything; problem especially acute in past month when with mother at a summer boarding house.

Interview in which experiment made: Second

Experiment: Trial I: Removes baby (1), throws it to floor (2). Pulls breasts off (3) and applies one to mouth of sister doll (4).

Trial II: Removes baby (1). Removes breasts (2). Says baby is asleep. Picks up paper board,\* throwing all dolls to the floor (3). Crushes breasts in hands (4); says she is making dirt. Picks breasts apart (5), throws bits on floor (6). Says she is making the nipples. Then runs out of room (7). Returns, pulls a rod out of filing cabinet; says, "I'm going to hit the baby with it (8)," and strikes it furiously. "I'm pulling the mommie off (9) all in pieces." Furiously stamps on mother doll (10), then tries to tear the board to pieces (11). Hits the sister doll (12) with her hand, then hits her own head (13) with it, though won't answer why she is hitting it. Leaves parts of mother doll scattered around. Leaves office (14) and returns with bits of wood to make a house.

Trial III: Immediate removal of baby (1) and breasts (2), then removal (3) of parts of mother, throwing of parts (4) all over the room. Then throws sister doll (5) and hits examiner (6).

\* Objects in this case were all assembled on a paper square board placed on the floor.

*Comment:* A cousin was born 2 months ago, to whom patient showed immediate jealousy, and refused to hand over a gift which parents gave her for the baby.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

Escape: runs out of room (two instances)

##### II. *Direction*

1. Baby, breasts
2. Baby, breasts, baby, mother, "self"
3. Baby, breasts, mother, "self," examiner

##### III. *Forms*

Baby: 1. removes; 2. throws; 3. hits with weapon

Breasts: 1. removes; 2. to mouth of sister doll; 3. crushes with hands; 4. transforms it to "dirt"; 5. tears; 6. throws

Mother: 1. (verbal) "I'm pulling the mommie off—all in pieces"; 2. stamping (crushing with feet); 3. amputation; 4. throws parts

"Self": 1. hits with hand; 2. throws.

Examiner: hits.

##### IV. *Self-punishment and accusation*

Hits "self" (sister doll)

Then hits real self with sister doll

##### V. *Restitution*

None (? Says after attacking breasts she is making the nipples.)

##### VI. *Self-defense*

Hits examiner

#### *Follow-Up*

Patient told her mother it was great fun and wanted to come back. Seen only once because parents were not agreed on treatment. No change in behavior observed following experiment.

#### CASE 10

Date 1st experiment: 3-16-33

Age: 4 years, 5 months

Sex: Male

No. of siblings: Two

Age of rival: 15 years

Sex of rival: Male

Problems for which patient referred: Delayed and indistinct speech, show-off behavior

Present status of sibling rivalry: Brothers have practically no social contact.

Interview in which experiment made: First

Experiment: Trial I: Patient didn't understand at first and said mother doll is a nurse, then used name. Took brother doll and hit baby doll on the head (1) and said, "I'm hitting him on the head." Then brought the doll up to the nurse's face, touching it several times and said, "I am kissing her." He then pressed the doll on the floor (2) and hit it a number of times (3), using the brother doll as a weapon, then stopped rather quickly and put the baby back to the breast. He then took the mother doll (4), crumpled her up (5) and let her drop down (6) and

said, "She is drowning." (Examiner asked why.) He said, "Because she isn't being careful."

*Comment:* Patient up to this age in almost exclusive care of nurse.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Waiting
2. Sudden halt of activities

##### II. *Direction*

1. Baby, mother

##### III. *Forms*

- Baby: 1. hit with weapon (brother doll); 2. pressing.  
 Mother: 1. crumpling; 2. dropping; 3. (verbal) says she's drowning.

##### IV. *Self-punishment and accusation*

##### V. *Restitution*

Baby back to breast

##### VI. *Self-defense*

Nurse kisses baby.

Patient says, "I am kissing her."

Defense against hostility to the mother: ". . . because she isn't being careful."

#### CASE II

Date 1st experiment: 3-10-33

Age: 4 years, 5 months

Sex: Female

No. of siblings: Three. Oldest age 6 years, 11 months

Age of rival: 18 months

Sex of rival: Female

Problems for which patient referred: Temper tantrums, negativism, fingersucking, enuresis.

Present status of sibling rivalry: Hitting of baby was never observed. Since birth of rival, patient has temper tantrums, lying down and kicking, saying she is acting like a baby, and enuresis. She is also "a close rival of the brother and must always have and do everything he does."

Interview in which experiment made: First

Experiment: Trial I: While examiner was preparing the set-up, saying, "Now this is the mother and this is the baby sister," patient immediately took the baby doll (1), said, "I am going to bite the baby," took it in her mouth (2), biting the neck. (Examiner asked, "What are you doing?") Whereupon patient put the baby doll down (3) and said she was doing nothing. (She was encouraged to do whatever she wished.) She put the doll in her mouth again (4) and crushed its head with her teeth. After that she appeared less spontaneous and said, "I don't know what to do."

Trial II: Set-up repeated; patient remained seated on the floor, saying, "I don't know what to do."

Trial III: (Examiner called the baby "Mary.") Patient would not enter the game, saying, "I don't know what Mary does."

Trial IV: (Stimulus phrase: "The nerve of that baby at my mother's breast.")

Patient said, "You do it first." (Examiner marches the sister to the mother.) Patient then says, "I will take the whole thing," pauses, and says, "I don't know how to do it, I don't want to do anything to it. I will be scared" (1). (Examiner asked, "Why scared?" as experiment was repeated with suggestion.) Patient replied, "I like to be scared." Patient improvises the following conversation while acting it out. "She takes it in her arms, takes it away and won't come back again." Patient puts the baby doll snug over the sister's arm (2) and walks away (3). (Examiner asks, "What does mamma do?") Patient replies, "She goes and gets the little girl. Mamma says, 'I will take this right off.'" She takes off breasts (4). "I will do something else with it. She has no milk. Now I take it; I take it away from the little girl. She will die." She takes clay and rolls it (5). (Examiner asks, "What are you making?") She replies, "I am making an enema."

Trial V: (Experiment repeated with same stimulus words.) Patient says, "Here comes big sister." She takes the baby away (1). "You are my baby. I will take the baby away from the mother" (2). She then removes breasts (3). "She hits the baby." Hits the baby (4) and the sister doll (5) and throws the baby to the mother. "Here's your baby." Then she rolls up the clay (6) and says she is making a ball.

Trial VI: (Experiment repeated.) This time she refuses to return the breasts to the mother and tells examiner he will have to make them himself. (Examiner says, "I will give her some breasts so she can feed the little sister.") Patient says, "No, the big sister." (Examiner says, "The baby is having a good time; where is the big sister?") The patient replies, "The big sister will go away." (Again she was told to do whatever she wished.) She takes the baby (1), takes breasts off mother (2), and says, "Silly Billy! I will take this and use it right up." Takes breasts off, rolls them into a ball (3), and throws it down (4) to the floor several times. Then crushes baby (5), steps on it hard first with one foot and then other. Does this a number of times. Then takes mother doll and crushes her (6); then puts mother back, pressing breasts on her, puts the crushed baby in her arms and says, "There she has it." Then she took the sister doll (7), kicked it with her foot, then pushed it into her own perineum (8), pulled at her arms and said, "I would like to eat the sister; I don't like her." (Examiner: "Why?") Patient replies, "She takes the little sister away." (Examiner asks why she put the sister where she did, i.e., perineum.) She said, "I don't know," did it again and said, "I would like to do that." After this, she went to drawer to get another baby doll, asking to keep it, which she was allowed to do. She then went to mother doll, removed breasts (9) again and rolled them (10).

*Comment:* Note the effect of interrupting spontaneous activity of child (Trial I). Presumably interference made her feel guilty about the hostility to the baby. It was difficult after that to keep her in play activity. This also presumably made necessary several attempts at activating her.

The primitive pattern is shown especially in the activity on the breasts which are removed and rolled into a mass, and the primitive hostility to the baby in first biting and then crushing with her fingers and crushing under foot.

The guilt is directly shown in her activity after the first question about her biting the baby, her refusal to go on, with the statement that she is scared, her return of the breast to the baby, and her final retribution—the treatment of the sister (herself) in the same way that the baby is treated.

In a temper tantrum in the past week, patient threatened to kill mother and eat up her insides.

School teachers report that patient talks very freely about bowel activity.

#### PATTERN OF HOSTILITY

##### I. *Prevention of hostility to objects in set-up*

1. Denial: "I don't know what to do" (three instances)
2. Refusal
3. Anticipates fear: "I will be scared."

##### II. *Direction*

1. Baby
2. No action
3. No action
5. Baby, breasts, "self"
6. Baby, breasts, mother, "self"

##### III. *Forms*

Baby: 1. (verbal and actual) biting neck; 2. biting head; 3. kidnaping; 4. stealing baby's milk; 5. (verbal) "She will die"; 6. removal; 7. hitting with weapon (sister doll); 8. crushing with fingers; 9. crushing with feet.

Mother: crushing with hands.

"Self": 1. hitting; 2. kicking; 3. pushing into her own perineum; 4. pulling arms; 5. saying "I would like to eat her"; 6. (verbal) threat to "run away."

Breasts: 1. removal; 2. (verbal) "She has no milk"; 3. conversion to "enema," to ball; 4. throwing to floor.

##### IV. *Self-punishment and accusation*

Hits "self," kicks, pushes into her own perineum, pulls at arms, says, "I would like to eat the sister . . . I don't like her." (Why?) "She takes the little sister away."

##### V. *Restitution*

Baby: throws baby to mother and says, "Here's your baby."

Mother: restoration

Breasts: back to mother with words, "There she has it."

##### VI. *Self-defense*

Participation of examiner: "You do it first."

##### *Other Patterns*

Stealing: "She takes it in her arms, takes it away, and won't come back again." Patient says to baby, "You are my baby."

Regression: patient says mother will not feed the baby but the big sister.

Threat of truancy: the big sister will go away.

##### *Follow-Up*

Interview with mother when patient age 7 years, 4 months. Temper tantrums, finger-sucking and enuresis disappeared after treatment, and no longer present. Mother remembers no immediate changes during the period of treatment. Patient is still "rather negativistic."

## CASE 12

Date 1st experiment: 5-12-33

Age: 4 years, 5 months

Sex: Female

No. of siblings: Two

Age of rival: 5 years, 9 months

Sex of rival: Male

Problems for which patient referred: None. A very well adjusted girl. Control case.

Present status of sibling rivalry: Siblings play happily together. Occasional quarrels over toys. Patient is leader in play and older brother usually accepts rôle of follower.

Interview in which experiment made: First

Experiment: Trial I: (Patient was shy. Much encouraging necessary.) Advanced sister doll to mother; left it standing; it fell down and patient laughed. Long pause (1); then patient took baby doll (2) and pushed its abdomen, making a slight dent (3). Then removed breasts (4) and squashed them (5). Then pushed arms off mother (6). All movements were slow. After last maneuver, said, "I want to go to the front room" (waiting room where mother was).

Trial II: Walked sister doll away with its back to mother and baby. (I asked "What is the sister doing?") She replied, "She isn't looking. She doesn't see anything." (Examiner turned doll around "to look.") Patient repeated as in Trial I.

Trial III: Repeated first part of Trial II, saying sister doesn't see anything. No further response. Said again she wanted to go and allowed to leave the room.

After she left room, she played a while in waiting room and then returned to the hall in front of examiner's office, and remained there watching. Social worker asked if she would like to go back and she said "Yes."

## PATTERN OF HOSTILITY

I. *Prevention of hostility to objects in set-up*

1. Shyness (a concealed "I don't want to" refusal)
2. Long pause
3. Slowness of movements
4. Escape, by saying, "I want to go to the front room" (two instances)
5. Turns "self" away from set-up and says, "She isn't looking. She doesn't see anything."

II. *Direction*

1. Baby, breasts, mother
2. No attack
3. No attack

III. *Forms*

Baby: slight push of abdomen

Breasts: squashing

Mother: pushes off arms

IV. *Self-punishment and accusation*V. *Restitution*VI. *Self-defense*



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# Self-representations in Early Adolescence: Variations in Sibling Similarity by Sex Composition and Sibling Relationship Qualities

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## Abstract

*Self-representations play an important role in adolescent development. This study compared self-representations for siblings and explored whether sibling relationship characteristics are associated with similarities or differences in sibling self-concepts. We examined self-representations of 438 adolescent sibling dyads (M age younger sibling = 11.6 years, M age older = 14.3 years), finding that siblings are, on average, similar in their self-representations. This similarity varied, however, depending on sex composition and sibling relationship qualities. Results indicated that sibling modeling, warmth, and conflict were especially influential in predicting sibling resemblance vs. dissimilarity.*

*Keywords:* adolescents; self-representations; sibling relationship qualities; modeling

## Introduction

Self-representations in adolescence are associated with many aspects of psychosocial adjustment, including school performance, the quality of peer relations, moral decision-making, successful coping, and future emotional and behavioral disorders (Eccles & Wigfield, 1995; Harter, 1999a; Trzesniewski, Donnellan, Moffitt, Robins, Poulton, & Caspi, 2006). Self-representations serve to shape goals (Dweck, 1991), motivate action (Markus & Kityama, 1991), and serve as guides to selecting and regulating behaviors (Harter & Whitesell, 2003) and affect (Markus & Kityama). Self-representations appear to play a central role in influencing day-to-day functioning, yet familial influences, and in particular, the role of siblings in influencing evaluations of oneself, have received only scant attention (Shebloski, Conger, & Widaman, 2005). This investigation was designed to compare the self-representations of two siblings in the same family. Two hypotheses were tested comparing processes associated with either sibling resemblance or deidentification. These two hypotheses are typically

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tested as distinct and unrelated, but could prove to be complementary. A further goal was to explore whether sibling relationship characteristics are associated with similarities or differences between siblings' self-concepts.

### *Self-representations*

In the present investigation, self-representations were defined as self-evaluations, and specifically evaluations of competencies or abilities in discrete domains (e.g., academic competence, social competence) and of global self-worth (Harter, 1990). We examined self-representations during early adolescence, as this is a challenging developmental period associated with self-discovery and identity formation occurring against a backdrop of pubertal and related physical changes, cognitive-developmental advances (thinking abstractly), and changing social connections and expectations (Grotevant, 1978; Inhelder & Piaget, 1958). The foundation for a self-evaluation is constructed within the family (Tesser, 1980), and those close relationships continue to influence the valence and content of self-judgments throughout one's life (Harter, 1999b). Given this, sibling relationships should be critical in the formation of self-representations. Sibling relations are affectively charged and interactions are frequent (Dunn, 2002); therefore, there are multiple opportunities and the motivation to evaluate one's self in relation to one's sibling. Comparisons with others has been described as a means of obtaining information about the self (Taylor, Wayment, & Carillo, 1996), and comparisons with siblings is an obvious context for self-assessment (Feinberg, Neiderhiser, Simmens, Reiss, & Hetherington, 2000; Shebloski et al., 2005).

### *Sibling Resemblance and Underlying Social Mechanisms (or Sibling Effects)*

Sibling resemblance has been demonstrated in many domains including aggression (Compton, Snyder, Schrepferman, Bank, & Shortt, 2003; Patterson, 1986), sexual activity (East, 1998; Rodgers & Rowe, 1990), qualities of social relationships (Ingoldsbey, Shaw, & Garcia, 2001; Lewin, Hops, Davis, & Dishion, 1993; Stormshak, Bellanti, Bierman, & the Conduct Problems Prevention Group, 1996), risk taking behaviors (Rowe, Rodgers, & Meseck-Bushey, 1992; Slomkowski, Rende, Conger, Simons, & Conger, 2001; Slomkowski, Rende, Novak, Lloyd-Richardson, & Niaura, 2005), and academic performance and behavioral adjustment in school (Lewin et al., 1993). There is no doubt that siblings share a number of factors—including genetic relatedness—that could account for the observed similarities. Results of classic twin studies, however, suggest that genetic relatedness may be secondary to social environmental factors in accounting for sibling resemblance in, for example, tobacco use (Slomkowski et al., 2005). To date, the possible social mechanisms by which sibling influences result in resemblance are still under investigation. However, social learning (Bandura, 1971), social modeling (Patterson, Dishion, & Bank, 1984), and social reinforcement (Slomkowski et al., 2001) have been frequently identified as processes for explaining the direct influence of siblings and the similarity of their behaviors. Social connectedness, warmth, and support (Rowe & Gulley, 1992; Slomkowski et al., 2001) have been shown to moderate the shared environmental effects on these behaviors.

In a direct test of sibling modeling and sibling resemblance, Whiteman and McHale (2005) found that younger siblings who reported high levels of modeling (more so than those reporting low modeling) were likely to show similarly high levels of risky behavior when their older siblings were reporting high levels of the same behaviors.

Relevant to our focus on self-representations, these investigators found these same effects for perceptions of romantic competence and sports interests.

The mechanisms leading to sibling resemblance are also described as part of the process of constructing self-systems. For example, Harter and colleagues (Shirk, Burwell, & Harter, 2003) argue that self-representations can be defined as social constructions. The 'self' develops within social interactions with significant others; interactions in which an adolescent observes others' social behaviors, hears their opinions, and adjusts his or her own behaviors to gain the approval of those social partners. In other words, mechanisms akin to modeling and social reinforcement operate in shaping self-representations. As a consequence of observing others and garnering their positive recognition, the individual gradually internalizes their standards, or adopts their opinions into her own sense of self (Harter, 1999b). Thus, sibling resemblance is often ascribed to modeling and social reinforcement, as is the development of self-representations. By extension, it was hypothesized that sibling resemblance in self-representations would be greater when siblings report higher levels of modeling in the relationship.

### *Sibling Deidentification*

An alternative theoretical position posits a mechanism that should lead to sibling dissimilarity in self-representations. Sibling deidentification refers to a process whereby siblings seek distinct domains in which to develop and exhibit competencies and interests, and carve out separate identities so as to capture a share of parental attention and affection (Schachter & Stone, 1987; Tesser, 1980). Sibling dissimilarity resulting from deidentification has been assessed by asking the siblings themselves or by asking their mothers if the siblings are 'alike or different' and comparing those responses (Schachter, Gilutz, Shore, & Adler, 1978; Schachter, Shore, Feldman-Rotman, Marquis, & Campbell, 1976). Sibling dissimilarity has also been determined by comparing siblings' and maternal reports of well-being and experiences of behavior problems (Feinberg et al., 2000). In the present investigation we focused on self-representations, as these are closely linked conceptually to the outcome of deidentification. Self-representations are also central to a theory of social comparison (Festinger, 1954), which postulates that people need to evaluate themselves relative to important others and will choose as a target of comparison someone to whom they feel close, such as a sibling (Tesser, 1980). Several investigations report evidence that siblings deidentify and appear dissimilar relative to each other (Feinberg & Hetherington, 2000; Feinberg, McHale, Crouter, & Cumsille, 2003; Tesser, 1980). Evidence further suggests that sibling deidentification processes may become particularly evident in adolescence (McHale, Updegraff, Helms-Erickson, & Crouter, 2001) as teens are increasingly engaged in the world outside of the family and more actively seek to establish a personal identity.

Deidentification processes also vary depending on structural characteristics of the sibling relationships, or in relation to age differences and gender composition. According to Schachter et al. (1976), deidentification leads to less direct competition and rivalry between siblings, and is most likely when siblings are objectively similar (close in age or same sex). Empirical findings have shown that same-sex siblings deidentify more than opposite sex siblings (Schachter et al., 1976). Similar findings have been shown for age. Feinberg and Hetherington (2000) found that siblings closer in age are less similar in adjustment (i.e., depressive symptoms, antisocial behaviors, social responsibility,

sociability, cognitive agency, and autonomy) and self-concept (i.e., global self-worth) than those farther apart in age. This pattern was interpreted as evidence of differentiating processes. The correlations between the siblings' scores were positive and moderate, which was interpreted as evidence of sibling deidentification, yet this conclusion is not definitive as sibling similarity cannot be ruled out. In other words, these siblings were reporting many common attributes, a finding that raises the possibility of a complimentary process promoting similarities or resemblance.

### *Self-representations and Sibling Relationship Qualities*

As noted, the existing research on the sibling deidentification process has revealed differences between siblings in relation to their relative ages and the gender composition of those dyads. There are several reasons to expect that the qualities of sibling relationships also play a central role in shaping self-representations. Self-worth is highly correlated with the level of approval in a particular relational context (Harter & Whitesell, 2003). Internalization of another person's attitudes is more likely when relationships are experienced as warm and positive. Positive messages are expected to be more readily internalized than harsh or negative messages and are more likely to be frequently voiced in warm relationships. Warmth and caregiving in sibling relationships, therefore, should lead to more positive and similar self-representations among siblings.

Social learning perspectives also discuss relationship qualities as influencing the extent of observational learning. Choosing to model another's behaviors depends on whether the modeled figure is admired, similar, and nurturing (Bandura, 1971). If modeling is linked to greater similarity, and modeling is more likely in warm relationships, then by extension, siblings in warmer or more caring relationships should be more similar. Indeed, research documents that sibling behavioral resemblance is highest for siblings who share a warm and close relationship (Rowe & Gulley, 1992; Slomkowski et al., 2005). Furthermore, sibling contact or connectedness (how much time spent with one another), which is expected to be greater in relationships characterized as close, has been linked to similar rates of adolescent problem behaviors, independent of genetic relatedness (Rende, Slomkowski, Lloyd-Richardson, & Niaura, 2005). Our expectations of sibling similarity being moderated by closeness has received support within other adolescent relationships, such as friendships with non-familial peers, in which close friends are more similar than less close friends (Card & Hodges, 2006; Gillmore, Hawkins, Day, & Catalano, 1992; Urberg, Değirmencioğlu, & Pilgrim, 1997).

### *Study Goals*

This study addresses the following three questions: Firstly, are siblings' self-representations similar or different? Secondly, do these similarities or differences vary as a function of age differences or sex composition of those relationships? Thirdly, are similarities or differences in sibling's self-representation associated with characteristics of those relationships as reported by the siblings and their mothers?

The first goal evaluates the relative contributions of two competing perspectives of siblings' mutual influence on self-representations. The deidentification perspective describes processes that maximize *differences* between siblings' self-representations. Other investigators observe patterns of sibling resemblance that are ascribed to social learning mechanisms or processes postulated to maximize *similarity* between siblings.

Although these two competing perspectives are central to empirical examinations of the developmental significance of sibling relationships, the question of whether the processes are mutually exclusive or the processes work in concert to produce greater or lesser degrees of sibling similarity has not been addressed. In this study, we test the strengths of these competing perspectives to evaluate whether sibling relationships are marked by similarity or dissimilarity. We examined patterns of similarity or dissimilarity across the area-specific domains of sibling self-representations or competencies (scholastics, peer relations, and appearance), as well as general self-worth. The pattern of correlations could be interpreted in relation to the competing models ascribing different mechanism of influence described above, whereby positive associations would support modeling as promoting similarity. The deidentification perspective would be supported if a pattern of negative or zero correlations was found.

The second goal of this study was to evaluate the different conditions under which overall similarity or dissimilarity is increased or decreased (i.e., is moderated). As mentioned, theoretical and empirical work on sibling deidentification has emphasized structural features of sibling relationships, indicating that siblings who are close in age or of the same sex should deidentify, and therefore be less similar or more dissimilar than siblings further apart in age or of the opposite sex (who should report more similar self-representations).

Our third goal is similar to the second in considering features that moderate sibling similarity or dissimilarity, but here the focus is on the qualities of the sibling relationships (e.g., warmth, conflict, and rivalry) and modeling. As reviewed above, social learning and social interactionist perspectives identify differences in the likelihood of modeling behaviors or internalizing information depending on the quality of the relationships, leading to expectations that relational warmth and closeness should increase the similarity in self-representations between siblings. We also tested associations with sibling rivalry in those relationships as a more direct test of Schachter and colleagues' (Schachter et al., 1976; Schachter & Stone, 1987) descriptions of the motivation to deidentify. We hypothesized that higher levels of sibling rivalry would increase the likelihood of deidentification, and therefore predict dissimilarity or lower similarity. Finally, as alluded to earlier, previous findings of sibling similarity are often explained by social learning mechanisms, but this explanation is usually not tested because modeling is not measured directly. A direct test of this proposition, examined here, is whether reports of a tendency to model the others' behaviors would result in a convergence of the siblings' self-evaluations. More modeling, especially if reciprocated within the sibling pairs, should predict similarity in perceptions of competencies (e.g., in such domains as academics or social competence).

## **Method**

### *Participants and Procedure*

Mothers, older siblings, and younger siblings from 438 families (necessarily including a mother, a younger sibling, and an older sibling) participated in this study. Initially, 1051 mothers responded to the survey. Of those, 42 percent were also associated with complete data from the two siblings. There were no significant differences between those mothers whose children participated, from those whose children did not complete surveys in terms of household income, education, ethnic background, or marital status. Of the families who took part, 54 percent had two children, 31 percent had three, and

15 percent had four or more children. To be included in the sample, each family was required to have a child in fifth, sixth, or seventh grade who had an older sibling close in age but less than five years apart to ensure the older sibling was a high school student living at home (younger child  $M = 11.6$  years,  $SD = 1.8$ , range = 9.5–13.6; older child  $M = 14.3$  years,  $SD = 2.1$ , range = 12.10–16.7). If more than one older sibling fit this description, the sibling closest in age to the younger target sibling was asked to complete the survey. The sex compositions of these older/younger sibling dyads were as follows: 115 male/male, 97 male/female, 114 female/male, and 112 female/female. Nearly all (94 percent) of the sibling pairs were biologically related. The families resided in more than 40 states and had a mean family income of between \$60 000 and \$69 999 (range: <\$9999–\$100 000). Most (79 percent) of the siblings lived in two-parent families, 15 percent in single parent families, and 6 percent in remarried families. The sample is relatively well educated, with a majority (65 percent) of mothers reporting some post-secondary education; 1 percent had no high school education, 22 percent had a high school degree or a general education degree, and 13 percent had some graduate school training or a graduate degree. Mothers were predominantly European-American (82.7 percent); 3.7 percent were Asian-American, 6.2 percent were African-American, 3.9 percent were Latino-American, 1.8 percent were Native-American, and 1.1 percent reported being biracial.

Participating siblings and their mothers completed Web-based surveys. According to the US Census (2005), 55 percent of the households had Internet access in 2003. With the rapid rise of Internet use, a Web-based survey is becoming more commonly utilized for data collection for social science research (Kuruppu, 2007). Web-based data collection is a cost-effective and time-efficient alternative to traditional methods (e.g., mail survey) because it eliminates data entry errors and both publishing and distribution costs, and ensures quick responses and at the same time increasing accessibility (Kaplowitz, Hadlock, & Levine, 2004; Kuruppu, 2007; Miller et al., 2002). In addition, a Web survey can yield as effective a response rate as a mail survey and more detailed qualitative answers than a mail survey (Kaplowitz et al., 2004; Kiernan, Kiernan, Oyler, & Gilles, 2005). In spite of the above advantages, however, there remain some areas of concern, such as generalizability to non-Internet literate (Kuruppu, 2007).

Families were invited to participate from an online panel established and managed under Global Market Insight, Inc. (GMI). GMI offers some of the most broadly recruited and highly responsive online panels to researchers. In order to ensure high-quality data, GMI panelists are widely recruited and double opted-in (i.e., they have to fill out an initial form, and then check their email to confirm that they really want to subscribe). GMI provided to potential families a description of the study, its purpose, and the extent of commitment. If the family chose to participate, they were instructed on how to access the surveys. We assumed that all of the members of the family who responded were residing in the same household, but we did not ask that question explicitly.

Both the mothers' and siblings' surveys began with information about the rights and responsibilities as research participants. Each respondent was asked to check a box if they read that information. Checking the box was necessary prior to proceeding to the questions. Submission of the completed survey indicated that the respondent was granting permission for the information provided to be used for research purposes. The families were compensated for their efforts through GMI. These procedures were all approved by a University Institutional Review Board. Before GMI invited families to participate, a pilot test was conducted to debug the survey and to estimate the time required for its completion.

### Measures

*Self-representations.* Participating adolescents (both older and younger siblings) completed a modified version of the self-perception profile for children (Harter, 1982). The items included in the survey assessed four specific domains of self-concept, including perceptions of scholastic competence, social competence, athletic competence, and physical appearance. We did not assess behavioral conduct which was a decision dictated largely by concern about the number of questions included on the survey and the fact that Harter (1999a) describes a slight shift in this domain from behavioral conduct to conduct *and* morality between middle to late childhood and adolescence. Since the ages of our sample of younger and older siblings overlapped this period, during which the conceptual meaning of the domain might change, we thought it best to exclude it. The fifth subscale included items referencing global self-worth. Nineteen items were rated on a four-point Likert scale (1 = 'Not True for Me' to 4 = 'Very True for Me'). Items were averaged for each composite subscale score. The self-perception profile is widely used and well recognized as a valid and reliable measure of children's self-perceptions of competency. The children's version of the scale was employed as we felt that the adolescent version would not have been appropriate for the youngest siblings in the sample, and the items associated with the central domains of competence (e.g., physical, social) overlap on the two versions of the scale. This version of the scale was designed for use with third through ninth grade participants, which is the age span representing the majority of the participants in the present study. The scales achieved adequate reliabilities, with the exception of the athletic competence subscales, for the younger and older siblings, respectively (scholastic:  $\alpha_s = .73$  and  $.79$ ; social:  $\alpha_s = .71$  and  $.72$ ; athletic:  $\alpha_s = .50$  and  $.57$ ; physical:  $\alpha_s = .61$  and  $.67$ ; and global self-worth:  $\alpha_s = .83$  and  $.80$ ). Because the alpha coefficients for the athletic competence subscores for both siblings were low, these variables were not analyzed further.

*Sibling Relationship Quality.* Siblings and their mothers independently completed the sibling relationship questionnaire (SRQ; Furman & Buhrmester, 1985). This scale included 25 items to assess the nature of that child's relationship with his or her sibling, or the mothers' perceptions of the qualities of those relationships. Respondents indicate on a scale of 1 (*hardly at all*) to 5 (*extremely much*) how prevalent various qualities are in interactions with the sibling. The SRQ consists of subscales representing four factors of warmth/closeness, status/power, conflict, and rivalry. The status/power subscale was not included in these analyses because any exploration of its role in sibling resemblance or differences would have been exploratory at this time. The warmth factor was comprised of 16 items, the conflict factor was comprised of six items, and the rivalry factor was comprised of three items. The internal reliability coefficients were very good across all three subscales (range of  $\alpha_s = .87$ – $.96$ ). The SRQ has been widely used and demonstrates good test-retest reliability and validity. The three reporters (i.e., mothers and two siblings) provided highly overlapping reports of relationship qualities; average correlations among the three respondents was  $r = .67$  for sibling warmth,  $r = .58$  for sibling conflict, and  $r = .60$  for sibling rivalry. Therefore, multiple informants' reports of these three qualities were aggregated to yield multi-informant indices of warmth, conflict, and rivalry (results of a supplemental confirmatory factor analysis also supported this decision to combine constructs across reporters; results of these analyses are available from the authors). The respective means for the aggregate

scores for warmth was  $M = 3.78$  ( $SD = .88$ ), for conflict was  $M = 2.59$  ( $SD = .81$ ), and for rivalry was  $M = 2.51$  ( $SD = .98$ ).

*Sibling Modeling.* Sibling modeling was assessed by a six-item scale on which the sibling each rated from 1 (*never*) to 5 (*very often*), the degree to which their sibling set an example for their behavior, encouraged them to participate in activities, and included them in activities. Example items include: 'My brother/sister gives me advice on how to behave' and 'My brother/sister provides a model for how I should act'. This measure was adapted from a version described by Whiteman and McHale (2005), and the internal reliabilities for older and younger siblings were high ( $\alpha = .93$  for both). The sibling modeling variable employed in the regression analyses was a composite of the two sibling's descriptions of the extent of modeling ( $r = .27, p < .01$ ). This correlation was lower than expected, but the decision was made to proceed to aggregate these scores to maintain a consistency in employing multi-informant indices (a decision also supported by the aforementioned confirmatory factor analysis [CFA] available from the authors). The mean for the composite modeling score was  $M = 2.71$  ( $SD = .78$ ).

### *Plan of Analysis*

Our general analytic strategy was an adaptation of methods for analyzing distinguishable dyadic data described by Kenny, Kashy, and Cook (2006). It was necessary to modify traditional methods of dyadic analysis to evaluate the moderation of sibling similarity by continuous variables (e.g., sibling warmth). We initially considered using two existing methods of dyadic analysis. The first possibility was to use difference scores (e.g., older sibling scholastic competence minus younger sibling scholastic competence) regressed on the predictor variables (e.g., sibling warmth). However, the use of difference scores can be problematic with bounded scales (e.g., 1–4 on the Harter scales) because of biases due to floor or ceiling effects (which confound level of each sibling with dissimilarity or difference). The second possibility we considered was to rely on correlations to index sibling similarity, and then compare correlations in multi-group analyses of siblings high vs. low in warmth. However, this artificial dichotomization is well known to attenuate observed effect (e.g., MacCallum, Zhang, Preacher, & Rucker, 2002), and was therefore considered a poor choice. The logic of this reliance on correlations indexing similarity formed the basis of our adapted analytic strategy, however, as we describe next, our hierarchical regression approach retains the continuous nature of the moderator variables.

Using this adapted approach, we fit a series of hierarchical multiple regressions for the four aspects of self-representation (scholastic competence, social competence, physical appearance, and global self-worth) being predicted by six aspects of the sibling relationship (relative age, sex composition, sibling modeling, warmth, conflict, and rivalry). Step 1 of each of these regressions was of one aspect of older siblings' self-representations (e.g., scholastic competence) regressed onto the younger sibling's self-representation in that domain (e.g., scholastic competence). The regression coefficient ( $b_i$ ) of this regression indexes the degree of similarity between siblings in that particular aspect of self-representation (this standardized bivariate regression coefficient is the correlation between dyad scores, with positive values representing similarity and negative values representing dissimilarity, see Kenny et al., 2006). In order to compare mean levels of siblings' self-representation, we subtracted the mean level (within a particular domain, e.g., scholastic competence) of younger siblings'



scores from both (1) the independent variable, younger siblings self-representation (thus eliminating non-essential collinearity in later tests of interaction effects; see Aiken & West, 1991); and (2) the dependent variable, older sibling scores on that same self-representation domain (e.g., scholastic competence). Although the impact of centering older siblings scores on the mean of younger sibling scores is not obvious, the result is that the intercept ( $b_0$ ) of our regression equations represents the magnitude of mean level differences between siblings in that particular self-representation domain (producing the same magnitude and significance of effects as a repeated-measures  $t$  test; see Cohen, Cohen, West, & Aiken, 2002).

In Step 2 of each hierarchical regression, we entered one of the six variables hypothesized to moderate the magnitude of sibling similarity: relative age (difference between older and younger siblings' ages), sex composition of the dyad (dummy coded 0 = mixed and 1 = same sex), and the composite variables for sibling warmth, conflict, rivalry, and modeling. These variables were centered on their means (e.g., sibling warmth was centered by subtracting the mean sibling warmth from scores from the 438 families) for use in later interaction terms (see Step 3 described next). The main effect of the predictor to the older siblings' scores was not of interest, but rather this step served as a control for the next step (Aiken & West, 1991).

Step 3 of each regression evaluated the moderator effects of interest, the interaction between the younger siblings' self-representations and the predictor of interest. This interaction evaluates whether the similarity between siblings (i.e., prediction of older siblings' from younger siblings' self-representations) varied at different levels of the predictor (e.g., whether similarity is stronger at higher vs. lower warmth). Significant interactions were interpreted using simple slopes analysis (see Aiken & West, 1991).

## Results

Correlations between the younger and older siblings' self-representations (i.e., perceived competencies and global self-worth) are shown in Table 1. Means, standard deviations, and the results of mean comparisons between younger and older siblings

**Table 1. Correlations Between Siblings and Mean Differences of the Dimensions of Self-Representations**

Self-representation	Younger–older $r$	Younger sibling, mean ( $SD$ )	Older sibling, mean ( $SD$ )
Scholastic competence	.10*	3.11 (.70)	3.18 (.73)
Social competence	.29***	3.14 (.66)	3.17 (.67)
Physical appearance	.26***	2.94 (.67)**	2.84 (.65)
Global self-worth	.36***	3.08 (.75)	3.07 (.72)

*Note:* Comparisons of mean differences between younger and older siblings were evaluated through paired  $t$  tests ( $df = 436$ ) and significant differences are denoted with asterisks next to sibling with higher values. 'Younger–older  $r$ ' refers to the correlation between younger and older siblings. Scholastic competence was significantly different from social competence ( $z = -2.92$ ,  $p < .01$ ), physical appearance ( $z = -2.45$ ,  $p < .05$ ), and global worth ( $z = -4.08$ ,  $p < .001$ ) by a two-tailed Fisher's  $r$  to  $z$  transformation.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

are also shown in this table (note that these mean comparisons are also evaluated in our regression analyses described below). The positive correlations between the sibling scores (also shown in the regression below) reveal a pattern of moderate similarities. On average, the siblings' perceptions of their competencies and physical appearances overlap at least modestly. The global self-worth scores are most highly correlated whereas scholastic competence was associated with the lowest coefficient. A significant mean difference was found for the physical appearance domain, with the younger siblings rating themselves as more physically attractive than did the older siblings. However, all of the correlations were positive, suggesting that despite mean level differences, there is evidence of similarity in how the members of the sibling pairs perceived themselves. Although not shown in the table, we also explored whether the sibling relationship qualities were different in the same- vs. mixed-sex dyads. Analyses of variance revealed that only sibling rivalry was associated with a significant  $F$  value ( $F = 7.80, p < .005$ ). The same-sex pairs reported more rivalry than the opposite sex pairs.

Table 2 includes the inter-correlations among the study variables. These coefficients reveal a high level of interrelatedness among self-perceptions across ratings of competence, physical attractiveness, and global self-worth. The associations of sibling warmth and modeling tend to be positively correlated with the competence and global self-worth variables whereas sibling conflict and rivalry are negatively correlated with the self-representation indices. Table 3 shows the results of the regression analyses. All of the overall equations were significant at least at the .01 level. The  $R^2$  change values associated with significant interaction terms were also significant for those steps in the equation. We next describe the results of each analysis in this table.

Illustrating the parallels between our hierarchical regression analyses and traditional dyadic analyses (Kenny et al., 2006), Tables 1 and 3 share in common evidence of similarity in the siblings' self-representations, as the younger siblings' scores are consistently associated with the older siblings' (see Model 1 in Table 3 and the correlations in Table 1). As mentioned, the values in Tables 1 and 3 (Model 1) reveal a pattern indicating that siblings' perceptions of scholastic competence are not as strongly associated, or similar, as self-evaluations in the other domains.

In examining the rows associated with the Model 2 interaction terms, we see that no effects were observed for the relative age variable. The failure to find these interactions indicate that similarities in the sibling dyad's reports of their self-representations do not significantly vary depending on whether siblings were closer or further apart in years. However, we found significant interaction effects for sex composition (Model 3) and characteristics of the sibling relationship (Models 4–7). We describe each of these next.

One of the interaction terms involving sex composition, represented by dyads that are the same- or mixed-sex, is associated with levels of sibling similarity (i.e., moderates strengths of association between younger and older siblings). To illustrate these effects, we conducted follow-up simple slope analyses (Aiken & West, 1991) by plotting regression lines for the mixed- vs. same-sex pairs of siblings, shown in Figure 1 for social competence.

Both of the simple slopes associated with similarity on social competence for the same- or mixed-sex pairs are significantly different from zero, indicating that similarity in social competence is evident in both same- and mixed-sex siblings. However, mixed-sex dyads are more similar than same-sex siblings, as indicated by the stronger association (steeper regression line) between mixed- than between same-sex siblings. These findings are consistent with our expectation that sex operates as an objective

**Table 2. Intercorrelations Among Study Measures**

Variable	1	2	3	4	5	6	7	8	9	10					
1. Scholastic competence															
2. Social competence	.45***														
3. Physical appearance	.44***	.41***													
4. Global self-worth	.41***	.46***	.34***												
5. Relative age	.00	.03	-.07	.40***											
6. Sex composition	-.08	-.03	-.03	.45***	-.04										
7. Modeling <sup>b</sup>	.04	.11*	.12*	.59***	.04	.08									
8. Warmth <sup>a</sup>	.24**	.24**	.33**	.37***	-.02	.09**	.14**								
9. Conflict <sup>a</sup>	-.26***	-.26***	-.20**	-.19**	-.02	.20***	.31***	.21***							
10. Rivalry <sup>a</sup>	-.17***	-.23***	-.18**	-.17**	.00	-.05	.02	-.05	-.24**						
										-.13**					
											-.19***				
												-.10*			
													-.11*		
														-.04	
															.03
															.11**
															.07
															.67***

<sup>a</sup> These variables are composites of all three family members' reports, <sup>b</sup> This variable was the aggregate of the older and younger siblings' reports. Older siblings' correlations are above the diagonal and the younger siblings' are below. The missing cells are redundant.  
\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$ .

**Table 3. Hierarchical Regression Results Examining Similarities in Self-representations and Moderator Variables**

	Scholastic competence	Social competence	Physical appearance	Global self-worth
Model 1				
Order effect ( $b_0$ )	.07*	.03	-.10***	-.03
Similarity ( $b_1$ )	.10*	.29***	.25***	.33***
Model 2 <sup>a</sup>				
Similarity ( $b_1$ )	.08	.23***	.23***	.32***
Relative age ( $b_2$ )	-.06	-.12	-.13	.04
Interaction ( $b_3$ )	.06	.04	.13	.06
Model 3 <sup>a</sup>				
Similarity ( $b_1$ )	.13	.18***	.24***	.36***
Sex composition ( $b_2$ )	-.13	-.02	.10	.05
Interaction ( $b_3$ )	-.06	.55***	.02	-.06
Model 4 <sup>a</sup>				
Similarity ( $b_1$ )	.10	.30***	.25***	.32***
Sibling modeling ( $b_2$ )	.07	-.01	.05	.06
Interaction ( $b_3$ )	.14**	.20***	.10*	.09*
Model 5 <sup>a</sup>				
Similarity ( $b_1$ )	.12*	.26***	.20***	.28***
Sibling warmth ( $b_2$ )	.07	.15***	.19***	.22***
Interaction ( $b_3$ )	.13***	.15***	.12**	.11**
Model 6 <sup>a</sup>				
Similarity ( $b_1$ )	.03	.25**	.25**	.32***
Sibling conflict ( $b_2$ )	-.24***	-.20***	-.11*	-.12*
Interaction ( $b_3$ )	-.06	-.14**	-.15***	-.17***
Model 7 <sup>a</sup>				
Similarity ( $b_1$ )	.08	.26***	.24***	.35***
Sibling rivalry ( $b_2$ )	-.12*	-.12*	-.06	-.05
Interaction ( $b_3$ )	-.04	-.06	-.05	-.04

<sup>a</sup> Models 2–7 include the intercept and similarity at Step 1, add the main effect of the predictor at Step 2, and the interaction effect of interest at Step 3. All effects denoted as significant in these Models also had a significant  $\Delta R^2$  for that step (with the exception of Model 7). Sex composition was coded 0 = mixed-sex sibling dyads, 1 = same-sex sibling dyads. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

criteria by which siblings base evaluations of the self as either more or less alike than the sibling, with physical resemblance leading to deidentification (i.e., less strong similarity) and same-sex siblings deidentifying more than opposite sex sibling. These results indicate that, where sex composition moderates sibling similarity for perceptions of social competence, this moderation is such that same-sex siblings exhibited stronger deidentification than did mixed-sex siblings.

Table 3 also contains the results of the tests of the interaction terms for sibling modeling (Model 4), warmth (Model 5), conflict (Model 6), and rivalry (Model 7). The directions of moderation by modeling and warmth are similar across the self-

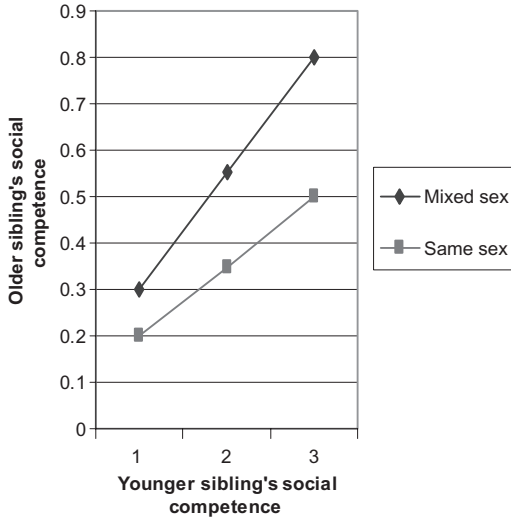


Figure 1. Sibling similarity and sex composition. Same sex,  $\beta = .18$ ,  $t = 4.00$ ,  $p < .001$ ; Mixed sex,  $\beta = .27$ ,  $t = 3.13$ ,  $p < .001$ .

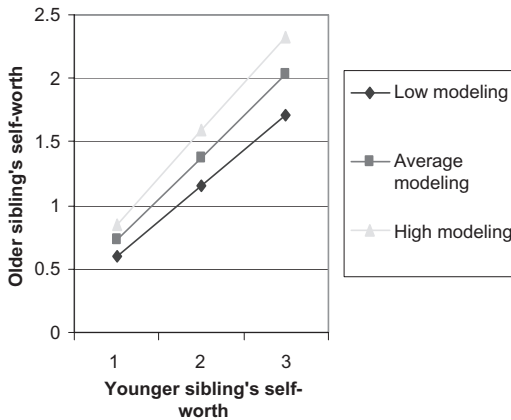


Figure 2. Sibling similarity and sibling modeling. High (+1 SD) sibling modeling,  $\beta = .41$ ,  $t = 6.32$ ,  $p < .001$ ; Average sibling modeling,  $\beta = .32$ ,  $t = 7.19$ ,  $p < .001$ ; Low (-1 SD) sibling modeling,  $\beta = .23$ ,  $t = 3.78$ ,  $p < .001$ .

representation domains (in terms of shape and significance of the simple slopes), so we only present results for global self-worth and sibling modeling to illustrate the patterns. Simple slope analyses (see Figure 2) provide support for our prediction that increases in modeling are associated with greater similarity. That is, siblings reporting the greatest tendency to model one another's behaviors (high modeling) are more similar on the self-worth dimension (i.e., strongest positive association in Figure 2) whereas siblings with lower modeling are less similar in their self-worth (weakest positive association in Figure 2; yet the slopes for all three levels of modeling are significantly positive). As mentioned, the moderating effects for sibling modeling predicting similarity in three of the other four self-representations were in the same direction.

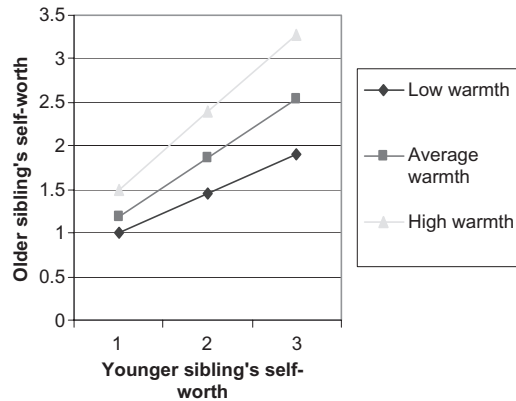


Figure 3. Sibling similarity and sibling warmth. High sibling warmth,  $\beta = .58$ ,  $t = 4.35$ ,  $p < .001$ ; Average sibling warmth,  $\beta = .35$ ,  $t = 5.48$ ,  $p < .001$ ; Low sibling warmth,  $\beta = +.35$ ,  $t = +1.72$ ,  $p < .08$ .

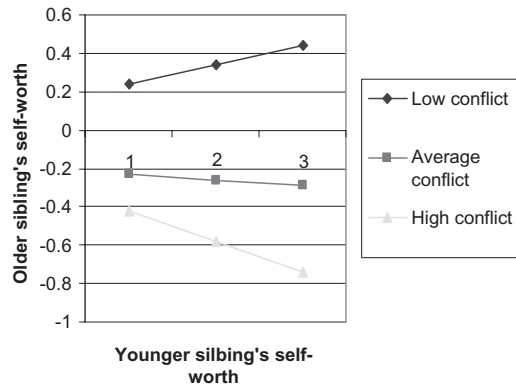


Figure 4. Sibling similarity and sibling conflict. Low sibling conflict,  $\beta = .50$ ,  $t = 4.57$ ,  $p < .001$ ; Average sibling conflict,  $\beta = -.11$ ,  $t = -2.60$ ,  $p < .01$ ; High sibling conflict,  $\beta = -.28$ ,  $t = -3.98$ ,  $p < .01$ .

Moderation by sibling warmth also follows this direction and is evident for all of the perceived competencies and global self-worth (see Figure 3). Thus, both modeling and warmth in sibling relationships appear to promote identification, or greater sibling similarity. Analyses of sibling conflict yielded significant moderation for three domains of self-representation, and, as expected, are in the opposite direction for the effects for sibling warmth. For example, Figure 4 (regarding similarity in self-worth) shows that high conflict is associated with dissimilarity or evidence of potential deidentification processes (i.e., negative association between siblings' levels of self-worth) whereas low conflict is associated with greater similarity. In other words, sibling relationships characterized by high conflict report dissimilar perceptions of self-worth. At average to low levels of conflict, however, siblings were similar in self-worth, suggesting that conflict *per se* does not lead to deidentification rather, dissimilarity is only evident under conditions of high conflict (see Figure 4). None of the interactions involving sibling rivalry were found to be significant.

## Discussion

The results reported here draw attention to associations among sibling relationship quality and young adolescents' self-representations. In general, we found that siblings' self-perceptions are similar and we interpret the pattern of findings to suggest that attention to the social connectedness of the sibling relationship may be a key to understanding this finding. Furthermore, qualities of the sibling relationships more consistently moderated sibling similarity than more objective characteristics such as sex composition or age spacing. We found that the forces promoting resemblance outweighed the forces associated with dissimilarity, although both similarity and dissimilarity were observed. It is noteworthy that the present study directly compared the predictions of two perspectives on the outcome of social mechanisms (i.e., modeling vs. deidentification) within sibling relations, which had not been done previously. The deidentification perspective presumes that siblings who are more objectively similar (close in age or same sex) and rivalrous will report more dissimilar self-perceptions. The pattern of near zero or negative correlations which would have supported deidentification was not observed. In effect, this association was observed only in relation to sex composition of the dyads and self evaluations of social competence. The same-sex siblings were reporting less similar levels of social competence than were the mixed-sex siblings. With the exception of evidence for deidentification in the presence of high conflict, dissimilarity was generally not observed when moderations by sibling relationship qualities were evaluated. In fact, even at high levels of conflict or rivalry, sibling pairs generally exhibited only slight dissimilarity.

Recent evidence suggests that sibling relational dynamics or 'sibling effects' represent a key factor in understanding similarities in behaviors among adolescents beyond genetic processes (Rowe & Gulley, 1992; Slomkowski et al., 2005). The results of the present investigation highlight the role of sibling relationship qualities in influencing similarities in self-representations and extend the 'sibling effects' model to understanding resemblance in self-systems in contrast to the behavior outcomes previously studied. The present investigation also had the advantage of assessing sibling relationship quality in a more differentiated way than prior research, thus extending understanding of the relational dynamics and mechanisms at play. That is, in addition to warmth and conflict, the present study included direct assessments of sibling modeling and rivalry that are often inferred as the processes promoting similarities or differences between siblings, but are rarely measured. Direct assessments of sibling modeling emerged as an important moderator deserving continued and more direct scrutiny in future investigations of sibling resemblance in both behavioral domains and social cognitions.

Comparisons of siblings' reports of their self-representations, as indexed by perceived competencies and global self-worth, revealed moderate similarity. Sibling similarity in global self-worth scores was the highest, and similarity in scholastic competence was the lowest, although all the correlation coefficients indexing sibling similarity were positive and significant. Variations in the magnitude of the coefficients suggested that sibling resemblance may depend on which domains the adolescents are evaluating themselves. Based on genetics alone, one might predict moderate similarity, given that siblings share approximately 50 percent of their genes. Past work comparing sibling reports, however, has produced mixed results with some authors finding low levels of similarity (Ahern, Johnson, Wilson, McClearn, & Vandenberg, 1982; Dunn & Plomin, 1990), or similarity accounted for primarily by genetic resemblance rather than shared environmental

influences (e.g., socioeconomic status, family size, parental education; McGuire, Neiderhiser, Reiss, Hetherington, & Plomin, 1994). Other, more recent investigations, with which the present findings are more consistent, report evidence of similarities associated with sibling reinforcement and connectedness (Moffitt, Caspi, Dickson, Silva, & Stanton, 1996; Slomkowski et al., 2005). In the present study, we did not employ a design that would allow us to distinguish between environmental or genetic effects. Comparisons of self-ratings of closely related concepts (self-system components), produced only slight variations in degrees of resemblance; however, the general pattern suggests that siblings share similar self-perceptions.

Although the correlations used to index sibling similarity indicate that siblings are rank-ordered (across families) similarly, results of our mean-level comparisons indicated that at least for one domain the overall levels of perceived competence differed across these pairs. Younger siblings rated themselves as more physically attractive than did their older siblings. As the majority of the older siblings were in high school, it may be that in this context, comparisons to significantly larger number of students and greater specialization among those students in honing a particular 'look', result in less favorable self-evaluations in this domain. Of interest is the fact that the global self-worth scores were the most highly correlated. Many sources will influence one's overall feeling of worthiness, yet this higher correlation might indicate that shared family influences on this aspect of the self may be particularly important.

Results evaluating the effects of relative age differences on the similarity in self-representations were not significant. In other words, this particular objective standard or structural feature of the relationships was not associated with similarity across the self-evaluations assessed in this study. Therefore, these results failed to confirm the predictions of Schachter's deidentification theory, and are contrary to Feinberg and Hetherington's (2000) interpretation of comparisons of sibling self-reports of adjustment. These latter authors described comparisons of mean correlations between sibling scores for siblings who were zero, one, two, three, and four years apart in age. With the exception of the first group (which included twins), the mean correlations across seven indices of adolescent adjustment were smallest for the sibling pairs closest in age (1 year apart) and increased linearly. These authors argued that the increase in the size of the mean correlations was evidence of sibling deidentification. Like our results in association with the correlations among the competence variables, however, nearly all (32 of 35) of the correlations among the indices of adjustment reported by Feinberg and Hetherington were positive, and approximately 40 percent of the correlation coefficients for the non-twin pairs were substantial ( $r$  values exceeding .35). These positive correlations suggest similarity, or as these authors note, evidence of shared environmental influences.

The results of regression analyses revealed that sex composition of the dyads moderated the similarity in siblings' perceptions of social competence. We found that the perception of competence in this domain was more similar in the mixed-sex dyad than in same-sex dyads. Deidentification theory specifies that same-sex siblings should deidentify. Expectations for what should occur in opposite-sex pairs are not articulated. Our findings may still be interpreted, however, to support the tenets of the deidentification theory, albeit as evidenced by less similarity rather than actual dissimilarity. Because mixed-sex siblings are not competing with each other in the domain of social competence due to difference in their sexes, they may perceive similar levels of competencies. This argument stems from Maccoby's (1998) 'separate worlds' characterization of peer groups. Mixed-sex siblings likely have little direct overlap in peer



worlds, unlike same-sex siblings, given that children self-segregate into same-sex groups even more strongly than same-age groups (Gray & Feldman, 1997). This sex segregation seems to set the stage for the very competition that Schachter and Stone (1987) argue leads to deidentification. Given this support for deidentification, the question arises as to why empirical evidence was limited to only one aspect of self-representations: perceptions of social competence. We speculated that societal conditions support greater gender-specificity in performance standards for social competence than for scholastic competence. Therefore, sibling sex compositions appeared to more strongly moderate sibling similarity in this self-representation domain than in those with less gender-specific expectations.

With the exception of sibling rivalry, which was generally unrelated to the magnitude of sibling similarity, the remaining pattern of results in relation to qualities of the sibling relationship was in the expected directions. These findings suggest that the dimensions of sibling relationships are credible influences on these self-system components. Siblings are more similar if their relationship is high in warmth and low in conflict. Siblings are also similar (i.e., positive correlations between siblings' self-concept) even when warmth and conflict are reported to be average. In the most direct test of the social learning mechanism, analyses of sibling modeling revealed the expected patterns where more modeling was associated with more similarity. This finding is important because modeling or imitation is often cited as a potential cause of similarity between siblings, but this claim is not assessed directly. Because modeling involves observations of behaviors, we would speculate that modeling may be more influential in domains such as athletic or social competence where behaviors contributing to success in those areas may be more obvious than, for example, cognitions associated with self-worth. Future studies may continue to benefit from direct assessments of modeling at the same time examining its effects across different aspects of self-representations. Although the present data are correlational, thus limiting inferences of causality, the observed significant effects support the role of modeling as a process heightening the similarity of siblings' self-perceptions.

We expected to find that rivalry would be associated with the magnitude of sibling similarity, however this was not the case. We re-examined the wording of the items for this variable and found that the items asked whether the siblings try to 'out do each other', 'compete', or 'do things better than each other'. Although labeled as rivalry/competition on the original measure, these items are more clearly aligned with competition. Schachter and colleagues (Schachter et al., 1976; Schachter & Stone, 1978, 1987) imply that it is not the competition *per se*, but rather the negative feelings or unpleasantness that would accompany these interactions that motivate the deidentification process. We speculate, in fact, that competition without the associated negative affect could be motivation to identify rather than deidentify, with the other. Perhaps more direct assessments of rivalry and the associated negative feelings would have yielded the predicted associations.

Feinberg and Hetherington (2000) discounted sibling positivity and negativity as factors associated with sibling identification/deidentification. In the present study, we employed multiple measures of sibling relationship qualities provided by multiple informants, and the resulting moderation of sibling similarity across levels of those qualities revealed a strikingly consistent pattern. Our interpretation is that greater or lesser similarity in self-representations among siblings are tied to their experiences within these relationships to a greater extent than to more static variables such as age spacing or sex differences. Our data are concurrent and we acknowledge the possibility

of bi-directional influences. That is, similar self-representations may produce warmer sibling relations. Our findings, however, provide strong evidence of the importance of considering sibling relationship quality when evaluating self-system processes. This evidence can be clearly seen in Figures 3 and 4, where high warmth and low conflict are associated with similarity, and low warmth and high conflict are associated with less similarity. In sum, the experiences within the sibling relationship itself (especially warmth and conflict) emerged as potent correlates of the magnitude of sibling similarity.

The generally low sibling similarity in perceived scholastic competence was also somewhat unexpected. Previous investigations have reported higher correlations between siblings' objectively measured skills in math and reading. For example, based on teacher ratings, Lewin et al. (1993) reported that sibling math and reading abilities correlated at  $r_s = .64$  and  $.60$ , respectively. In contrast to these objective measures, we considered subjective perceptions of scholastic competence, perceptions formed during periods of development when one's academic performance is the subject of much scrutiny by the self and the others (Bouchey & Harter, 2005). Feedback on scholastic competence derives from many different sources, including parents, peers, teachers, and one's own motivations and appraisals of performance. Bearing this in mind, it may not be surprising that the siblings' reports of their abilities would bear little resemblance. Alternatively, perhaps this is the one aspect of the self that is most sensitive to the need to deidentify or create a separate niche during early adolescence, given parental expectations and pressure for doing well academically and the relative ease of comparing objective indices of success or failure, such as grades. Sorting through this issue may involve future studies examining scholastic competence in finer detail; for example, across classroom subject domains (i.e., math, science, or the language arts), measuring both objective skills and subjective perceptions of competence, and incorporating ratings of the importance of being competent. The expectancy-value theory (Eccles, 1993) posits that expectations for doing well in a particular area and the value the individual places on doing well affect academic choices and performance. A more fine-grained examination of perceptions of competence in different academic spheres, and including both subjective and objective reports of performance and desired performance, may provide insight into the siblings' overall ratings of their scholastic competencies and the origins of the differences in those ratings. Finally, these lower correlations may also be a function of the siblings' grade levels, where the middle school and high school contexts are distinct enough that the low correlation may have less to do with sibling or family dynamics than the fact that these evaluations are based on unique experiences in their respective school contexts (Eccles, Midgley, & Adler, 1984).

Several limitations of this study need to be acknowledged. The first is that the present data were derived from Web-based surveys. Although this methodology is commonly used in other disciplines and offered several advantages in implementing the present study, it is a relatively new methodology in the family and developmental sciences and differs from methodologies employed in prior research on sibling similarity, thereby making direct comparisons difficult. Although this approach allowed us to sample families over a wider geographic region of the United States than is typically feasible, the representativeness of the current sample can also be questioned. There is some evidence that individuals who access the Web are not distinct from the general population (Thompson, Surface, Martin, & Sanders, 2003), but the present sample

included mothers who were relatively well educated, predominantly middle-class and of European descent. Thus, the results may not be generalizable to families from other economic or ethnic backgrounds.

A second limitation of the present study is that the data were collected at only one time point. Tests of the theoretical perspectives accounting for sibling resemblance or differences would benefit from longitudinal assessments. Although this correlational design limits our ability to infer direction of effects or causality, the present study clearly informs future investigations. Our findings indicate that comparisons of sibling self-evaluations reveal more similarity than dissimilarity. Most importantly, however, is the finding that although both sibling similarity and dissimilarity were evident (with the former more evident in this sample), neither can be well understood without knowledge of family interaction patterns, and specifically the dynamics of the sibling relationship. Longitudinal research is needed to investigate the nature of these interaction patterns and their potential effects and further address the equally plausible alternative explanation that similarities in self-perceptions could foster warm, less conflictual sibling relationships. The role of parenting behaviors and qualities of parent–child relationships in influencing self-representations in relation to siblings also needs to be distinguished.

Despite these limitations, this study makes a noteworthy contribution to the literature by evaluating different qualities of the sibling relationship posited as promoting greater or lesser similarity among early adolescent siblings. Many aspects of the family environment have been shown to influence an adolescent's sense of self. The present results add to this body of research by demonstrating how particular qualities of the sibling relationship are operating for two children in the same family and associations with perceived competencies and self-worth. This work contributes to understanding the correlates of self-representations, which given their association with other aspects of adjustment in adolescence, clearly deserve our attention.

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# Sibling relationships in early adulthood: A typology

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## **Abstract**

This investigation attempted to classify adult sibling relationships into a small number of discrete types and to describe those sibling relationship types in terms of the relative warmth, conflict, and rivalry experienced by members of the sibling dyad. Adult participants ( $N = 267$ ), ranging in age from 17 to 56 years, were asked to complete surveys describing their relationship with the biological sibling who was closest in age to themselves. Using the theoretical categories developed by Murphy (1993) in her study of young siblings, a retrospective questionnaire was constructed to classify the respondent's relationship with his or her sibling as Caretaker, Buddy, or Casual. Along with these three groups, a fourth type of sibling relationship was detected that closely resembled the Loyal subgroup described by Gold (1989) in her study of sibling relationships among the elderly. Differences among these four groups were assessed with the Adult Sibling Relationship Questionnaire developed by Lanthier and Stocker (1993). Group differences are summarized, and several potential developmental paths from childhood to adulthood for the various types of sibling relationships are outlined.

The importance of the sibling relationship has been recognized throughout the past decade by developmental psychologists whose collective research effort extends across the entire life-span (Avioli, 1989; Bank & Kahn, 1982; Bedford, 1989; Brody, Stoneman, & Burke, 1987; Bryant, 1982; Buhrmester & Furman, 1990; Cicirelli, 1989, 1991, 1995; Connidis, 1989; Dunn & Kendrick, 1982; Gold, 1987, 1989; Ross & Milgram, 1982; Stewart & Marvin, 1984; Stocker, Dunn, & Plomin, 1989). The sibling relationship has been described as the most enduring of all familial relationships, with several researchers (e.g., Goetting, 1986; Gold, 1987; Seltzer, 1989) commenting on the uniqueness of the sibling bond owing to the shared genetic and social backgrounds of the siblings and the longevity of their relationship. Indeed, it has been argued that

there can be no real divorce between siblings, and that the sibling relationship may persist symbolically following the death of a sibling.

Sibling research over the past decade has focused either on very early relationships between siblings who are both not yet in elementary school or on later relationships between siblings who are more than 65 years of age. One might get the impression that siblings are important only when one is either young and still living at home, i.e., not yet adolescent, or very old when one's parents and friends have died or moved away. Just as attachment researchers have found that secure, ambivalent, and avoidant styles of interaction with an attachment figure have profound effects on the quality of the individual's subsequent relations (e.g., Ainsworth, Blehar, Waters & Wall, 1978; Lieberman, 1977), we hope to demonstrate that the qualitative differences in the nature of a relationship with a sibling can have profound effects on the functional as-

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pects of many interpersonal relationships that one experiences as an adult. We do not expect to find that the nature of the relationship with a sibling does not ever change over the course of the life-span; nor do we expect that each phase of the life-span must have its own unique typology. It is our goal to seek a common categorization system that will apply from late adolescence to late adulthood, for those years where the nature of sibling interaction is voluntary rather than dictated by parental wishes, living conditions, or other external constraints.

The degree to which siblings actually develop a close and influential relationship, as well as the degree to which they exhibit such qualities as warmth, power, emotional and instrumental support, interpersonal conflict, or apathy has been utilized to categorize sibling relationships. Murphy (1992, 1993) and Gold (1989), two researchers working at opposite ends of the life-span, have developed typologies for categorizing sibling dyads according to the degree to which the siblings exhibit various characteristics. The primary purpose of the present study is to draw aspects from each of these works and determine whether a typology of sibling relationships during the late adolescent, and the early and middle adult years—i.e., at the halfway point between the foci of Murphy and Gold—could be established.

Murphy (1992), working with young children aged 5 to 11 years and their infant siblings, focused on the sibling relationship by way of grounded theory methodology, described by Glaser and Strauss (1967). Briefly, this type of methodology involves deriving theory directly from the data by examining multiple and varied groups to identify categories of interaction and their properties, hypothesizing about similarities and differences among categories, and integrating the information gathered. Participants, or groups of participants, are consciously chosen in order to fill in gaps in the researcher's understanding and to find as many, and as varied, groups as possible. Using videotapes of interaction between the siblings, parent and child interviews, and

both pictorial and written journals, Murphy compared the data obtained from each of nine families with that obtained from every other family, asking questions, looking for similarities as well as differences, identifying patterns, and seeking "the interface between meaning and interaction" (1992) in order to better define categories of sibling interaction and their properties. In so doing, Murphy (1993) identified three types of sibling relationships: Caretaker, Buddy, and Casual siblings.

The first type of sibling relationship, that of the Caretaker, involves the older sibling as a sort of quasi-parent, performing and deriving enjoyment from such tasks as dressing and feeding the infant. In Caretaker relationships, the older child is seen by the parents as capable and responsible and is often given a position of authority over the younger child. The Buddy type of relationship, as its name implies, involves the older child as a friend and teacher of mischievous tricks and as an ally against the parents rather than as another caregiver. Buddies tend not to force their will upon their younger sibling, but instead tend to coax the younger child into the desired activity. The Casual relationship, unlike the other two types, is based on the older sibling's view of the younger as rather uninteresting compared to other friends and activities. The older child views others as responsible for the baby and tends generally to focus attention away from the younger sibling. The Casual type is postulated as being the dominant pattern in American society.

At the other end of the life spectrum is the work of Gold (1989), who employed different methods to identify typologies of sibling relationships among older participants. Using structured and semi-structured interview questions, Gold obtained participants' descriptions of their relationships with their siblings. These responses were then coded to obtain assessments of the relationships of the subject and each of his or her siblings. The variables assessed were closeness, envy, resentment, instrumental support, emotional support, acceptance/ap-



proval, psychological involvement, and contact. Based upon the levels of these eight variables, five sibling relationship types were identified: Intimate, Congenial, Loyal, Apathetic, and Hostile.

The Intimate relationship is based upon high psychological involvement and closeness, with resentment playing but a minor role. Contact is frequent and consistent, and the siblings provide each other with assistance and support when it is needed. The Congenial type, like the Intimate, is based upon friendship and positive feelings with little envy and even less resentment, but it lacks strong feelings of empathy. Assistance is provided by the siblings when it is needed, and contact, though less frequent than that shown by the Intimate type, is nonetheless consistent. The Loyal sibling type, though positive, is less close than the above two types, and may involve more envy, resentment, and disapproval. The Loyal sibling relationship is viewed in terms of responsibility to kin rather than as a personal bond. Assistance tends to be of the instrumental variety and is provided in crisis situations, but contact is usually infrequent unless the siblings live relatively near each other. The Apathetic relationship is marked by a lack of closeness, support, and psychological involvement; separated and entrenched in their own lives, siblings of this type have little or no contact and seem to experience neither resentment nor closeness. Siblings of the Hostile type experience high levels of psychological involvement with their siblings, but rather than feeling closeness and acceptance, siblings of this type have only strong resentment and disapproval. Assistance and contact are non-existent for this type.

Cicirelli (1995) emphasizes that "the greatest gap in knowledge about the course of sibling relationships across the life span is in young adulthood . . . the bridging of such a gap would go a long way toward determining the lifetime course of sibling relationships more clearly" (p. 218). It is our position that this course might be most clearly mapped if a single typology could be identified that would be equally applicable

and heuristically valuable across these stages of the life-span. This position does not assume a homogeneity of experience or a continuity of relationship type across the life-span for any one dyad. Indeed, considerable evidence from cross-sectional studies (e.g., Bedford, 1990; Cicirelli, 1985; Leigh, 1982; White & Riedmann, 1992) shows that sibling relationships continue to develop and change over the course of the adult years. Continuity would exist in that each sibling type would be found at each stage of life, although the distribution of dyads within each type would change. If such a typology can be accomplished, then the gap described by Cicirelli can be bridged with a single set of profiles among which adult sibling dyads, regardless of age, might be categorized. The use of a single typology would assist researchers in describing the life-course development of the sibling relationship: Discontinuity could be revealed as dyads shift from one group to another when new developmental periods are entered and new developmental tasks are faced, or continuity could be revealed as the dyad remains within a single classification type as the siblings face and cope with these new situations.

For example, congeniality and hostility are two characteristics of sibling relationships that should be applicable across all phases of the adulthood years. For a dyad to be classified as one or the other in early adulthood would not necessarily imply a similar classification at subsequent phases in life. The proportion of sibling dyads characterized as one or the other may even rise or fall systematically as development proceeds, a finding that could not be detected unless a single typology were employed across the various phases of the life-span. The failure to find a single bridging typology would, in essence, imply that researchers would need to jump from one island to another, employing new terminology and categorization procedures in order to span the gap. Such a situation would perpetuate the lack of integration of findings of those sibling researchers who focus on various phases of the life-span in relative

isolation from others investigating similar phenomena with other age groups (cf. Cicirelli, 1995).

Another line of sibling relationship research has taken a different approach. Instead of creating typologies, these researchers are interested in the effects of age, sex, ordinal position, and other variables on the degree of closeness, conflict, dominance, and rivalry experienced by members of the sibling dyad. Furman and Buhrmester (1985), for example, developed the Sibling Relationship Questionnaire (SRQ), which obtains a description of children's sibling relationships based upon four factors: warmth/closeness, relative status/power, conflict, and rivalry. It might help some readers to note a distinction these researchers make between conflict and rivalry, two terms other researchers might see as interchangeable aspects of "sibling rivalry." Conflict refers to an active, interpersonal exchange of behavior such as quarreling, competing, antagonistic or domineering behaviors. Rivalry is a more covert, personal sense of parental partiality. These researchers examined the effects of the sex of the subject and the sibling, relative age of the subject, age difference, and size of the family on the four factors listed above and found the following: (1) Warmth and closeness tend to be higher for narrowly spaced same-sex dyads than for narrowly-spaced opposite-sex dyads; (2) older siblings who are part of large families and who have 4 or more years between themselves and their siblings tend to report the most dominance, whereas older children less widely spaced or from smaller families see themselves as less dominant; (3) conflict is higher for narrowly spaced sibling dyads; and (4) younger siblings report more rivalry than do older siblings, especially in large, widely spaced families.

Lanthier and Stocker have extended Furman and Buhrmester's line of research by developing the Adult Sibling Relationship Questionnaire (ASRQ, 1993) to describe sibling relationships later in life. The ASRQ describes relationships among adult siblings based on three factors: warmth,

conflict, and rivalry. As in the SRQ, conflict refers to active interpersonal behavioral exchanges of quarreling, competition, or antagonism, while rivalry refers to a personal expression of a perceived parental partiality. This 87-item scale has been used to compare elements of the sibling relationship with the personality traits and psychological functioning of the young adult respondents. Lanthier and Stocker found little relation among the three factors and variables such as gender of respondent and sibling and relative age of the respondent. When retrospective ratings were obtained for the level of the three factors experienced in elementary school, junior, and senior high school, it was found that sibling relationships become warmer and less conflictual as the siblings progress toward young adulthood. Furthermore, when warmth levels in the sibling relationship were compared to personality and psychological functioning variables, it was found that respondents experiencing the highest levels of warmth showed higher extroversion and agreeableness than those experiencing medium and low warmth in their relationships with their siblings. In addition, those with the highest and lowest warmth showed higher levels of conscientiousness and psychological functioning than those with medium warmth. Thus, the three factors—warmth, conflict, and rivalry—seem to be important dimensions for the understanding of the sibling relationship.

The current investigation attempts to link the two avenues—that of investigators such as Murphy and Gold who have attempted to categorize sibling relationships into a small number of discrete types, and that of researchers such as Lanthier and Stocker who have attempted to describe the sibling relationship in terms of the warmth, conflict, and rivalry experienced by members of the sibling dyad—in order to gain an understanding of the ways in which the type of relationship relates to the three above factors. Using the theoretical categories developed by Murphy, a 24-item retrospective Sibling Type Questionnaire was constructed for the purpose of defining

the respondent's relationship with his or her sibling as Caretaker, Buddy, or Casual. Murphy's typology was selected in order to follow the normal developmental progression from childhood to later stages of life. Specifically, we were interested in finding out whether late adolescents and early or middle-aged adults would describe their relationship with their sibling in a manner that would lead to its classification as Caregiver, Buddy, or Casual type or whether additional categories would be needed to classify the dyad. Although we have no doubt that continuities might be found in individual dyads as Murphy's Buddies grow up to become Gold's Intimate siblings, or as Casual childhood siblings become Apathetic or Hostile adult siblings, we did not begin the study with specific hypotheses concerning patterns of change over time. Finally, the respondent's present sibling relationship was assessed through the use of the ASRQ to determine levels of warmth, conflict, and rivalry between the siblings pairs.

Two points should be made concerning the validity of this plan to use retrospective self-reports of sibling relationships. First, there is no way of knowing the extent to which self-evaluations are influenced by *actual* interactions between the participants and their siblings. When remembering their pasts, adults might interpret and reconstruct events in terms of their present situations. Thus, their assessments of their present functioning, as well as their reconstructions of the past, may be guided by implicit theories of what they and their siblings are like now or were like then. Nevertheless, the accuracy of the perception does not affect how influential it might be (Felson & Zielinski, 1989), and one might assume a symbolic-interactionist position regarding the primacy of our perceptions in affecting our attitudes, actions, and interactions (Gecas & Schwalbe, 1986).

Second, the use of a retrospective approach to determine antecedents of current sibling relationship characteristics involves some degree of speculation and risk. Even though developmentalists have generally

been skeptical of retrospective studies (McCrae & Costa, 1988; Yarrow, Campbell, & Burton, 1970), prospective, longitudinal studies are very costly, time-consuming and correspondingly rare. While it is true that a methodologically superior study might be obtained by waiting for Murphy's participants to mature to adulthood or by finding the baby diaries of Gold's participants. Block (1971) has pointed out that a number of studies have shown "impressive correspondence between self-reports regarding childhood experience and independent assessments taken at the time of situation" (p. 131). If interpreted with caution, a retrospective study such as that reported here can provide a useful source of evidence in an area where so few longitudinal studies have been completed (cf., McCrae & Costa, 1988, pp. 419–420). This retrospective study is not offered as a proxy for true longitudinal findings; instead, it provides insight into how the sibling relationship might function over time.

## Method

### *Respondents*

Participants were drawn from a population of college students and their nonstudent friends and associates. Sixteen undergraduate research assistants were asked to identify potential respondents ranging in age from 18 to 55 years from their neighborhoods, churches, places of employment, etc. These lists were combined to generate an overall pool of potential participants from which each assistant might arrange interviews with people other than those from their own networks. This procedure was adopted to ensure that (1) the resulting sample was not restricted to a college student population, and (2) that none of the researchers were obtaining information from members of their own circle of friends and associates. A breakdown of the 267 participants by relative age and gender of each sibling can be found in Table 1. The overall sample had a mean age of 29.06 years ( $SD = 9.91$ ; range = 17–56 years). Participants

**Table 1.** *Sample descriptive statistics*

Relative Age	Respondent Gender	Sibling Gender		Total
		Male	Female	
Respondent Older	Male	27	21	48
		27.7	27.9	27.8
		24.6	24.9	24.7
	Female	35	39	74
		32.1	28.5	30.2
		29.0	26.2	27.5
Respondent Younger	Male	31	26	57
		26.0	29.6	27.6
		28.8	32.2	30.4
	Female	48	40	88
		28.3	31.3	29.7
		30.6	34.7	32.5
Total		141	126	267
		28.6	29.5	29.0
		28.6	29.9	29.3

*Note:* Entries are cell frequency, mean age of respondent, and mean age of sibling, respectively.

were asked to complete surveys describing the biological sibling who was closest in age to themselves. The mean age of the respondents' target siblings was 29.28 years ( $SD = 10.58$ ; range = 15–57 years). Approximately 39% of the participants were male and 61% were female; 46% were the older sibling of the dyad and 54% were the younger of the dyad. The sample was 84% Caucasian, 12% African American, 3% Asian American, and 1% Hispanic. Nearly all (98%) of the participants had completed high school, most (84%) had completed or were currently enrolled in college or trade school, 76% had completed college or trade school, and 20% held completed post-baccalaureate degrees.

### *Procedures*

Participants were recruited to participate in a survey of attitudes about siblings. Surveys were conducted individually by a trained interviewer. After informed consent and other basic demographic information had been obtained, the participants were asked to describe verbally in very simple terms, how they were similar to and different from their siblings. They were

then asked to think about a time when they were approximately 5 or 6 years of age. A few participants had difficulty remembering this time of their lives and indicated that they could only remember as far back as being 8 to 10 years of age; this minor modification was permitted. Participants were invited to shut their eyes if they wished and to remember whatever they could about that time in their lives. They were asked to recall vacations, birthday parties, trips they took, playmates, etc. After these memories were described, participants were asked to remember as much as they could about their sibling at this time period in their lives. They were specifically asked to recall anything they could about the relationship they had with their sibling, the types of activities they shared, etc. This open-ended interview served not only as a warm-up for the participants, but also to refresh their memories of this earlier phase of their lives. These open-ended responses were recorded by a research assistant who had been instructed to display empathy and interest in the responses provided by the participants.

The participants were then asked to complete a 24-item scale, the Sibling Type

Questionnaire (STQ), to describe their perception of the relationship with their sibling. The survey required participants to indicate on a 5-point Likert scale (1 = Hardly at all; 5 = Extremely much) how well each of the statements described their relationship with the closest-in-age sibling when they were approximately 5 or 6 years of age. The items on this scale were derived from Murphy's (1993) detailed descriptions of the interactions between siblings of the Caregiver, Buddy, and Casual types. An example of a Caregiver item would be "The older sibling was primarily a partner with the parents to provide care to the younger sibling." A typical Buddy item would be "The older sibling often engaged in 'roughhousing' with the younger sibling, teaching him/her various forms of mischief (such as bad words, jumping on the beds, having pillow fights, sneaking cookies or candy)." A typical item from those describing Casual types was "The older sibling tended to do his/her own thing, and often had lots of other more exciting activities than interacting with a younger sibling." Pilot assessments with a convenience sample of 50 participants had indicated that individual item test-retest reliability figures ranged from .68 to .87.

Participants then completed the Adult Sibling Relationship Questionnaire (ASRQ; Lanthier & Stocker, 1993) to provide an assessment of their perception of the current relationship with the sibling. This instrument is based on the Sibling Relationship Questionnaire (SRQ; Furman & Buhrmester, 1985) with some subscales deleted (relative status and power) and others added (rivalry) to reflect more accurately sibling relationships in adulthood. The 85-item ASRQ provides scores in three primary domains and 15 subdomain scores: (1) Warmth—similarity, instrumental support, emotional support, affection, intimacy, admiration, knowledge of other, acceptance, and contact; (2) Conflict—antagonism, dominance, competition, and quarreling; and (3) Rivalry—perceived maternal partiality and paternal partiality. Lanthier and Stocker (1993) report that a three-factor,

orthogonal rotation of the items of the ASRQ accounts for approximately 69% of the observed variance, and that all scale and factor internal consistencies are above .77.

## Results

The results of the statistical analyses of the data generated in this study will be presented in two sections. First, the procedures employed to develop a typology of sibling relationships based on the Sibling Type Questionnaire (STQ) will be summarized. Results of these analyses will then be used in a series of analyses exploring the utility of this typology in accounting for variability in the responses to the Adult Sibling Relationship Questionnaire (ASRQ).

### *Sibling relationship typology*

Responses to the STQ were submitted to principal components factor analysis with orthogonal rotation. The Bartlett Test of Sphericity was computed and found to be large enough to reject the hypothesis that the population correlation matrix was an identity matrix ( $\chi^2 = 2,506.75$ ,  $df = 299$ ,  $p < .0001$ ), and the Kaiser-Meyer-Olkin measure of sampling adequacy was found to be .83, a value characterized by Kaiser (1974) as "meritorious." With these assessments of factorability in hand, the principal components procedure was conducted and the three sibling dimensions described by Murphy were detected. A scree plot indicated that these three factors would be sufficient even though other eigenvalues were obtained that were greater than one. These three factors accounted for 47% of the variance in the data. A preliminary analysis had been conducted using an oblique rotation, and it was revealed that the three dimensions were not significantly correlated. The first factor extracted was identified as Casual (eigenvalue = 6.37), the second as Caretaker (eigenvalue = 2.98), and the third as Buddy (eigenvalue = 1.91). Factor internal consistencies were .88, .85 and .68 for the three factors, respectively. The factor loading pattern is presented in Table 2. Eleven

**Table 2.** Factor analysis of sibling relationship type questionnaire

Items	Factors		
	Casual	Caretaker	Buddy
9 OS did his/her own thing	.79		
12 OS did not find YS very interesting	.76		
18 OS had outside interests and YS had little impact	.74		
6 Interactions between siblings were incidental, not reciprocal	.73		
24 OS appeared closer with peers than with YS	.67		
5 OS interactions with YS rarely revealed emotional closeness	.66	-.34	
21 OS provided instruction to YS with little enjoyment	.65		
3 OS saw YS as "no big deal"	.51		
2 OS did not see his/her role with YS interactive/reciprocal	.49		
14 OS did not assume caretaking activities for the fun of it	.46	-.41	
22 When YS not compliant with OS, he/she pulled away	.46		
1 OS was a partner with parents providing care to YS		.75	
13 OS was viewed by parents as being responsible for YS		.74	
7 OS got satisfaction doing "parent-like" activity		.73	
4 OS enjoyed caring for YS	-.40	.70	
8 OS comforted, played with, or taught YS activities	-.48	.62	
10 OS assumed position of power/control with YS	.46	.55	
15 OS saw him/herself responsible for YS		.49	
19 OS tried to make YS do what was "right"		.47	
17 OS often "rough-housed" with YS, teaching mischief			.70
20 OS tended to be closely aligned with YS			.69
11 OS entertained YS more than caring for YS			.54
16 OS kept others from YS, keeping YS to him/herself			.53
23 OS coaxed YS to perform in a certain way			.47

Note: OS = Older sibling; YS = younger sibling. Three factors account for 47% of the total variance. Loadings below .30 not shown.

of the 24 items loaded primarily on the Casual factor, eight on the Caretaker, and the remaining five on the Buddy factor.

Separate factor analysis procedures were then conducted for male and female participants to assess the similarity in factor structure across gender. The analysis with male participants detected three factors (eigenvalues = 6.16, 3.26, and 2.11, respectively) and accounted for 48% of the overall variance. The analysis with female participants also detected three factors (eigenvalues = 6.62, 2.90, and 1.86, respectively) and accounted for 47% of the overall variance. Factorial congruence indices revealed 89% agreement on the Casual factor, 92% agreement on the Caretaker factor, and 77% agreement on the Buddy factor; therefore, the gender groups were combined for subsequent analyses.

Overall factor scores were obtained by

summing the responses for items loading on each of the three factors, and these scores were used to partition cases into similar clusters. When performing a cluster analysis with a given data set, a method is needed to determine the number of clusters that best represents the sample under investigation (Aldenderfer & Blashfield, 1984). Several rules have been proposed to determine empirically the number of clusters in a data set. The pseudo- $T^2$  statistic, derived from the index proposed by Duda and Hart (1973), has been shown to be among the most accurate in determining the correct number of clusters in data sets of known cluster structure (Milligan & Cooper, 1985). The "cluster" procedure of the SAS package was utilized to obtain these pseudo- $T^2$  statistics and (with the average linkage between groups cluster method employed) revealed that a four-cluster solution was optimal (SAS,

1989). Summed item scores were then submitted to a clustering of cases algorithm (program "km" of the BMDP package; Dixon, Brown, Engelman, & Jennrich, 1990). Of the original 267 cases, 54 were grouped into a cluster exhibiting high Caretaker scores and low Buddy and Casual scores, 73 were grouped into a cluster with high Buddy scores and low scores on the other two measures, 68 with high Casual scores and low scores elsewhere, 70 with relatively low scores on all three measures, and 2 cases were dropped due to incomplete data. Cluster scores were saved for the 265 cases and used as a between-groups factor, revealing significant differences on each univariate measure: Caretaker,  $F(3,261) = 114.34, p < .0001$ ; Buddy,  $F(3,261) = 135.90, p < .0001$ ; Casual,  $F(3,261) = 103.46, p < .0001$ . Differences on the variables involved in the cluster analysis can be expected by definition, as the cluster analysis divides respondents into distinct groups on a basis of these variables. Therefore, the analysis of variance (ANOVA) for these measures cannot be assumed to provide an appropriate test of the validity for a cluster solution (Aldenderfer & Blashfield, 1984). The more appropriate and meaningful indication of the validity of the cluster solution would be the presence of significant differences between the clusters on variables that were not used in the original analysis. These analyses, employing the data derived from the ASRQ, will be presented later.

Another method of clustering the cases might also be considered. If one applies a factorial orientation when considering these factor scores, it is then possible to conceptualize eight groups defined according to scores on the three factor scores. Three of the groups would be "pure types," three would be two-way combinations or blends of the pure types, one would be the three-way combination of the pure types, and one would be the absence of high scores on any of the pure types. Participants were categorized according to their percentile ranks on each of these scores in an attempt to determine membership of each of the eight groups. Specifically, par-

ticipants possessing raw scores in the upper 30% for "Caretaker" and the lower 70% on both "Buddy" and "Casual" were categorized as being "Caretakers." Similar "30/70" splits were used to categorize participants as "Buddies," "Casuals," and the two-way and three-way combinations of these variables. The overall breakdown of participants into categories was as follows: Caretakers,  $n = 56$ ; Buddies,  $n = 52$ ; Casuals,  $n = 66$ ; None of These,  $n = 58$ . Blends of these types of sibling relationships were also observed, though less frequently: Caretaker/Buddies,  $n = 15$ ; Caretaker/Casuals,  $n = 13$ ; Buddy/Casuals,  $n = 5$ ; All Three Mixed,  $n = 2$ .

The classifications derived via the cluster algorithm were compared with those based on the 30/70 percentile breakdown described above. When the data set is limited to the 230 cases with complete data comprising the four groups of Caretakers, Buddies, Casuals, and "None of These," an extremely high degree of match, 92%, is observed ( $\chi^2 = 559.89, df = 9, p < .0001$ ). Therefore, we concluded that 230 cases, or 86%, of the overall sample, were reliably classified into one of the four major clusters or categories, with 37 cases, or 14%, either involving incomplete data or being too rare to warrant further analysis. The analysis of these four groups, categorized using the conceptually (30/70 split) rather than statistically (cluster algorithm) derived procedure, thus becomes the next focus of analysis.

#### *Analysis of Adult Sibling Relationship Questionnaire*

Multivariate analysis of variance (MANOVA) and analysis of variance (ANOVA) procedures were utilized to analyze the summary data for each of the three domains of the ASRQ and the subscales within each of these three domains. These summary scores were analyzed with Respondent Gender, Sibling Gender, Relative Age (Respondent is the older or younger of the dyad), and Sibling Type (Caretaker, Buddy, Casual, or "None of These") conceptualized

as between groups factors. Preliminary analyses employing these four factors indicated the absence of statistically significant third- and fourth-order interactions; the analyses presented here therefore represent the results of models that have been limited to main effects and second-order interactions.

The analysis of the three summary domain scores from the ASRQ was conducted first, and significant multivariate effects were noted for the following: (1) Relative Age,  $F(3,213) = 3.21, p < .02$ ; (2) Sibling Type,  $F(9,513) = 5.34, p < .0001$ ; and (3) the interaction of Relative Age and Sibling Type,  $F(9,513) = 1.98, p < .05$ . The Relative Age effect was detected at the univariate level only in the conflict-domain scores,  $F(1,213) = 5.72, p < .02$ . A comparison of the means revealed that respondents who were older than their siblings reported higher overall conflict than did their younger counterparts. The Sibling Type effect was detected at the univariate level only in the warmth-domain scores,  $F(3,213) = 11.18, p < .0001$ . A comparison of the means revealed that respondents who experienced Caregiver or Buddy patterns of interaction with their siblings had warmer relationships (means of 3.32 and 3.28, respectively) than did their counterparts from the "None of These" or Casual groups (means of 3.05 and 2.58, respectively).

Finally, the interaction of Relative Age and Sibling Type was detected at the univariate level only in the Rivalry-domain scores,  $F(3,213) = 3.52, p < .02$ . A comparison of the means revealed that respondents who were older than their siblings and who had a casual relationship tended to report higher levels of overall Rivalry (means of 2.81, 2.75, 3.32, and 2.80 for Caretaker, Buddy, Casual, and "None of These," respectively). On the other hand, if the respondent was the younger of a sibling dyad, no differences in means were noted (means of 2.95, 2.58, 2.60, and 2.81 for Caretaker, Buddy, Casual, and "None of These," respectively). All comparisons of means were accomplished using Tukey HSD procedures at the .05 level of significance with har-

monic sample size calculated to account for the small differences in group sizes. The MANOVA and ANOVA statistics are summarized in Table 3, and the means for each of the three domain scores and the 15 subdomain variables are presented in Table 4.

An analysis was then conducted to explore further the Relative Age effect on the variates within the Conflict domain. Statistically significant Relative Age effects were noted with quarreling, antagonism, and dominance. In each case, when the respondent was the older sibling of the dyad, higher scores on the conflict measures were noted. Although the multivariate statistics for Respondent Gender were not significant, three of the four Conflict measures revealed statistically significant univariate effects. Male participants reported higher competition scores than did the females, but lower scores on antagonism and dominance. Finally, a significant interaction between respondent and sibling gender was noted with the competition measure, indicating that male-male dyads tended to be reported as more competitive.

The analysis of Sibling Type effects within the Warmth domain indicated that this factor contributed to differences on each of the nine univariates included here. Comparison of means revealed that those from Caretaker or Buddy relationships reported higher warmth scores on each of the nine variables, whereas those from Casual relationships reported the lowest scores on each of the nine measures. The "None of These" group tended to supply scores that fell in-between these two, with their intimacy, acceptance, and knowledge scores being not significantly lower than those of the Caretaker or Buddy groups. Significant interactions between respondent and sibling gender were noted at the univariate level with four of the warmth measures. A comparison of means indicated that female-female dyads tended to be reported as having greater intimacy, affection, knowledge, and contact.

The analysis of the Relative Age by Sibling Type interaction within the Rivalry domain revealed that this effect was limited to



**Table 3.** Summary of MANOVA and ANOVA statistics for the ASRQ

Variate	Relative Age	Sibling Type	Self Gender	Sibling Gender	Relative Age × Sibling Type	Self Gender × Sibling Gender
Warmth Measures	0.19	11.18****	0.28	0.41	2.26	2.79
Similarity	0.04	7.24****	3.82	0.01	1.21	0.50
Intimacy	0.04	5.24**	1.41	1.97	1.85	4.85*
Affection	0.45	10.29****	0.76	0.14	1.87	4.06*
Admiration	0.31	8.43****	0.01	0.06	2.23	0.06
Emotional support	0.05	11.44****	2.57	0.59	2.51	1.53
Instrumental support	0.26	9.32****	0.14	0.24	1.90	3.49
Acceptance	1.05	5.22**	0.21	0.80	1.56	0.44
Knowledge	0.31	4.93**	1.74	0.84	1.56	4.98*
Contact	5.95*	8.19****	0.32	0.65	0.60	3.95*
Conflict Measures	5.72*	1.76	0.70	1.76	0.43	0.27
Quarreling	5.19*	0.42	0.52	0.52	0.31	0.06
Antagonism	4.27*	1.74	4.35*	0.13	0.38	0.32
Competition	0.50	2.31	3.90*	3.32	1.14	4.92*
Dominance	10.37**	1.98	4.25*	2.79	0.66	0.11
Rivalry Measures	2.96	1.60	3.11	0.21	3.52*	0.18
Mother partiality	1.26	1.36	0.78	1.30	3.23*	0.02
Father partiality	2.33	0.97	3.14	0.19	1.34	0.74

Note: Univariate degrees of freedom were (1, 213) for age group, self gender, sibling gender, and self by sibling gender, while the sibling type and age group by sibling type factors each had (3, 213) degrees of freedom. \**p*<.05. \*\**p*<.01. \*\*\**p*<.001. \*\*\*\**p*<.0001.

**Table 4.** Means for sibling type by factor

Factors	Sibling Type			
	Caretaker	Buddy	Casual	“None of These”
Warmth (50, .84) <sup>1</sup>	3.32 <sup>a2</sup>	3.28 <sup>a</sup>	2.58 <sup>b</sup>	3.06 <sup>c</sup>
Similar (4, .87)	2.93 <sup>a</sup>	3.04 <sup>a</sup>	2.26 <sup>b</sup>	2.73 <sup>c</sup>
Intimacy (6, .92)	2.99 <sup>a</sup>	3.04 <sup>a</sup>	2.35 <sup>b</sup>	2.88 <sup>c</sup>
Affection (6, .94)	3.54 <sup>a</sup>	3.49 <sup>b</sup>	2.56 <sup>c</sup>	3.28 <sup>d</sup>
Admiration (6, .82)	3.80 <sup>a</sup>	3.62 <sup>b</sup>	3.11 <sup>c</sup>	3.42 <sup>d</sup>
Emotional support (6, .91)	3.40 <sup>a</sup>	3.22 <sup>b</sup>	2.36 <sup>c</sup>	2.91 <sup>d</sup>
Instrumental support (6, .80)	2.78 <sup>a</sup>	2.74 <sup>a</sup>	2.00 <sup>b</sup>	2.41 <sup>c</sup>
Acceptance (6, .87)	3.67 <sup>a</sup>	3.59 <sup>a</sup>	3.15 <sup>b</sup>	3.50 <sup>c</sup>
Knowledge (6, .89)	3.26 <sup>a</sup>	3.35 <sup>a</sup>	2.76 <sup>b</sup>	3.17 <sup>c</sup>
Contact (4, .81)	3.40 <sup>a</sup>	3.35 <sup>a</sup>	2.53 <sup>b</sup>	3.10 <sup>c</sup>
Conflict (23, .75)	2.17 <sup>a</sup>	2.20 <sup>a</sup>	1.93 <sup>a</sup>	1.94 <sup>a</sup>
Quarreling (5, .65)	2.44 <sup>a</sup>	2.38 <sup>a</sup>	2.21 <sup>a</sup>	2.31 <sup>a</sup>
Antagonism (6, .89)	2.13 <sup>a</sup>	2.24 <sup>a</sup>	1.99 <sup>a</sup>	1.86 <sup>a</sup>
Competition (6, .67)	2.21 <sup>a</sup>	2.30 <sup>a</sup>	1.83 <sup>a</sup>	2.03 <sup>a</sup>
Dominance (6, .78)	1.94 <sup>a</sup>	1.92 <sup>a</sup>	1.73 <sup>a</sup>	1.62 <sup>a</sup>
Rivalry (12, .93)	2.88 <sup>a</sup>	2.66 <sup>a</sup>	2.87 <sup>a</sup>	2.81 <sup>a</sup>
Mother partiality (6, .91)	2.96 <sup>a</sup>	2.66 <sup>a</sup>	2.89 <sup>a</sup>	2.74 <sup>a</sup>
Father partiality (6, .94)	2.80 <sup>a</sup>	2.66 <sup>a</sup>	2.86 <sup>a</sup>	2.86 <sup>a</sup>

<sup>1</sup>Figures in parentheses denote the number of items and Cronbach alpha coefficients of internal consistency.

<sup>2</sup>Means marked with different superscripts differ from one another at the .05 level as assessed via a Tukey HSD procedure; those with same superscripts do not differ significantly.

the measure of perceived maternal partiality. Older respondents who had Casual relationships with their siblings reported significantly higher levels of maternal partiality, i.e., they felt that the mother displayed more favoritism toward the younger sibling than she did their counterparts with other types of sibling relationships (means of 2.82, 2.74, 3.40, and 2.72 for the Caretaker, Buddy, Casual, and "None of These" groups, respectively). On the other hand, when the respondent was the younger of the sibling dyad and the type of relationship was Caretaker, the mean level of maternal partiality reported was higher, indicating a perception that the older sibling was favored (means of 3.10, 2.58, 2.58, 2.76 for the four groups, respectively).

## Discussion

The research conducted by Murphy (1993) and Gold (1989) indicates that the kinds of relationships that exist between siblings can be clustered into groups that vary in terms of instrumental and emotional support, closeness, envy, resentment, and rivalry. Their respective research further indicates that the nature of the sibling relationship need not be stable over time, but is instead affected by the situations, conditions, or context surrounding the siblings. Murphy studied siblings ranging in age from 5 to 11 years who were adjusting first to the birth of a younger sibling, and subsequently to the reaction of the entire family system as it adopted a new pattern of organization, following this event and its inherent demands. For example, Murphy noted that, for the sibling relationship to possess the high degree of mutuality necessary for the older sibling to assume the caretaker role, a number of conditions must be present. Chief among these is that the parents must employ strategies that facilitate sibling involvement with the infant and shared responsibility in caring for that infant. Gold focused her attention on the elderly (65 years and older) and noted that the importance of siblings may increase for the elderly as generational peers become more

valuable due to their shared memories, values, and experiences.

This study focused on sibling relationships in the early and middle adult years by asking people to provide information describing how they and their closest-in-age sibling interact. It is important to recognize that this procedure does not provide a *true* description of the ontogeny of sibling relationships from childhood to the adult years, but it may provide an indication of the working models adults employ when thinking about their siblings. From a developmental perspective, it is reasonable to assume that qualitative aspects of early relationships can influence the nature of subsequent relationships. Indeed, Cicirelli (1995) has proposed that life-span attachment theory, i.e., the integration of traditional mother-infant attachment theory (e.g., Ainsworth, Blehar, Waters & Wall, 1978) with its more recent extensions to adult attachment (e.g., Feeney & Noller, 1996), is a useful means of accounting for many diverse phenomena pertaining to siblings and their relationships. Much of this integrative work has taken the position that the way in which children learn to relate to the mother early in life is the way in which they prefer to relate to others in adulthood. The style of the child's original attachment relationship with the mother creates an internal working model for the child that serves as a prototype for interpersonal relationships in general and for the multiple attachment relationships that follow. Thus, the nature of the sibling relationship in adulthood may be influenced by the nature of the child's initial relationship with her mother, or even her earlier relationship with a sibling. It has been empirically established that siblings develop attachments to one another very early in life (Stewart, 1983; Stewart & Marvin, 1984), further supporting the use of attachment theory as a means for unifying life-span sibling research. Cicirelli (1995) has suggested that secure or insecure (disturbed) attachment between siblings can be used to account for positive or negative sibling relationships in different parts of the life-span.

The data presented here provide a middle step, a bridge over the gap, between the observations of children conducted by Murphy and the interviews Gold conducted with the elderly. These data illustrate a number of changing patterns that sibling relationships might follow over the life-span. Of course, the verification of such patterns would require a longitudinal assessment, and the design of such an assessment would be enhanced by knowing a few hypothesized patterns or paths to be explored. A detailed presentation of these hypothesized patterns follows.

Murphy described the Casual pattern as the most frequent pattern among the school-age children she observed. Furthermore, Murphy speculated that the Casual sibling pattern may be normative for middle-class American families, since children are not expected to be surrogate parents or baby-sitters, and age segregation is widely practiced in school and after-school activities. Participants in the current study who were classified as Casual described their relationships with their siblings as cooler than did Caretakers or Buddies. If the participants were both older than their sibling and of Casual type, they tended to report higher levels of perceived maternal partiality, i.e., the mother was perceived to display behaviors indicating that she favors, supports, or is closer to the younger sibling. This might be indicative of the "sibling rivalry" that is assumed to be so common in our society.

If one carefully compares the descriptions of sibling types provided by Murphy with those of Gold's typology, it is reasonable to postulate that Murphy's young Casual siblings may mature to become Gold's Loyal siblings. The Loyal siblings were described in terms that indicate a tepid or cool relationship of little support and involvement other than that mandated by some sense of "duty." It is interesting to note that the Loyal pattern was the most frequent of the five patterns described by Gold (1989). It is also reasonable to assume that not all Casual siblings will resolve their sibling rivalry to a degree sufficient to establish a Loyal relationship, and in those cases where

rivalry results in interpersonal conflict, the pair may end up behaving more like the Apathetic or Hostile groups observed by Gold. The Apathetic siblings may be coping with their history of perceived maternal partiality by reducing their psychological involvement with one another, whereas those in Hostile relationships keep their resentment, anger, and enmity alive and strong. It is interesting to note that Gold reports that envy, parental favoritism and rivalry are described by the elderly she interviewed as being major factors affecting their Hostile relationships with their siblings.

The Buddy pattern was described by Murphy as being interactive, reciprocal, and mutually sensitive to the needs, abilities, and preferences of the other. Furthermore, Murphy has suggested that this pattern might evolve as the siblings find themselves in a situation where playmates of similar age and/or gender might be less available, therefore making the sibling a viable candidate for a friend/buddy (Murphy, personal communication, 1993). Participants classified as having been in such a relationship describe themselves and their siblings in terms that suggest high levels of instrumental and emotional support, frequent close contact, and less interpersonal rivalry. When compared to Gold's descriptions of relationships in later life, it is logical to assume that those from Buddy backgrounds would be the most likely to develop an Intimate relationship found to be characterized by warmth, closeness, and high levels of support, involvement, and acceptance. Of course, not all Buddies need remain so close, as any number of events or life situations might act to draw these highly mutual siblings apart.

One of our participants, a woman in her early forties, commented when completing her interview that she (the third born of four sisters) and her closest-in-age sister (the second born of the four) had remained extremely close and supportive of one another, despite losing contact and involvement with their two older sisters. She further indicated that her oldest sister (the

first born) was a dominating, controlling Caretaker type who had moved across the country after all of the sisters entered adulthood. The youngest sister, previously a Buddy with the second and third sisters, had coincidentally moved near to her former Caretaker sister, and these two (the first and last born) were now emotionally close, involved and Congenial. This set of events thus leaves the two middle sisters in much the same situation as in their youth, that of highly involved with each other (i.e., these young Buddies grew up to become Intimate adult sisters), but not so much with either the first- or last-born sisters (i.e., the respective Caretaker and Buddy relationships with these sisters had shifted to be of the Loyal type in adulthood).

The Caretaker pattern was described by Murphy in terms suggesting that the older sibling was providing support and nurturance to the younger, as a means of obtaining a personal sense of satisfaction or of gaining parental recognition or acknowledgment. The Caretaker was described as being sensitive to the needs and signals of the baby, but this sensitivity appeared to be motivated by a desire to do well at being a surrogate or co-parent, rather than to establish an emotionally close relationship with the sibling. Participants in our study who were classified as having had such a relationship describe themselves and their siblings as being emotionally supportive and as having high admiration and affection. If the subject was the younger of a dyad described as having been of the Caretaker type, then a higher level of perceived maternal partiality was reported. It appears logical to assume that siblings who experienced this type of early relationship might grow up to exhibit the Congenial pattern described by Gold. Siblings of this pattern are described as being relatively warm and close, but not as having as much contact, psychological involvement, or as giving as much support as those of the Intimate type. Members of this group clearly see their relationships as more than the Loyal's sense of "duty," but they fail to display the capacity for empathy or the involvement of the

Intimate siblings. This consequence might be expected once the younger sibling is no longer an infant or child, and the parent is no longer providing reinforcement to the older sibling to act as a surrogate parent.

Conversely, it would not be unreasonable to expect the adult who once acted as a sibling caretaker would slip back into this role if a change in family conditions occurred. For example, adult siblings who had matured from a Caretaker type of relationship to one more adequately described as Congenial or Loyal might find themselves returning to old, familial patterns of interacting after the death of their now elderly parents. While this change might seem logical and appropriate for the older siblings in such situations, it may be perceived by the younger siblings as a painful reminder of perceived parental partialities or other forgotten injustices.

It is important to recognize that the implication of maternal partiality reported by younger siblings classified as coming from Caretaker relationships may be quite different from that already reported for the older Casual sibling. In the latter case, the situation may be described as a reaction to a perceived "displacement" or "dethronement," as the older child sees the younger sibling as an intruder in his or her life. Therefore, this negative affect represents what may be the most common form of sibling rivalry. The partiality reported by the younger child of a Caretaker relationship could be interpreted as that child's reaction to being cared for by a sibling who is not really a parent, but who is nonetheless being rewarded for behaving in such a manner. Furthermore, the care that is being provided may not be welcomed by the younger child, who is more concerned with establishing his or her own sense of independence. Stewart (1983) has reported that older girls who assume a caretaker role in their mothers' absence have a tendency to provide too much caregiving to younger siblings, and that younger brothers in particular often rebel against this behavior by pushing their older sisters away. If this unwanted or unneeded caregiving behavior is then perceived by the

younger child to be performed primarily to obtain rewards for the older child, then a sense of resentment might develop. It appears logical to assume that the failure to cope with or resolve this resentment would allow the relationship to drift toward the cooler Loyal, Apathetic, or even more active Hostile adulthood pattern of relating.

Finally, the fourth group of our classification of adult recollections of childhood patterns of sibling relationships needs to be discussed. Recall that Murphy was able to classify all of her participants into one of three primary groups, but Gold found that a five-group classification system was necessary. Gold, Woodbury, and George (1990) later collapsed the Apathetic and Hostile groups into one group that was described as being heavily influenced by feelings of rejection. Some of our adult participants who were asked to describe their prior relationships with their siblings achieved relatively low scores on the Caretaker, Buddy, and Casual dimensions. As a result, these cases were tentatively labeled "None of These." When the ASRQ scores of these participants are considered, this fourth group appears to be most similar to what Gold originally described as Loyal. The fourth group was not as warm as the Caretakers or Buddies, nor as cool as the Casual. Therefore, one might describe the fourth group as "tepid."

Furthermore, the fourth group did provide scores that indicated they quarreled and competed with one another, although once again their levels were neither as high as those of the Caretakers or Buddies, nor as low as those of the Casuals. The presence of warmth indicates that they have not yet

given up on their siblings as have the Apathetic, and the presence of the quarreling and competition indicates that the potential remains for them to become openly Hostile. Perhaps at a mean age of 29 years, these participants have not yet had the experience or opportunity of Gold's older participants to complete the process of resolving childhood conflicts. Until a more complete description of this fourth group is obtained, we will tentatively refer to this group as the "Unresolved," and we hypothesize that they have not yet resolved or intensified the conflicts with their siblings to the degree necessary to display a Loyal, Apathetic, or Hostile pattern.

This study demonstrated that the three-part typology presented by Murphy for early sibling relationships could be derived from young adults by obtaining a retrospective description of the relationship. Once the data was obtained from this description, it was then used to cluster participants into four major groups—the three delineated by Murphy and a fourth more ambiguous group. An obvious next step for research efforts might be to clarify the identity of this fourth group to determine whether it is similar to any among the four or five groups that Gold and her associates found in their study of elderly participants.

In conclusion, an outline of the ontogeny of sibling relationships across the life-span has been presented where it was hypothesized that relationships would progress from one pattern or cluster to another, depending on changes in the context surrounding the siblings and the resolution of their interpersonal conflict. Verification of these patterns of development awaits empirical inquiry.

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# *Sibling Relationship Quality in Early Adolescence: Child and Maternal Perceptions and Daily Interactions*

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Correspondence between child and maternal perceptions of sibling relationship quality (standards, actual ratings, problems) and children's reports of daily interactions were assessed in 40 early adolescent children (*M* age = 11.5 yrs) and their mothers (*n* = 32). Children completed the Sibling Relationship Questionnaire (Furman & Buhrmester, 1985. *Child Development*, 56, 448–461) and Daily Checklist ratings of sibling interactions for 14 days. Mothers completed the Parental Expectations and Perceptions of Children's Sibling Relationship Questionnaire (Kramer & Baron, 1995. *Family Relations*, 44, 95–103). Overall, findings revealed correspondence between child perceptions of sibling warmth and maternal ratings of standards, actual ratings, and problems in sibling warmth but not conflict and rivalry. Maternal and child perceptions of sibling relationship qualities were positively associated with children's reports of ongoing interactions. Finally, regression analyses identified unique maternal and child correlates for both happy and prosocial daily interactions. Findings are discussed in light of recent research and theory on family dynamics. Copyright © 2010 John Wiley & Sons, Ltd.

*Key words:* sibling relationship quality; maternal & child perceptions; daily interactions

Family systems (Minuchin, 1974, 1988) and relationship theories (Dunn, 1983, 1993; Hinde, 1979) are based on the notion that relationship quality is constructed in the context of close and intimate relationships, which is a process guided by both the behaviour and perceptions of the participants. Thus, maternal and child perceptions of sibling relationship quality may illuminate our understanding of

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how families create a shared view of their social worlds (Minuchin, 1988). In fact, Minuchin argued that self-perceptions are a critical aspect in the process of how families create a shared world view regarding (a) how to describe themselves, (b) how they construct a sense of shared meanings about family functioning, and (c) their place within a larger social context. Following from this premise, there are strong conceptual reasons to assess whether family members hold similar or different views about the nature of specific family relationships (e.g. sibling relationships) and how these views influence the nature of family dynamics as a whole. As Hinde (1979) argued, self-perceptions are critical for the 'progress or stability of the relationship' (p. 121) and, thus warrant close attention from researchers interested in understanding family dynamics.

In the present study, we employed this conceptual framework to focus on sibling relationships, which are frequently overlooked in the study of family relations, but are of great concern to parents (Kramer & Baron, 1995). First, we investigated the correspondence between maternal and child perceptions of sibling relationship quality, as well as associations with maternal standards for sibling relationship quality and perceptions of problems in the relationship. As cohesive family functioning is viewed as critical for healthy interpersonal dynamics (Kerig, 1995; Minuchin, 1988; Minuchin, 1974; Richmond & Stocker, 2006), correspondence between family members' perceptions of sibling relationship quality may influence the nature of family relationships (Hinde, 1979). In particular, shared perceptions may reflect cohesiveness and may also be associated with children's positive adjustment. In contrast, a lack of correspondence in perceptions may indicate a lack of shared meanings or knowledge regarding family dynamics that may possibly be indicative of fractious or problematic (i.e. low cohesiveness) family and sibling interactions (Lindahl, 1998; Rinaldi & Howe, 2003). In fact, there is a literature indicating links between the quality of sibling relationships and both positive and negative developmental outcomes (e.g. Deater-Deckard, Dunn, & Lussier, 2002; Gass, Jenkins, & Dunn, 2007; Modry-Mandell, Gamble, & Taylor, 2007). Second, we addressed the question of how closely (a) maternal perceptions (standards and actual behaviour) and (b) child ratings of sibling relationship quality, and (c) mothers' perceptions of relationship problems correspond to (d) the nature of children's reports of actual daily interactions. To address this question, we report on a new measure tapping the quality of children's daily sibling interactions.

### *Sibling Relationship Quality: Sibling Versus Parental Perceptions*

Early theorists interested in the development of children's relationships (i.e. Cooley, 1956; Mead, 1934) argued that an individual's self-perceptions are influenced by the ways in which others perceive him/her. Further, as both Dunn (1983, 1993) and Hinde (1979) articulated, close and intimate relationships create the context for the development of children's social understanding, in this case knowledge of family members' perceptions about how individuals and dyadic subsystems (e.g. siblings) function. Accordingly, most measures of sibling relationship quality are based on ratings of the perceptions of children or parents (e.g. Furman & Buhrmester, 1985; Kramer & Baron, 1995). Furman and Buhrmester's measure has been widely employed in the literature to identify children's perceptions of sibling relationship quality and for charting its stability and change over development (Volling, 2003). The positive dimension of relationship quality, labeled warmth/closeness, includes companionship,



intimacy, affection, and prosocial behaviour (e.g. helping). Negative sibling interaction includes three dimensions: conflict, rivalry, and relative status/power. These four dimensions have been replicated in parents' and early adolescents' reports of sibling relationship quality (Hetherington & Clingempeel, 1992; Stocker & McHale, 1992). Similarly, the Kramer and Baron measure assesses parental perceptions of three dimensions of sibling relationship quality: warmth, agonism, and rivalry/competition.

Fairly high agreement has been found between different raters on the quality of sibling relations. For example, children's reports of relationship quality generally agreed with the perceptions of their parents and siblings (Furman, Jones, Buhrmester, & Adler, 1989; Pike, Coldwell, & Dunn, 2005). Mothers and fathers held similar views, particularly for the dimensions of warmth, conflict, relative power/status, but not rivalry (Furman *et al.*, 1989; Kramer & Baron, 1995). These findings suggest that family members generally have a shared perception of the sibling relationship, which may have important implications for family functioning (Minuchin, 1988). That is, when parent and child views about sibling relationship quality correspond, dynamics may be more cohesive, stable and families may function in more effective and adaptive ways compared with when families hold widely discrepant views (Hinde, 1979; Minuchin, 1974). In support of this theoretical argument, Kowal, Krull, and Kramer (2006) found that when family members reported similar perceptions about the magnitude and direction of parental differential treatment, children had a more positive relationship.

Differences in perception about the sibling relationship may be due to different vantage points, namely the insider (i.e. siblings) and outsider or observer (i.e. parents) status or role of different family members (Furman *et al.*, 1989). Status may be related to greater or lesser degrees of knowledge about the nature and frequency of actual sibling interactions (e.g. conflict) or reflect differences in individual's social understanding (i.e. the meaning of behaviours) (Dunn, 1988). Thus, our first goal was to assess the degree of correspondence between parent and child views of actual sibling relationship quality and then to link these perceptions to parents' standards for sibling relationship quality.

Kramer and Baron (1995) compared parents' (a) standards (i.e. expectations for the quality of the relationship) in a hypothetical relationship with (b) perceptions of their children's actual sibling relationship. They argued that the discrepancy between parents' views of the actual sibling relationship and their standards was important in assessing parental 'goals and standards for this relationship' (p. 96). Parents reported that their greatest concerns focused on rivalry/competition and agonism. However, the biggest discrepancy between parents' desired standards and actual ratings was for warmth, which they reported as more difficult to change than agonism; nevertheless parents were more likely to want help with agonism issues. Perhaps, parents perceived that a lack of warmth was less problematic, irritating, or salient compared with dealing with two children who frequently disagree. Certainly, parental concerns regarding agonism and rivalry reflect the focus of the popular literature (Kramer & Ramsburg, 2002).

Kramer and Baron (1995) did not assess how parental actual views and standards related to children's own perceptions of their sibling relationship. Thus, we extend the literature by investigating associations between parental standards, actual views, and perceived problems with children's ratings of their sibling relationship. The question of how parents' standards interact with their actual views of the quality of sibling interactions may provide insight into family dynamics. Perhaps, parents socialize their children according to these standards and expectations, thereby influencing their own and their children's perceptions

of sibling relationship quality. Departures from these standards may reflect parents' views of what constitutes problematic sibling dynamics, while noting that parents have an outsider's perspective of the relationship.

Kramer and Baron's findings raise a number of questions regarding the nature of family dynamics, particularly in early adolescence. During this developmental period, children move increasingly beyond the sphere of family influence, but we know little about how this might be reflected in perceptions of sibling dynamics. As Buhrmester and Furman (1990) argue, 'self-perceptions of relationships may be psychologically important variables determining development and psychosocial adjustment' (p. 1397), suggesting the need to assess the links between perceptions and behaviour.

### *Sibling Relationship Quality: Perceptions Versus Behavioural Interactions*

Following from Hinde's (1979) assertion that perceptions about our close relationships influence our behaviour and vice versa, we asked how closely do perceptions of sibling relationship quality mirror the nature of children's actual interactions? Cole and Kerns (2001) assessed sibling relationship quality and reports of behavioural interactions (over a week) in grade 4, 6, and 8 children. Perceptions of sibling relationship quality were generally positively associated with reports of comparable behaviours; for example, when children perceived their sibling as a companion, they were more likely to report engaging in shared activities (e.g. games, TV). Noller and Northfield (2000, cited in Noller, 2005) employed a diary method for older adolescents to record their sibling interactions. Participants who were more satisfied with the relationship spent more time interacting with their sibling and reported engaging in fewer conflictual and negative emotional and dominating exchanges. Although Noller (2005) did not provide details about the diary method, her findings suggest that the nature of daily interactions may be important in understanding how siblings perceive their relationship more generally. Alternatively, siblings' perceptions of their relationship may also influence their dyadic interactions; for example, children who perceive the relationship as close or warm may be more inclined to engage in helpful or prosocial exchanges. Thus, our second set of questions addressed links between maternal and child perceptions of relationship quality and children's reports of their daily interactions with siblings.

### *The Present Study*

Following from the conceptual framework provided by family systems (Minuchin, 1988) and relationships theories (Dunn, 1983, 1993; Hinde, 1979), the present study investigated the correspondence between child perceptions and maternal perceptions of sibling relationship quality and associations with the nature of children's daily sibling interactions. To rate sibling relationship quality, mothers completed the Parental Expectations and Perceptions of Children's Sibling Relationship Questionnaire (PEPC-SRQ; Kramer & Baron, 1995) and early adolescents employed the Sibling Relationship Questionnaire (SRQ; Furman & Buhrmester, 1985). We developed an 18-item checklist to assess the quality and types of interactions that early adolescents experience daily with their closest-in-age sibling. The items were based on the qualitative dimensions previously discussed, namely warmth/closeness (e.g. happy together), negative emotions/conflict (e.g. angry, sad), and prosocial behaviour (e.g. helping, teaching,

comforting). In the present study, we asked children to use the checklist daily for 14 consecutive days.

The first set of questions addressed the correspondence between maternal and child perceptions of sibling relationship quality. We expected that maternal standards and actual ratings of warmth, conflict/agonism, and rivalry would be positively correlated with children's ratings of these same dimensions, thus demonstrating correspondence or evidence of shared family perceptions. Furthermore, mothers' perceptions of problems were predicted to correlate negatively with sibling ratings of warmth and positively with conflict and rivalry. The second set of questions examined associations between maternal and child ratings of sibling relationship quality and daily sibling interactions. We expected that child and maternal ratings of relationship warmth would be positively associated with happy and prosocial daily exchanges and negatively associated with upsetting daily interactions (i.e. angry, sad exchanges). Conversely, perceptions of rivalry and conflict were expected to be positively associated with upsetting daily interaction and negatively associated with happy and prosocial daily exchanges. Finally, we conducted a series of regressions to investigate how maternal and child ratings were simultaneously associated with sibling reports of daily interactions. This allowed for an assessment of the combined effects of maternal and child perceptions of sibling relations as they related to children's reports of the nature of their daily interactions.

## METHOD

### *Participants*

Forty grade 5–6 children (22 boys, 18 girls;  $M$  age = 11.5 yrs,  $S.D.$  = 9.0 mos, range = 10.6–13.0 yrs) participated. Each focal child reported on interactions with their closest-in-age (non-focal) sibling ( $M$  age difference = 26.2 mos,  $S.D.$  = 14.0 mos, range = 0–4.11 yrs<sup>1</sup>). Twenty dyads had a younger non-focal sibling ( $M$  age = 9.4 yrs,  $S.D.$  = 16.1 mos; 5 female–female, 4 male–male, 7 male–female, 4 female–male dyads) and 20 dyads had an older non-focal sibling ( $M$  age = 13.9 yrs,  $S.D.$  = 16.6 mos; 3 female–female, 3 male–male, 7 male–female, 7 female–male dyads). Thirty-two mothers of the 40 child participants also completed questionnaires. Participants were English-speaking, Caucasian, and lived in a rural, bilingual French/English community (pop. = 25 000); in this community, 58% of employed persons made less than \$20 000 annually and 44% had not completed high school ([www.stat.gouv.qc.ca](http://www.stat.gouv.qc.ca)). French is the predominant language in Quebec, therefore these children were part of a minority culture and attended the only English elementary school (K–gr. 6) in the town. More than 90% of eligible children (i.e. with a sibling) in grades 5 and 6 received permission to participate.

### *Procedure*

First, the SRQ (Furman & Buhrmester, 1985) was administered during a group session at school to obtain focal children's ratings of their sibling relationship quality. Second, focal children were given a folder with a Daily Checklist (color-coded for each of 14 days) and two stamped envelopes to return the Week 1 and Week 2 checklists; this provided an index of the valence of the children's daily sibling exchanges. Children were paid \$5 for returning the Week 1 checklists and

an additional \$10 for completing Week 2 checklists. Third, parents completed the PEPC-SRQ; Kramer & Baron, 1995) that measured the quality of their children's sibling relationship. These questionnaires were sent home with the children and returned in a stamped self-addressed envelope to the researchers.

### Measures

#### *Sibling Relationship Questionnaire (Furman & Buhrmester, [12]1985)*

Focal children reported on their perceptions of four relationship dimensions with their closest-in-age sibling: (a) warmth/closeness (e.g. How much do you and your sister go places and do things together?), (b) conflict (e.g. How much are you and your sister mean to each other?), (c) rivalry (e.g. How much do you and your sister compete with each other?), and (d) relative power. The power scale is composed of two subscales (i.e. admiration, dominance). Admiration includes six items (e.g. How much do you admire and respect your sister?). As an individual's experience may be influenced by whether one is dominated by or dominates over one's sibling (e.g. How much does your sister make you do things?), the dominance scale was divided into two 3-item subscales: (a) how dominated the focal child felt by their sibling, and (b) how much the focal child dominated over their sibling. Responses employed a 5-point Likert scale (1 = hardly at all to 5 = extremely much). Cronbach *alphas* assessed reliability: (a) warmth = 0.93, (b) conflict = 0.90, (c) rivalry = 0.75, (d) power = 0.76, (e) admiration = 0.92, (f) being dominated by one's sibling = 0.79, and (g) dominating over one's sibling = 0.76.

#### *Daily checklist*

A checklist method was employed for children to report on their daily sibling interactions over 14 consecutive days. Each focal child was given a checklist with language corresponding to their sibling's gender. Participants were instructed to complete the checklist every night at bedtime to ensure systematic responding. After completing Week 1 Daily Checklists, the children returned them by mail to the authors and then completed the Week 2 Daily Checklists. Each Daily Checklist included 18 questions (yes/no format) about sibling interactions. In the present study, we employed 10 items, namely three items tapping the perceived valence of the interactions, namely warmth/closeness (i.e. Were you happy when you were with your sister today?), negative emotions (i.e. Were you angry/sad when you were with your brother today?), and seven items about prosocial assistance (e.g. Did you help your sister today?; Did your sister cheer you up today?). The other eight items tapped children's intimate disclosures to their sibling, which were the focus of previous work (Howe, Aquan-Assee, Bukowski, Lehoux, & Rinaldi, 2001; Howe, Aquan-Assee, Bukowski, Rinaldi, & Lehoux, 2000; Karos, Howe, & Aquan-Assee., 2007), and were not used in the present study. A score of 0 or 1 was assigned to each item for each day it was endorsed and means were calculated across the 14-day period. Sad and angry daily interactions were significantly correlated ( $r = 0.53$ ,  $p < 0.01$ ) and were combined into a single item labelled upsetting interactions. Upsetting interactions were not significantly correlated with happy daily interactions ( $r = -0.10$ ), indicating they measured independent constructs. Happy daily interactions were not correlated with the prosocial assistance score ( $r = 0.17$ ), although upsetting interactions were significantly associated with prosocial assistance ( $r = 0.42$ ,  $p < 0.01$ ). The Week 1 checklist return rate was 90% (36/40 children) and 80% (32/40

for Week 2; 3/8 children did not return checklists for both weeks, while five children returned checklists for 1 week only. For children missing 1 week, the mean score for the other week was included in the analyses.

*Parental Expectations and Perceptions of Children's Sibling Relationship Questionnaire (Kramer & Baron, [26] 1995)*

This 24-item measure tapped maternal perceptions of sibling relationship quality in three areas: (a) warmth (e.g. How frequently do your children share?); (b) agonism (e.g. How frequently do your children engage in physical aggression?); and (c) rivalry/competition (e.g. How often are your children jealous?). First, parents were asked to imagine two siblings who get along very well and to rate how frequently the 24 behaviours might occur in this hypothetical relationship; these ratings constituted the parental standards measure. Responses were rated on 5-point Likert Scales (1 = never to 5 = always). Second, parents rated the actual quality of their children's relationship over the prior 2 weeks using the same 24 behaviours and response scale. Third, for each of the 24 actual behaviours, parents indicated the degree that it was a problem in their children's relationship using a 4-point Likert Scale (1 = not a problem to 4 = a very big problem). Internal consistency of the subscales was determined via Cronbach *alphas* (standards: warmth = 0.82, agonism = 0.87, rivalry = 0.88; actual ratings: warmth = 0.91, agonism = 0.78, rivalry = 0.82; problems: warmth = 0.91, agonism = 0.90, rivalry = 0.69).

## RESULTS

Descriptive statistics are reported in Table 1. Preliminary analyses addressed the associations between the age and gender of focal and non-focal siblings with the study variables; only four correlations were significant. Non-focal sibling age was negatively correlated with focal children's reports of happy daily interactions ( $r = -0.34, p < 0.05$ ), suggesting focal children were less likely to report happy interactions with an older sibling. Gender of focal child was associated with SRQ reports of rivalry ( $r = 0.42, p < 0.05$ ), with boys reporting greater rivalry, whereas non-focal child gender was associated with parent PEPC-SRQ ratings of problems with warmth and conflict ( $r = -0.40, -0.39$ , respectively,  $p < 0.05$ ). In both cases, maternal reports of problems with warmth and conflict were higher for girls.<sup>2</sup>

### *Maternal and Child Reports of Sibling Relationship Quality*

To examine the correspondence between maternal and child perceptions of sibling relationship quality, correlation analyses were conducted using the child SRQ and maternal PEPC-SRQ scores (Table 2). In addition to hypotheses that tested the direct associations between parallel indices (i.e. warmth, agonism/conflict, and rivalry), a complete correlation table is provided for exploratory purposes that includes the indices of dominance and admiration.

#### *Actual maternal ratings*

As predicted, maternal ratings of warmth in the actual sibling relationship were positively correlated with children's reports of warmth. Predictions for agonism/conflict and rivalry did not emerge as significant. Interestingly,

Table 1. Means, standard deviation, and ranges

	Mean	S.D.
<i>PEPC-SRQ</i>		
Actual ratings		
Warmth <sup>a</sup>	3.5	0.54
Agonism <sup>a</sup>	2.7	0.55
Rivalry <sup>a</sup>	2.6	0.77
Standards		
Warm <sup>a</sup>	3.9	0.41
Agonism <sup>a</sup>	2.5	0.63
Rivalry <sup>a</sup>	2.7	0.84
Problems		
Warmth <sup>b</sup>	1.3	0.41
Agonism <sup>b</sup>	1.7	0.57
Rivalry <sup>b</sup>	1.5	0.45
SRQ ratings		
Warm <sup>a</sup>	3.07	0.71
Conflict <sup>a</sup>	3.12	0.95
Rivalry <sup>a</sup>	1.89	0.52
Dominance over <sup>a</sup>	2.23	0.91
Dominance by <sup>a</sup>	2.22	1.05
Admiration <sup>a</sup>	3.12	0.98
Daily Checklist		
Happy <sup>c</sup>	0.75	0.23
Upset <sup>c</sup>	0.20	0.20
Prosocial assistance <sup>c</sup>	0.32	0.24

<sup>a</sup>Range of scores = 1–5.

<sup>b</sup>Range of scores = 1–4.

<sup>c</sup>Range of scores = 0–1.

Table 2. Associations between maternal PEPC-SRQ and child SRQ ratings ( $N = 32$ )

	SRQ					
	Warmth	Conflict	Rivalry	Dominance by	Dominance over	Admire
<i>PEPC-SRQ</i>						
Actual ratings						
Warmth	0.44**	-0.18	-0.19	-0.17	0.09	0.36*
Agonism	-0.20	0.08	0.37*	0.04	0.04	-0.27 <sup>†</sup>
Rivalry	0.01	-0.14	0.10	-0.19	0.20	-0.32*
Standards						
Warmth	0.38*	-0.18	-0.18	-0.09	0.07	0.31*
Agonism	-0.27 <sup>†</sup>	0.09	0.16	-0.08	0.08	-0.18
Rivalry	-0.15	-0.40**	0.07	-0.18	0.09	-0.26 <sup>†</sup>
Problems						
Warmth	-0.33*	0.01	0.21	-0.09	-0.02	-0.26 <sup>†</sup>
Agonism	-0.24 <sup>†</sup>	0.02	0.19	0.01	0.00	-0.18
Rivalry	0.02	-0.10	-0.05	-0.12	-0.43**	0.23 <sup>†</sup>

<sup>†</sup> $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$ .

maternal agonism ratings were significantly correlated with children’s reports of rivalry. Child ratings of mutual admiration were positively associated with maternal reports of relationship warmth and negatively associated with rivalry.

*Maternal standards for relationship quality*<sup>3</sup>

The pattern of correlations between maternal ratings of their standards for the sibling relationship and children’s ratings of relationship quality showed some overlap with the pattern of ratings of the actual relationship reported above. First, maternal expectations for warmth were significantly positively associated with children’s perceptions of warmth. However, child reports of conflict were significantly related to maternal reports of their standards for sibling rivalry. Ratings of maternal standards regarding sibling warmth were also related to children’s reports of mutual admiration.

*Maternal perceptions of problems*

These correlations assessed the degree to which mothers’ perception of sibling relationship problems were related to children’s ratings of their actual relationship quality. As predicted, findings indicated that lower ratings of warmth reported by children related negatively to maternal reports of problems in sibling warmth. Children’s perceptions of dominating over their sibling were also negatively related to maternal reports of problems with rivalry. Child reports of sibling conflict and rivalry did not correspond to mothers’ perceptions of problems in these areas, thereby failing to support our hypotheses.

**Maternal Ratings of Sibling Relationship Quality and Daily Checklist**

To investigate how maternal perceptions of sibling relationship quality were related to children’s views of their daily exchanges, correlational analyses were conducted on the associations between maternal PEPC-SRQ and children’s Daily Checklist scores (Table 3).

Table 3. Associations between maternal PEPC-SRQ ratings and Daily Checklist (N = 32)

	Daily Checklist		
	Happy interactions	Upsetting interactions	Prosocial assistance
Actual ratings			
Warmth	0.66**	-0.12	0.30*
Agonism	-0.53**	0.01	-0.21
Rivalry	-0.08	0.15	0.00
Standards			
Warmth	0.50**	0.14	0.46**
Agonism	-0.36*	-0.01	-0.21
Rivalry	-0.22	-0.05	0.01
Problems			
Warmth	-0.48**	-0.12	-0.42**
Agonism	-0.36*	-0.16	-0.34*
Rivalry	0.09	-0.05	-0.14

<sup>†</sup>p < 0.10, \*p < 0.05, \*\*p < 0.01, one tailed.

### *Actual maternal ratings*

Children's reports of happy daily exchanges were positively related to maternal actual perceptions of warmth and negatively related to perceptions of agonism, as expected; however, rivalry was not a significant correlate. Prosocial assistance was only positively associated with maternal perceptions of warmth. None of the maternal ratings of actual relationship quality were related to upsetting daily interactions. Thus, the hypotheses were only partially supported.

### *Maternal standards*

Findings for maternal standards for the sibling relationship and children's responses on the Daily Checklist paralleled reports of actual sibling relationship quality discussed above. Specifically, maternal ratings of their standards for warmth and agonism were correlated with children's reports of happy daily exchanges. Moreover, mothers' standards for sibling warmth were also positively related to prosocial assistance on the Daily Checklist.

### *Maternal perceptions of problems*

This set of correlations assessed the degree to which mothers' perceptions of problems in sibling relationship quality correlated with children's reports of daily exchanges. As expected, when mothers perceived the relationship as having problems related to warmth and agonism, children reported fewer happy and prosocial daily exchanges. There were no significant findings between maternal reports of relationship quality and upsetting daily interactions, nor were maternal reports of rivalry problems related to the Daily Checklist indices.

### *Child Ratings of Sibling Relationship Quality and the Daily Checklist*

Children's perception of the nature of their sibling interactions was assessed by the Daily Checklist and correlated with the three dimensions of warmth, conflict, and rivalry that parallel maternal reports, as well as the three additional scales (i.e. dominance by and over one's sibling, mutual admiration) (Table 4). Results provided partial support for our predictions. Children who reported more frequent happy daily interactions were more likely to rate the relationship as warmer, less rivalrous, and also as higher in mutual admiration. Although participants' perceptions of warmth were also positively correlated with daily prosocial interactions, perceptions of dominating over one's sibling were

Table 4. Associations between child SRQ ratings and Daily Checklist ( $N = 37$ )

	Daily Checklist		
	Happy interactions	Upsetting interactions	Prosocial assistance
Warmth	0.62**	-0.06	0.40**
Conflict	-0.17	0.28*	-0.24 <sup>t</sup>
Rivalry	-0.50**	0.10	-0.25 <sup>t</sup>
Dominance by	-0.19	-0.01	-0.15
Dominance over	-0.20	-0.03	-0.30*
Admire	0.55**	-0.21	0.18

<sup>t</sup> $p < 0.10$ , \* $p < 0.05$ , \*\* $p < 0.01$ ; one tailed.



negatively correlated with prosocial assistance. Finally, the degree of conflict that children perceived was the only variable associated with upsetting exchanges reported on the Daily Checklist.

**Predicting Daily Interactions from Maternal and Child Perceptions of Relationship Quality**

The following regressions were conducted to determine how maternal and child reports independently and jointly contributed to our understanding of the nature of daily sibling interactions (i.e. happy and prosocial exchanges). Owing to the relatively low power, these analyses were conducted using a two-step process for each dependent variable. Initially, a regression was conducted that included significant mother reported variables of sibling relationship quality predicting to happy daily exchanges (Table 5) and prosocial exchanges (Table 6). The maternal variables that emerged as significant were then considered with significant child correlates. A regression was not conducted for upsetting exchanges, since only child reports of conflict emerged as significant.

Table 5. Hierarchical regressions predicting happy daily interactions

Measure	Step	t (entry)	Beta	t (final)	Beta (final)
<i>(1) From Maternal PEPC-SRQ Ratings (N = 32)</i>					
Warmth	1	3.74**	0.53	1.97	0.42
Agonism	1	-2.18*	-0.31	-1.69	-0.43
Standards for warmth	2	1.27	0.24	1.18	0.22
Standards for agonism	2	0.25	0.05	0.39	0.10
Problem warmth	3	-0.58	-0.21		
Problem agonism	3	0.96	0.32		
<i>(2) From Maternal PEPC-SRQ Ratings and Child SRQ Ratings (N = 32)</i>					
PEPC warmth	1	3.74**	0.53	2.68**	0.38
PEPC agonism	1	-2.20*	-0.31	-2.06*	-0.28
SRQ warmth	2	2.46*	0.34		
SRQ rivalry	2	-0.46	-0.06		

\*p < 0.05, \*\*p < 0.01.

Table 6. Hierarchical regressions predicting prosocial daily interactions

Measure	Step	t (entry)	Beta	t (final)	Beta (final)
<i>(1) From Maternal PEPC-SRQ Ratings (N = 32)</i>					
Warmth	1	1.75	0.30	-0.98	-0.24
Standards for warmth	2	2.27*	0.40	2.67	0.46
Problem warmth	3	-1.51	-0.62		
Problem agonism	3	0.42	0.14		
<i>(2) From Maternal PEPC-SRQ Ratings and Child SRQ Ratings (N = 32)</i>					
PEPC Standards for warmth	1	2.12*	0.36		
SRQ warmth	1	1.52	0.26		

\*p < 0.05, \*\*p < 0.01.

### *Predicting happy daily interactions*

A hierarchical regression was conducted predicting to happy daily exchanges as the dependent variable. Maternal reports of actual sibling relationship quality were included in the initial step (i.e. warmth, agonism), maternal standards (i.e. warmth, agonism) on the second step, and in the last step maternal ratings of problems in the relationship (warmth, agonism) were entered. The overall equation for the regression was significant,  $F(6, 25) = 5.45$ ,  $p < 0.01$ , as was the first step,  $\Delta F(2, 29) = 15.39$ ,  $p < 0.01$ ;  $\Delta R^2 = 0.52$ . Both warmth and agonism contributed unique variance on the step (23.43% and 8.07%, respectively). The second and third steps did not emerge as significant,  $\Delta F(2, 27) = 1.03$  and  $\Delta F(2, 25) = 0.51$ , respectively. Therefore, maternal standards and perception of problems in the relationship did not contribute to happy daily exchanges above and beyond perceptions of actual sibling warmth and agonism.

The next regression considered maternal reports of warmth and agonism on the first step (Table 5), followed by children's reports of sibling warmth and rivalry. Overall the regression was significant  $F(4, 27) = 11.06$ ,  $p < 0.05$ . The first step was also significant,  $\Delta F(2, 29) = 15.39$ ,  $p < 0.01$ ,  $\Delta R^2 = 0.52$ , with maternal reports of both warmth and agonism contributing unique variance for the step (as reported above). The second step was also significant,  $\Delta F(2, 27) = 3.78$ ,  $p < 0.05$ ,  $\Delta R^2 = 0.11$ , with sibling warmth adding further unique variance to the explanation of happy daily exchanges. Therefore, both maternal perceptions of relationship quality (i.e. warmth and agonism) and children's reports of warmth demonstrated independent associations with children's reports of happy daily exchanges.

### *Predicting prosocial daily interactions*

The initial regression predicting to prosocial daily exchanges, included maternal reports of sibling warmth on the first step, followed by their standards for warmth on the second step, and finally problems with warmth and agonism on the third step (Table 6). The overall regression equation was significant  $F(4, 27) = 3.62$ ,  $p < 0.05$ . The first step, however, fell short of significance,  $\Delta F(1, 30) = 3.06$ ,  $p = 0.09$ ,  $\Delta R^2 = 0.10$ . The second step emerged as significant,  $\Delta F(1, 29) = 5.15$ ,  $p < 0.05$ ,  $\Delta R^2 = 0.14$ , with standards for warmth contributing 14% of the unique variance for the step. The final step of the regression also fell short of being significant,  $\Delta F(2, 27) = 2.47$ ,  $p = 0.10$ . Therefore, when considered together, only maternal standards for warmth in the sibling relationship added independently and significantly to the explanation of prosocial daily exchanges.

For the final regression, mother reports of standards for warmth and child reports of sibling warmth were entered simultaneously (Table 6). The equation was significant,  $F(2, 29) = 5.38$ ,  $p < 0.01$ , but only maternal standards for warmth significantly predicted to prosocial sibling interactions.

## DISCUSSION

Our first set of questions addressed issues related to the correspondence between maternal and child perceptions of sibling relationship quality. The second set of questions examined the links between maternal and children's ratings of sibling relationship quality and child reports of daily sibling interactions. Findings are

considered in light of recent theory and research regarding the nature of family relationships.

### ***Correspondence between Maternal and Child Perceptions of Sibling Relationship Quality***

Maternal ratings focused on three aspects of sibling relationship quality, namely ratings of standards, the actual relationship, and perceptions of problems. Addressing these three features provides a richer picture of maternal perceptions and adds to the literature regarding the nature of sibling relations in early adolescence and our understanding of family dynamics (Dunn, 1993).

A coherent picture emerged in the associations between maternal and child perceptions of the positive aspects of the actual quality of sibling relations, providing evidence to support a shared family view regarding this aspect of family dynamics (Minuchin, 1988). Specifically, maternal ratings of warmth were positively associated with child ratings of warmth, which is in line with the literature (Furman *et al.*, 1989). Maternal perceptions of the sibling relationship as warm, affectionate and as providing a source of support, intimacy, and companionship were also associated with children's reports of mutual admiration and positive regard. Moreover, children's perceptions of sibling warmth and mutual admiration conformed to mothers' standards for warmth in the sibling relationship. Perhaps mothers successfully supported their children to achieve their (i.e. mothers') desired levels for relationship warmth or they were relatively comfortable with the degree of affection, support, and companionship demonstrated by their children. In contrast, when mothers perceived problems with both warmth and agonism, children also perceived less warmth in their sibling relationship, suggesting that mothers and children held shared perceptions on this issue. Given the importance of sibling warmth for positive developmental outcomes (Volling, 2003), a lack of warmth, particularly in combination with high conflict, may signal interpersonal problems (Gass *et al.*, 2007; McHale, Whiteman, Kim, & Crouter, 2007; Modry-Mandell *et al.*, 2007; Volling & Blandon, 2005).

In terms of the less positive relationship dimensions, corresponding associations between child conflict and maternal perceptions of agonism and rivalry were not significant. Interestingly, maternal perceptions of actual sibling conflict were positively related to children's reports of rivalry, whereas maternal reports of rivalry were negatively related to children's reports of mutual admiration. It is noteworthy that children's perceptions of more frequent conflict corresponded negatively to mothers' standards for sibling rivalry. Given that one might expect that perceptions of conflict and rivalry to be positively associated, this pattern of findings may suggest that mothers and young adolescents have overlapping yet somewhat different views or definitions of aversive interactions; specifically, what children experience as rivalry and competition may be viewed by mothers as agonistic. Perhaps, parents are less knowledgeable or informed about the actual frequency or nature of sibling conflict and rivalry due to their reporter status (i.e. participant observer) compared with siblings' insider status. The reporter's status may influence their perceptions and interpretations of the meaning of sibling interactions, a process that may be at work here. Moreover, in contrast, to the evidence for a shared family view regarding the positive features of the sibling relationship, the current pattern of findings suggests that families may have more difficulty constructing a shared view of the more negative features. This difficulty may possibly be due to the lack of consensus regarding the

meanings ascribed to conflict and rivalry, indicting differences in children's and adults' understanding of social behaviour and relationships (Dunn, 1993). Certainly, further research is required to address this speculation. At the very least, discrepancies between maternal views and children's view of their actual relationship may indicate a source of potential family conflict and misunderstanding (Rinaldi & Howe, 2003).

We examined the specific items to ensure that these findings were not related to the items used to measure these constructs. Face validity of items indicated that the SRQ child ratings of sibling conflict and the PEPC-SRQ maternal ratings of sibling agonism were similar (e.g. fighting, arguing) and appear to tap the same construct. The items on the SRQ child scale for rivalry tapped issues of parental differential treatment. Perhaps children may be more tolerant or have a different experience and understanding of sibling conflict and rivalry than parents, who may find the negative tone associated with these behaviours aversive. As noted above, differences in children's and parents' social understanding may possibly influence their conceptualizations of the meaning of conflict and rivalry (Dunn, 1993), which is an interesting question for future research. Nevertheless, considerable evidence supports the assertion that conflict provides youngsters with a safe and rich opportunity to develop a myriad of social cognitive skills (Dunn, 2000; Furman & McQuaid, 1992; Howe, Rinaldi, Jennings, & Petrakos, 2002; Ross, Ross, Stein, & Trabasso, 2006), although we know less about the context of rivalry and how it may relate to conflict.

Furthermore, findings demonstrated that mothers' standards for rivalry were negatively related to child ratings of conflict, indicating that mothers' expectations and interpretations of the behaviours were possibly not in line with children's experience of their sibling relationship. This finding may indicate an area of discontinuity in perceptions regarding family interactions, which no doubt would influence patterns of family dynamics (Hinde, 1979). Certainly, children's behaviour may also have an impact on their parents' desires whereby greater conflict may whittle away parents' expectations for harmony. Perhaps, parents' standards and/or their low tolerance for conflict are unrealistic and, thus they may misinterpret their children's behaviour. Parents whose standards for levels of sibling conflict and rivalry are different from children's views may benefit from family mediation programs (Kramer & Baron, 1995; Siddiqui & Ross, 2004).

Finally, findings suggested that the fewer problems mothers perceived with sibling rivalry, the more likely children were to report dominating over their sibling. Issues of power and control may be intricately involved in the processes underlying sibling rivalry and it is conceivable that more clearly established leader-follower roles allow for complementarity in a manner that reduces competitive interpersonal dynamics. The illuminating findings for the power subscales indicate that future research should distinguish between positive (admiration) and negative (dominance) aspects to provide clearer understanding of processes underlying sibling dynamics and how this may contribute to families' construction of a shared view of the relationship.

What is the mechanism that underlies the link between maternal standards and children's experience of their sibling relationship? This question has importance for parent-child interaction, especially if parental beliefs and standards are linked with expectations and socialization of the different roles and behaviours (e.g. emotional expressiveness, functions, conflict) that siblings assume (Mendelson, de Villa, Fitch, & Goodman, 1997). Our findings indicated a high degree of correspondence between parent standards and child views of the positive dimensions of the sibling relationship. However, the more interesting

question may be how a lack of shared understanding about the negative dimensions influences family dynamics (Minuchin, 1988). Future research should address questions regarding the impact of different standards held by various family members about negative sibling interaction in the development of shared perceptions and meanings of sibling dynamics. Similarly, future work will be instrumental in providing a richer understanding of the potential consequences of holding different views with respect to family functioning and children's ongoing development.

### *Perceptions of Sibling Relationship Quality and Daily Interactions*

A consistent pattern was evident between mothers' standards and actual perceptions of sibling relationship quality and children's reports of daily interactions, which provides support for Hinde's (1979) argument that perceptions and behaviour are linked and thus influence one another. Namely, when mothers perceived the sibling relationship to be warm and less conflictual, children were more likely to report happy daily interactions and prosocial assistance. Perhaps, the positive affective tone of warm relationships in combination with low conflict provides a context for children to engage in prosocial and caring interactions, to share intimate information, and to learn to appreciate one another's strengths (Howe, Aquan-Assee, Bukowski, Lehoux, & Rinaldi, 2001; Karos *et al.*, 2007). Of course, engaging in prosocial interactions (e.g. play, shared activities, teaching, providing support) may also promote warmth and caring between siblings and opportunities to develop mutual admiration for one another's skills and attributes. In contrast, when mothers perceived there were problems with warmth and agonism, children reported fewer happy and prosocial daily exchanges. When there is little warmth, there may be fewer opportunities for siblings to engage in shared prosocial activities and perhaps to develop positive feelings. Certainly, a shared developmental history of both positive and conflictual exchanges between siblings is considered to be important as a means of promoting social understanding (Carpendale & Lewis, 2004; Dunn, 2002).

The associations between children's reports of happy and prosocial daily interactions and ratings of sibling relationship quality paralleled those for maternal ratings. First, when children perceived higher degrees of sibling warmth, lower levels of rivalry (as opposed to conflict for mothers), and also greater admiration, they were more likely to report happy daily sibling exchanges. Further, prosocial daily exchanges were related to children's reports of greater warmth and also being less likely to dominate over one's sibling. In addition, more frequent up-setting daily interactions were associated with perceptions of greater sibling conflict. These findings suggest strong correspondence in the qualitative nature of children's ratings of relationship quality and their behavioural interactions.

In sum, maternal perceptions may be relatively accurate since they generally corresponded with children's reports of their sibling relationship quality and actual exchanges. Certainly, these findings provide evidence for a shared family view of this relationship as suggested by family systems and relationship theories. Further, our findings are in line with research with both school-aged and adolescent children (Cole & Kerns, 2001; Noller & Northfield, 2000, as cited in Noller, 2005)). Thus, there is reason to have faith in the meaningful contribution of both maternal and child perceptions of sibling relationship quality. At the same time, our study has benefited from the multiple perspectives of different

raters and types of assessment (Furman *et al.*, 1989). The degree of correspondence between child and mother perceptions is instructive to future investigations that consider employing multiple measures of the same constructs to capture perspectives of different family members. Results also support the feasibility of using a daily checklist method to gain insight into the nature of ongoing sibling interactions in an efficient and cost-effective way.

Finally, we were interested in how maternal and child reports of sibling relationship quality independently and jointly contributed to our understanding of the nature of children's daily interactions. The regression analyses indicated that maternal reports of actual warmth and agonism and child reports of warmth all independently contributed to happy daily exchanges. Although mothers report having standards for the levels of warmth and agonism they would desire in their children's relationship, it was their actual views of the relationship along with children's reports of warmth that demonstrated a more robust association with happy daily interactions. In contrast, maternal standards for sibling warmth, but not sibling reports of relationship warmth, was the only significant unique correlate of prosocial daily interactions. Thus, maternal expectations for caring, helpful, comforting, and teaching behaviours were associated with the degree to which children engaged in such prosocial behaviours. Parental expectations may be an important prerequisite for intervention programs aimed at promoting prosocial sibling interaction (Kramer, 2004). In fact, following a social skills intervention program focused on prosocial skills and emotional regulation, parents reported that older preschool-aged siblings exhibited greater warmth and less rivalry, fewer power and problem behaviours, but remained stable in level of conflict (Kramer & Radey, 1997).

## CONCLUSION

Several limitations of the current study are noted. Information from the non-focal sibling was not obtained nor was the perspective of fathers included. It will be informative for future research to investigate the contribution of these other perspectives in the understanding of sibling dynamics. All children were Caucasian, which limits the generalizability of the findings. Nevertheless, the sample represented a minority English-speaking population living in a predominantly French rural community and was obtained from the only English elementary school in town; children were from mixed socio-economic backgrounds. Future work might consider examining issues about sibling relationships in families from other ethnic or linguistic minority groups to determine how and if the present findings generalize to other cultural contexts. Finally, the study included a relatively small sample that may have somewhat limited power to detect smaller effects, as well as to permit consideration of more complex and interactive associations.

In conclusion, our study suggests that parents and children have a shared family view of the positive aspects of the sibling relationship, particularly in terms of warmth, as well as their perceptions of positive daily exchanges (i.e. happy and prosocial interactions). It will be instructive for future research to investigate whether this coherence is, in fact, conducive for enhancing optimal family functioning as suggested by both theory (Minuchin, 1988) and researchers (Gomulak-Cavicchio, Davies, & Cummings, 2006). However, there were indications that parent and child perceptions of rivalry and conflict may not correspond to the same degree as perceptions of warmth. Certainly, the mismatch suggests

an area for future research and perhaps an explanation for the proliferation of popular books on the topic of sibling agonism. Our findings further suggest that increased efforts at promoting warmth and prosocial interactions may be beneficial for the sibling relationship and family cohesiveness.

### Notes

1. There was one set of twins in the study.
2. Owing to the overall lack of correlations for age and gender, these variables were not systematically included in further analyses. However, analyses involving significant interactions reported above were re-run, controlling for age and gender. In each case, findings remained unchanged.
3. Kramer and Baron (1995) used discrepancy scores to assess how parental ratings of actual behaviour differed from their standards for behaviour. Following the procedure outlined by these authors, we calculated discrepancy scores; however, these analyses did not reveal any significant findings. There are a number of inherent problems with discrepancy scores (see Edwards, 2001 for a discussion).

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