

Sibling support in early adolescence: Buffering and compensation across relationships

Avidan Milevsky

Kutztown University of Pennsylvania, USA

Mary J. Levitt

Florida International University, Miami, FL, USA

The current study is an examination of how support from siblings relates to psychological adjustment and academic competence in early adolescence, with a focus on the buffering and compensatory effects of sibling support. Participants were 695 (357 female and 338 male) African-American, Hispanic-American and European-American students in grades 5 through 8. The age range was 11 to 15 ($M = 12.69$, $SD = 1.12$). Participants were interviewed in school regarding their social support in addition to their familial, economic and environmental risk, psychological wellbeing, and academic competence. Brother support was associated with more positive school attitudes and with higher self-esteem. Sister support buffered the relationship between ecological risk and school adaptation. In terms of a compensatory effect, students under low mother support conditions receiving greater support from brothers exhibited higher school achievement. The current study highlights the importance of examining constellation variables as part of the broader interest in sibling relations. Additionally, the current study indicates that the variability in sibling relationships reported in the literature may be associated with developmental changes in these relationships. The potential benefits of sibling support warrant a closer examination of the wide-ranging issues involved in sibling relations.

Correspondence should be addressed to Avidan Milevsky, Department of Psychology, Kutztown University of Pennsylvania, Kutztown, PA 19530, USA. Email: Milevsky@kutztown.edu

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In comparison with research on other members of the social network, the scientific study of sibling relations has received little attention theoretically and is a relatively new area of empirical inquiry (Dunn, 2000, 1992). However, in recent years an interest in many aspects of sibling relations has emerged in the developmental literature (Schubert, Wagner, & Schubert, 1984). Empirical investigations examining sibling relationships have revealed that children who have a positive relationship with a sibling show greater emotional understanding (Dunn, Brown, Slomkowski, Telsa, & Youngblade, 1991), greater cognitive abilities (Howe & Ross, 1990; Smith, 1993), greater social understanding (Bryant & Crockenberg, 1980; Dunn & Munn, 1986), greater moral sensibility (Dunn, Brown, & Maguire, 1995), and better psychological adjustment (Dunn, Slomkowski, Beardsall, & Rende, 1994). In contrast, other studies have shown that a destructive relationship with a sibling may have detrimental effects for a child, such as disruptive and aggressive behaviors (Garcia, Shaw, Winslow, & Yaggi, 2000).

In addition to exploring sibling relationships in general, previous work on sibling relations has encouraged examining gender and ethnic differences in sibling closeness. The sibling relationships of girls have been shown to be consistently more positive in several emotional and supportive characteristics than the sibling relationships of boys (Buhrmester, 1992; Hetherington, 1988; Koch, 1956; Tucker, Barber, & Eccles, 1997). In terms of ethnicity, the limited research available has detailed the significant role played by older siblings in the upbringing of the younger children in Hispanic-American and African-American families (Avioli, 1989; Farver, 1993; Hays & Mindel, 1973; Volk, 1999).

Although there seem to be variations in sibling closeness as a function of gender and ethnicity, less is known about the significance of these demographic variables when assessing the outcomes associated with sibling relations. Additionally, most studies assessing the effects of sibling relations have used samples of preschool or elementary school aged children. Hence, the first goal of the present study was to assess the academic and psychological outcomes associated with sibling support in early adolescence in a multiethnic population. Given the significance of sibling relationships during childhood, it would be important to study the influence of siblings on adolescents. Of particular note, the current study assessed academic outcomes of sibling support as well. Previous studies assessed the influence of older siblings on the cognitive abilities of younger siblings (Brody & Howe, 2003; Koch, 1954; Schoonover, 1959) and the influence of an older brother on children working on a problem-solving task alone (Cicirelli, 1975). Based on these studies it would be interesting to examine the academic outcomes associated with sibling support. However, the influence of siblings on academic achievement has been largely ignored in scientific investigations.

An additional intent of the current study was to examine the buffering effects of sibling support for adolescents under conditions of ecological risk. To date most studies assessing the influence of social support on children at risk have focused on support provided by parents, other adults, or peers (Cohn, 1990; Renken, Egeland, Marvinney, Mangelsdorf, & Sroufe, 1989; Turner, 1991) reflecting the focus of research on social support in general. Relatively few studies address sibling support as a possible protective factor for children at risk.

In an investigation by Sandler (1980), the author examined the potential buffering effects of having a sibling at home in inner-city children. Parents of 71 children in kindergarten through third grade were asked to complete several scales assessing exposure to stressful life events and adjustment in their children. Multiple regression analysis yielded interactions for the presence of a sibling and life stress, indicating that having a sibling at home may moderate the effects of stress on economically disadvantaged children.

In a longitudinal study assessing early relationship quality on a child's peer relationships and social skills in the classroom Vondra, Shaw, Swearingen, Cohen, and Owens (1999) investigated the possible protective factors, or buffering effects, of early family relationships for children who were at social and demographic risk. The authors obtained information about sibling relations from 204 children at three and a half years of age. When the children entered school, information about their social functioning was obtained from their teachers. Closeness to a sibling was inversely correlated with both teacher dependency and negative relationship factors in kindergarten and first grade. In addition, sibling closeness was related to self-control in the classroom. However, by the time the children were in the second grade, these associations were not evident.

As with studies of sibling relations and adjustment in general, the limited work examining the effects of sibling relations on children under high-risk conditions were conducted primarily with preschool and early elementary school age children. The current study assessed the buffering effects of sibling relationships for early adolescents.

A third goal of the study was to assess the relation between parental and sibling support. Researchers have forwarded two distinct and contradictory views regarding the correlation between parent-child relationships and sibling relationships. Several studies propose a *congruous* relation between the two in which the relationship a child has with a parent will be similar to the quality of the relationship the child has with a sibling (Dunn & Kendrick, 1982). However, other studies have suggested a *compensatory* pattern in the link between parent-child and sibling relationships. This compensatory pattern emerges when a child experiencing a negative relationship with a parent develops a close sibling relationship, which

serves as a compensation for the negative parental relationship (Bank & Kahn, 1982; Dunn & Kendrick, 1982).

The expectation of a congruous pattern in the relation between parent-child and sibling relationships is founded on theoretical orientations from differing psychological perspectives. From an attachment perspective, the relationship a child develops with a caregiver will be reconstructed in other close relationships. Accordingly, the early establishment of an "internal working model" of relationships, based on the degree of responsiveness of a primary caregiver, will influence the expectations of future relationships. Teti and Ablard (1989) proposed that children who have an insecure attachment with their primary caregiver would develop a hostile relationship with their siblings. Cognitive schema theory also proposes that future relationships are mediated by individually constructed mental schema of relationship expectations based on previously acquired information (Fiske & Taylor, 1991). Several empirical studies have confirmed the congruous pattern, both in positive and negative configurations (Dunn & Kendrick, 1982; Seginer, 1998).

However, although much of the original work on social relationships has been founded on attachment theory and its emphasis on a prototypic working model, recent advances in the study of social networks have extended this restricted view. First, research conducted in several other cultures, as well as in western cultures, has documented infant attachments to a number of nonparental relations (Levitt, Guacci, & Coffman, 1993). In addition, recent work based on cognitive schema theory suggests that an individual may construct relationship expectations based on various exemplars of the relationship category rather than on a single prototypic relationship (Andersen & Chen, 2002; Smith & Zarate, 1992).

Based on the exemplar model perspective, expectations about a new relationship would be based on the similarity between this new relationship and information derived from previous similar relationships with one or more relations, not just on one prototypic relationship. Hence, the relationship established between a child and a mother may be reconstructed in similar relationships, such as the child's relationship with his or her offspring, but not with other types of relationships, such as sibling relations.

Studies assessing compensatory patterns have built upon theoretical and empirical analyses of the diverse functions offered by different relationship categories. Furman and Buhrmester (1985) identified specific individuals who supply particular types of social provisions, but they have argued that all provisions can be obtained from more than one individual. If a specific relationship is not supplying the provisions that are desired from that relationship, the individual may compensate for the void by turning to a different relationship to provide the missing provision.

In a review of theoretical contributions to the study of sibling relations, Bank and Kahn (1982) reported several qualitative analyses that examined specific sibling relationships. In many of the examples detailed by Bank and Kahn, the absence of parental emotional or psychological support contributed to a strong sibling bond. The authors explained that when siblings develop in a family in which the parents do not treat them fairly, ignore them, or do not nurture them, the children are forced to form their own supportive social structure. In fact, several empirical investigations have found inverse relationships between parent-child and sibling relationships (Dunn & Kendrick, 1982).

Thus, there is evidence suggesting that in certain circumstances, such as a substantial deficiency of support, sibling support may compensate for the lack of support from other members of the social network. However, several researchers suggest distinguishing between the quality of sibling relations and the outcome of these relationships (East & Rook, 1992). In addition to examining whether children with low parent support turn to siblings for the missing support, researchers should investigate the outcomes associated with the compensation. In other words, are the positive psychological and academic outcomes associated with parent support still evident when siblings are substituting for the missing support?

The few empirical investigations exploring the outcomes associated with sibling compensation have focused primarily on the compensatory effects of sibling support in the absence of friend support. East and Rook (1992) concluded that, although peer-isolated children may turn to siblings for support, which may provide some positive outcomes, sibling support may not fully guard against the negative consequences of low school-friend support.

Additionally, Van Aken and Asendorpf (1997) failed to find a compensatory effect of sibling support when examining support from parents, classmates and friends in a sample of grade-six students. However, the only outcome measure used by the authors was the self-perception profile (Harter, 1985), other psychological and academic outcomes were not addressed. In the present study, we sought to determine the extent of sibling compensation across a range of psychological and academic adjustment measures.

An additional limitation in the work on patterns of parent-sibling congruity or compensation is that parent support has been assessed consistently either as mother support alone or together with fathers, without considering potential differences between parents with respect to these patterns (Bank & Kahn, 1982; Stocker, 1994). Hence, the final intent of this study was to examine the relationship of support from mothers and fathers individually in relation to sibling support and adjustment.

The specific hypotheses of the present study were as follows: (1) sibling support will be related significantly to psychological and academic adjustment; (2) sibling support will assist in protecting early adolescents from the negative psychological and academic outcomes associated with ecological risk; and (3) based on the fractional work in the area, the third hypothesis is necessarily speculative, however, the limited work would indicate that the overall pattern of sibling and parent support will be a congruous one, but a compensatory pattern of support may emerge for the subsample experiencing a lack of parent support. Finally, based on the limited research available, we also anticipated that the hypothesized effects might vary by gender and ethnicity.

METHOD

Sample

Participants were 695 African-American, Hispanic-American and European-American students participating in the second wave of a two-year investigation of social support and school adaptation. Students ($N = 782$) were drawn initially from grades four and six of eight public elementary schools in a Southeastern metropolitan area of the United States. The retention rate for the sample was 89%. Of the 695 participants in the retained sample, 357 were female and 338 were male. By ethnicity the sample consisted of 220 African-American students, 282 Hispanic-American students, primarily of Cuban descent, and 193 European-American students. By grade the current sample consisted of four students in fifth grade, 351 in sixth grade, 36 in seventh grade, and 304 in eighth grade. The age range was 11 to 15 ($M = 12.69$, $SD = 1.12$).

Measures

Measures included indices of social support from mothers, fathers, sisters, and brothers in addition to measures of ecological risk and adjustment. Adjustment measures included indices of psychological wellbeing and academic competence. The following specific measures were analyzed in the current study.

Social support. Parent and sibling support was assessed using the children's convoy mapping procedure (Levitt, Guacci-Franco, & Levitt, 1993). With this procedure, children identify the people in their life who are close and important to them in a concentric circle map, with the closest and most important persons in the inner circle. The participants then indicate which persons provide specific support functions. Specifically, they are

asked to identify the people, "You talk to about things that are really important to you," "Who make you feel better when something bothers you or you are not sure about something," "Who would take care of you if you were sick," "Who help you with homework or other work you do for school," "Who like to be with you and do fun things with you," and "Who make you feel special or good about yourself." Scales of mother and father support were obtained by summing the number of support functions provided within each of these relationship categories. Scales of brother and sister support were obtained by averaging the number of support functions provided by all brothers and sisters who were nominated as being close and important in the concentric circle map. Alpha reliabilities were .72 for mother support, .83 for father support, .89 for sister support, and .81 for brother support.

Ecological risk. A cumulative risk index was created from seven individual risk factors. These included:

- 1 Attending a *high poverty school* (a school with over 85% eligible for the federal free and reduced lunch program).
- 2 *Personal poverty* (personally eligible for free lunch).
- 3 *Perceived economic stress* (scoring above the median [3.00] on a five-point scale item assessing how often the family has problems paying for things that the family really needs, like food, clothing, or rent).
- 4 *Low neighborhood quality* (scoring below the median [2.30] on a ten-item, three-point neighborhood quality scale adapted from Kasl, Ostfeld, Brody, Snell, & Price, 1980).
- 5 *High family stress* (scoring above the median [5.00] on a 22-item scale of stressful life events adapted from Holmes & Rahe, 1967, and Johnson, 1986).
- 6 *Father absent* from the home.
- 7 *Mother absent* from the home.

One point was assigned to the participant for each risk factor. Scores ranged from 0 to 7 with higher scores indicative of greater levels of risk. The median score of ecological risk for the sample was 2.0.

Psychological adjustment. Psychological adjustment was assessed with two commonly used age-appropriate measures administered at the time of the interview. These were measures of loneliness and self-concept.

Loneliness was indexed with an abbreviated ten-item version of the loneliness scale developed by Asher, Hymel, and Renshaw (1984). Sample items include: "I feel alone at school," "I can find a friend in my class when I need one," and "I feel left out of things in my school." Participants were

asked to indicate whether the statements were: "always true about me," "true about me most of the time," "sometimes true about me," "hardly ever true about me," or "not true about me at all." Responses to each of the loneliness items were scored on a 1 to 5 scale, with the order reversed for the positive statements, such that a score of five indicated higher levels of loneliness. The alpha reliability for the sample was .67.

Self-concept was assessed with the social, academic, and general self-concept subscales of the Harter (1985) self-perception profile. The self-perception profile has been used extensively in several cultures including Latin-American populations. A sample item is: "Some kids are often unhappy with themselves BUT other kids are pretty pleased with themselves." The participants must first decide whether they are more like the child who was described in the first part of the sentence or whether they are more like the child described in the second part of the sentence. They are then asked to indicate whether the description is: "Sort of true for me," or "Really true for me." Each item is given a score from 1 to 4 and higher scores indicate more positive self-concepts. Subscale scores were combined to create a summary self-concept score. The alpha reliability for the sample was .83.

Academic adjustment. Academic adjustment was assessed with multiple criterion measures. These included a self-report index of school attitudes completed in group sessions following the interview, objective measures of academic achievement, and teacher ratings of school adaptation obtained for each participant subsequent to the interview.

School attitudes were measured with a 22-item *school attitude scale* adapted for the study from scales employed by Estrada (1993) and Ford and Harris (1996) with ethnically diverse populations. The item format is comparable to that of the Harter self-concept scale. Examples of items include: "Some kids think that learning things at school is not very important, but other kids think that learning things at school is very important." Students were asked to choose which side of the statement was either really true or sort of true for them. Scores ranged from 1 to 4, with higher scores indicating more positive school attitudes. The alpha reliability for the sample was .85.

Academic achievement was assessed with end-of-year grade reports and standardized achievement test scores (Stanford achievement test), obtained for each student from centralized school records. Reading and math grades were combined, as were reading and math test scale scores, to yield overall grade average (GPA) and achievement measures (SAT).

School adaptation was indexed with a 14-item school adaptation scale developed by Alexander, Entwistle, and Dauber (1993), designed to assess both positive and negative indicators of child behavior problems, as rated by

teachers, with a six-point Likert scale format. Examples of items include: (1) "Very enthusiastic, interested in a lot of different things;" (2) "Rather high strung;" (3) "Fights too much;" and (4) "Is creative or imaginative." Responses to each of the items were scored on a 1 to 6 scale, with the order reversed for the negative statements, such that a score of six indicates better adaptation. The alpha reliability for the sample was .87.

Procedures

Informed consent was obtained from parents for all students participating in the study. Interviews were conducted individually with each participant by a female interviewer matched to the child according to ethnicity. The interviews were conducted within the school setting in a private area. The mean duration of the interview was 38.27 minutes ($SD = 9.69$).

RESULTS

Intercorrelations of study variables

Intercorrelations of the predictor variables are presented in Table 1. A correlation of gender with support from sisters indicated that girls reported higher levels of sister support than did boys. Additionally, grade was found to negatively correlate with father support. African-American ethnicity was associated with lower support from father and mother and with higher support from sisters. Furthermore, being African-American was positively correlated with risk. Hispanic-American participants received less support from sisters, compared to those in the remaining ethnic groupings. Intercorrelations of the support measures were generally modest, except for the relation of mother to father support. Finally, father and mother support was associated with lower risk.

Correlations of the predictor measures with the psychological and academic adjustment criteria are presented in Table 2. Being females was positively correlated with school attitude, GPA, SAT scores, and school adaptation and was negatively correlated with loneliness. Additionally, grade was found to negatively correlate with school attitude and GPA and positively correlate with SAT scores and self-esteem. African-American ethnicity was correlated with higher school attitude, GPA and loneliness but with lower SAT scores. Father and mother support was positively correlated with school attitude, GPA, SAT scores, school adaptation and self-esteem and negatively correlated with loneliness. Brother support was positively correlated with self-esteem. Both brother and sister support were associated with more positive school attitudes. Of particular note, parental support yielded higher correlation, than sibling support, with all criterion measures.

TABLE 1
Intercorrelations of predictor variables

Measures	Measures							
	2	3	4	5	6	7	8	9
1. Gender	.02	.02	.01	-.06	.03	-.05	.14**	-.02
2. Grade	—	.03	-.02	-.12**	-.07	-.06	.05	.00
3. Af-Am vs. non	—	—	-.56**	-.19**	-.16**	.00	.09*	.38**
4. Hs-Am vs. non	—	—	—	-.07	-.01	-.01	-.10**	.04
5. Father sup.	—	—	—	—	.46**	.13**	.12**	-.46**
6. Mother sup.	—	—	—	—	—	.09*	.09*	-.30**
7. Brother sup.	—	—	—	—	—	—	.05	-.04
8. Sister sup.	—	—	—	—	—	—	—	.03
9. Risk	—	—	—	—	—	—	—	—

* $p < .05$; ** $p < .01$.

TABLE 2
Correlations of predictor variables with academic and wellbeing criteria

Predictors	Criteria					
	Lonely	Self	School attitude	GPA	SAT	School adapt.
Demographics						
Gender	-.13**	.07	.11**	.16**	.11**	.19**
Grade	-.04	.09*	-.13**	-.14**	.21**	-.06
Af-Am vs. non	.12**	-.08	.08*	.08*	-.31**	-.07
Hs-Am vs. non	-.02	-.07	-.04	-.07	.00	-.01
Support						
Father	-.21**	.27**	.16**	.18**	.28**	.17**
Mother	-.17**	.20**	.15**	.19**	.22**	.16**
Brother	-.04	.10*	.09*	.06	.02	.04
Sister	-.04	.02	.08*	.05	.01	.07
Risk	-.18**	-.26**	-.10*	-.24**	-.45**	-.18**

* $p < .05$; ** $p < .01$.

Sibling support and adjustment: Direct and indirect effects

Hierarchical regression analyses were used to determine the effect of sibling support on psychological and academic adjustment. Gender, grade, and the ethnicity indices were entered first in each analysis, followed by the brother and sister support variables. Following Cohen and Cohen (1983), multiplicative terms representing the interactions of brother and sister support with participant gender and ethnicity were entered subsequent to the main effect terms. The results of these analyses are presented in Table 3.

Psychological adjustment. In the analysis of loneliness, sibling support was not related directly to loneliness, but brother support interacted with ethnicity. Follow-up regressions indicated that higher brother support was related to less loneliness for European-Americans ($b = -.10$) and Hispanic-Americans ($b = -.08$), but not for African-Americans ($b = .05$). Non-African-American participants receiving greater support from brothers were less lonely. Greater brother support was associated directly with the self-concept measure. Participants with more support from brothers had more positive self-concepts.

Academic adjustment. In the analysis of school attitudes, greater brother support was associated with more positive school attitudes. For academic achievement, the main effects of brother support and sister support were not significant. However, a significant interaction emerged in block three of the analysis. Brother support interacted with gender to predict academic achievement. Follow-up regressions indicated that brother support was positively related to achievement for boys ($b = .11$), but not for girls ($b = -.02$). Thus, boys receiving greater support from brothers exhibited higher academic achievement.

There were also no main effects of sibling support on school adaptation, but there was an interaction of brother support with ethnicity in this analysis. Follow-up regressions indicated that brother support was related to school adaptation for Hispanic-Americans ($b = .12$), but not for African-Americans ($b = -.02$) or European-Americans ($b = -.04$). Hispanic-Americans receiving greater support from brothers exhibited higher school adaptation as indicated by teacher reports.

Additionally, hierarchical regression analyses were used to determine the indirect effect of sibling support on academic adjustment. Support was related indirectly to all the academic competence measures through the influence of self-esteem on the academic measures. Brother support was related positively to self-esteem, and self-esteem was related to all measures of academic adjustment. Figure 1 provides an illustration depicting the

TABLE 3
Hierarchical multiple regressions of sibling support and adjustment

Predictors	Criteria									
	Lonely		Self		School attitude		Achievement		School adaptation	
	Beta	<i>r</i> ²	Beta	<i>r</i> ²	Beta	<i>r</i> ²	Beta	<i>r</i> ²	Beta	<i>r</i> ²
Demography										
Gender	.13**	.02	.06	< .01	.12**	.01	.18**	.04	.22**	.05
Grade	− .04	< .01	.08	< .01	− .14**	.02	.06	< .01	− .04	< .01
Af-Am.	.17**	.02	− .18**	.02	.08	< .01	− .39**	.10	− .10*	< .01
Hs-Am.	.09	< .01	− .18**	.02	.02	< .01	− .26**	.05	− .04	< .01
Support										
Bro. S.	− .05	< .01	.11**	.01	.08*	< .01	.05	< .01	.02	< .01
Sis. S.	− .02	< .01	− .01	< .01	.12	< .01	.02	< .01	.05	< .01
Sig. int.										
Br. sup. × Gen							− .26*	< .01		
Br. sup. × H-Am.									.14*	< .01
Br. sup. × A-Am.	.12*	< .01								

p* < .05; *p* < .01.

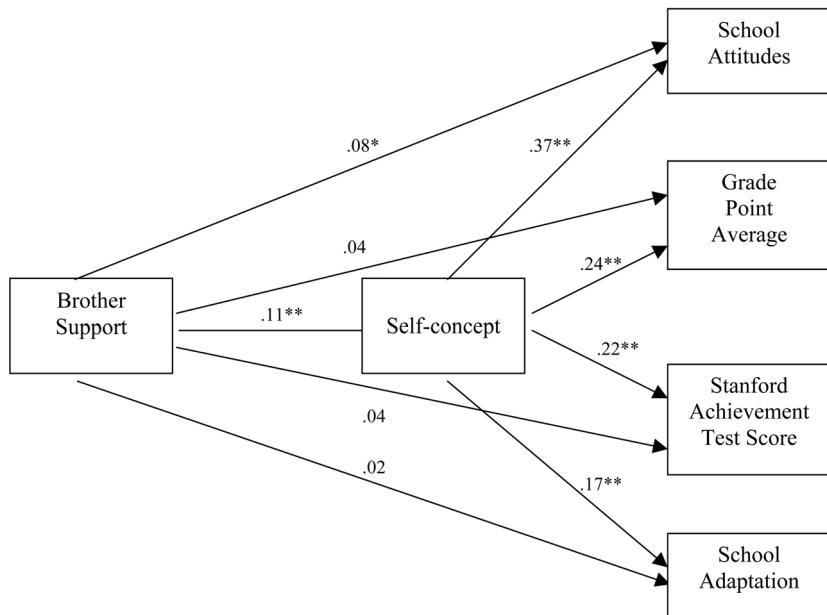


Figure 1. Path diagram for analysis of brother support, self-esteem, and academic competence (* $p < .05$; ** $p < .01$).

indirect relation between brother support and academic wellbeing. As seen in Figure 1, with regard to school attitudes, brother support was related both directly and indirectly through its link with self-esteem.

Sibling support and adjustment: Risk buffering effects

Hierarchical regression analyses were used to determine the moderating effects of sibling support in the relationship between ecological risk and psychological and academic adjustment. Gender, grade, and the ethnicity indices were entered first in each analysis, followed by the brother and sister support variables. Multiplicative terms representing the interactions of brother and sister support with risk were entered subsequently. Significant interactions indicate moderating (buffering) effects.

There was only one marginally significant buffering effect. The interaction of sister support and ecological risk on school adaptation approached significance, $F(8, 624) = 2.81, p = .09, b = .06, r^2 < .01$.

Follow-up regressions were performed separately for participants experiencing above and below the median level of risk. The results indicated that sister support was related positively to school adaptation for the high-risk students ($b = .14$), but not for the low risk students ($b = -.02$). Students under high-risk conditions receiving greater support from sisters exhibited higher school adaptation as indicated by teacher reports.

Congruence of parental and sibling support

Hierarchical regression analyses were used to determine the congruity between support from parents (predictor variable) and support from siblings (outcome variable). As in the preceding analyses, gender, grade, and the ethnicity indices were entered first, followed by the mother and father support variables. Multiplicative terms representing the interactions of mother and father support with the demographic factors were entered last. The results are presented in Table 4.

Gender was a significant individual predictor of sister support, indicating that girls reported more support from sisters than did boys. Demographics were unrelated to brother support. Greater father support was associated with higher amounts of support from both brothers and sisters. Mother support was not related significantly to either brother or sister support. There were no interactions between the parental support measures and the demographic indicators. Thus, congruence of support was found between fathers and siblings, but not between mothers and siblings.

TABLE 4
Father and mother support as predictors of brother and sister support

Predictors	Sibling support			
	Brother support		Sister support	
	Beta	r^2	Beta	r^2
Demographics				
Gender	-.05	< .01	.13**	.02
Grade	-.06	< .01	.05	< .01
African-American	-.00	< .01	.05	< .01
Hispanic-American	-.02	< .01	-.07	< .01
Parental support				
Father	.10*	< .01	.13**	.01
Mother	.05	< .01	.05	< .01

* $p < .05$; ** $p < .01$.

Sibling support and adjustment: Compensatory effects

Hierarchical regression analyses were also used to determine whether brother or sister support (predictor variable) compensates for low father or mother support in relation to the wellbeing measures (outcome variable). As in the prior analyses, gender, grade, and the ethnicity indices were entered first, followed by the support variables. Multiplicative terms representing the interactions of brother and sister support with mother and father support followed. Significant interactions represent compensatory effects.

There was one significant compensatory effect. The interaction of brother support and mother support in relation to academic achievement was significant, $b = -.18$, $p < .01$, $r^2 = .03$. Follow-up regressions conducted separately under high (above the median) and low (below the median) mother support conditions indicated that brother support was positively related to school achievement for the low mother support students ($b = .12$), but not for the high mother support students ($b = -.04$). Students under low mother support conditions receiving greater support from brothers exhibited higher school achievement.

DISCUSSION

The goals of the current study were: (1) to assess whether support from siblings relates to psychological and academic adjustment in early adolescence; (2) to determine whether support from siblings serves as a protective factor, or buffer, against negative psychological and academic adjustment associated with ecological risk; and (3) to assess congruence and compensation effects of sibling support in relation to parental support.

Overall, the findings of the current study are consistent with previous work on the effects of sibling support on several outcome indices (Bryant & Crockenberg, 1980; Dunn & Munn, 1986; Dunn et al., 1991, 1994, 1995; Howe & Ross, 1990; Smith, 1993). However, the current study assessed brother support and sister support separately, which yielded different results based on sibling gender. Children with higher levels of brother support exhibited more positive school attitudes and had higher overall self-esteem. In addition, brother support was related indirectly to all of the academic adjustment measures through the linkage of self-esteem to those measures.

In addition, sibling support had differential effects based on the gender and ethnicity of the child. Boys receiving greater support from brothers exhibited higher academic achievement, as indicated by school records of GPA and SAT scores. Hispanic-Americans receiving greater support from brothers exhibited higher school adaptation, as indicated by teacher reports;

European-Americans and Hispanic-Americans receiving greater support from brothers had lower scores on the loneliness scale.

The current findings illustrate that sibling relations and their consequences are not uniform across structural variables like gender, ethnicity, and family role and emphasize the importance of examining these structural variables in studies of sibling relations. Although several recent investigations have detailed the importance of examining sibling relations when assessing a child's social environment, most empirical studies have not considered the influence of structural variables on sibling relations. Buhrmester (1992) and Minnett, Vandell, and Santrock (1983) have proposed that familial structural variables are extremely salient predictors of sibling closeness.

One of the most significant moderating variables influencing sibling relations appears to be gender, although relevant research is sparse (Furman & Buhrmester, 1985). Boys have been shown to have consistently more negative relationships with each other and they tend to be more aggressive with their siblings than girls (Hetherington, 1988). Also, Hetherington (1989) found that girls interacted in a less pleasant manner when engaging their brother than when interacting with their sister. In addition, the sibling relations of girls have been reported to be more positive in several emotional and supportive characteristics than those of boys (Buhrmester, 1992; Koch, 1956; Tucker, Barber, & Eccles, 1997).

However, in the current study, brother support, rather than sister support, was found to have a positive effect on several psychological and academic outcomes. This apparent inconsistency with previous research may be due to the fact that the current study assesses the outcomes associated with sibling support as opposed to assessing sibling closeness. Studies assessing the influence of older siblings on the cognitive abilities of younger siblings have found that participants with older brothers had higher scores on several achievement measures than those with older sisters (Schoonover, 1959). Koch (1954) proposes that a more aggressive, vigorous, and competitive male may challenge a sibling to a greater extent than would a less competitive female. In addition, Cicirelli (1975) suggests that an older brother may promote independence in a younger sibling whereas an older sister may foster a more helpful and dependent relationship with a younger sibling. According to Cicirelli (1975) this phenomenon may be exacerbated with same-sex siblings, accounting for our finding that boys receiving greater support from brothers exhibited higher academic achievement.

Previous research has proposed ethnic differences in sibling support (Avioli, 1989; Hays & Mindel, 1973). Variations in sibling support based on ethnicity have been attributed to differences in familial caretaking responsibilities across cultures (Avioli, 1989; Farver, 1993; Hays & Mindel,

1973; Volk, 1999). Although the current study did not yield significant ethnic differences in support, when examining the outcomes associated with support, an interaction emerged between support and ethnicity. Hispanic-Americans, in particular, appear to benefit from supportive relations with brothers.

Research on Hispanic-American families by Farver (1993) and a qualitative study by Volk (1999) suggests that siblings may serve an important role in the upbringing and teaching of younger siblings. However, the authors in these previous studies failed to find any gender differences in familial responsibilities. As Hispanic-American populations are seldom included in research on sibling support, conclusions regarding this group are necessarily speculative. Further research is necessary in order to gain some insight into the sibling relations of the Hispanic-American population.

As hypothesized, sibling support was found to protect early adolescents from some of the negative academic outcomes associated with ecological risk. This finding complements previous work by Sandler (1980), who reported that the presence of a sibling at home may moderate the effects of stress on economically disadvantaged children. The current study provides support for the buffering hypothesis by revealing a protective effect of sister support with children who are at high risk for a specific negative outcome (Rutter, 1990). The current finding that sister support, rather than brother support, was found to protect siblings in high risk conditions also supports previous studies assessing sibling relations in divorced families, which have detailed the buffering effects of support from sisters (Hetherington, 1989).

Previous studies on the comparability of child-parent and child-sibling relationships have been inconsistent and often contradictory. Several theoretical models have proposed a congruous pattern between child-parent and child-sibling relations (Bandura, 1962; Bryant & Crockenberg, 1980; Seginer, 1998; Teti & Ablard, 1989), while others have argued for a compensatory pattern in the link between parent-child and sibling relationships (Bossard & Boll, 1956). However, studies finding a compensatory pattern of relationships generally investigated this pattern in samples experiencing extreme and adverse conditions, such as children within clinical settings with unavailable parents (Bank & Kahn, 1982), children with depressed mothers (Dunn & Kendrick, 1982), or individuals who have experienced extreme trauma involving parents (Bank, 1992). As the current sample was not drawn from a clinical population, the current finding revealing a congruous pattern between father support and both brother and sister support corresponds with previous results.

There was some evidence of a compensatory effect in the present sample, however. For the segment of the current sample experiencing low mother

support, receiving support from brothers resulted in higher school achievement. Hence, brother support was found to compensate for low mother support in terms of school achievement. Although Stocker (1994) failed to find evidence of sibling compensation, the dissimilarities in the age of the sample between the Stocker study and the current study may account for these different findings.

Of particular interest is that father support, rather than mother support, was associated with sibling support. This finding is consistent with research on the importance of fathers in children's lives (Lamb, 1986) and with the evolving view that relationship models incorporate knowledge of multiple attachment figures (Lewis, 1997). In general, it is evident that the relation between parent-child and sibling interactions is a complex one that appears to be dependent upon many variables and that may function differently at differing developmental stages.

There are some limitations to the present study. First, the study does not solve the direction-of-effects problem. It is probable that individual differences in sibling support lead to differences in adjustment. However, it is also possible that individual differences in adjustment lead to differences in sibling support. Young adolescents who are less well adjusted may have a more difficult time eliciting support from siblings. Additionally, although the present study used a relatively large and ethnically diverse sample of participants, the present results may not generalize beyond the age range included in the study. Furthermore, the sample was drawn from an urban, multiethnic community and comparable results may not be obtained in other contexts. Additional work is needed to assess the generality of the influence of sibling support on adjustment. Finally, it is important to note that the amount of variance in the outcomes accounted for by the support measure utilized in this study was modest. Further work in this area should employ a variety of sibling relationship indices to assess the dynamics of this relationship more specifically and more conclusively.

In sum, our results indicate that sibling support is related to adjustment in early adolescence. Support from siblings also appears to serve as a protective factor, or buffer, against negative academic adjustment associated with ecological risk and to compensate somewhat for low mother support. In addition, the study highlights the importance of examining structural variables as part of the broader interest in sibling relations. Finally, there is some indication from this study that specific trends reported and contradictory views expressed in the literature on sibling relationships may be associated with developmental changes in these relationships (McGuire, Manke, Eftekhari, & Dunn, 2000; Vandell, Minnett, & Santrock, 1987). These developmental issues must be addressed in future research assessing all aspects of sibling relations.

In general, the current study contributes to an important area of psychological inquiry by identifying significant but complex associations between sibling support and emotional and academic adjustment within the early adolescent population. The potential benefits of sibling support warrant a closer examination of the wide-ranging issues involved in research on sibling relations.

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