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Life Events, Sibling Warmth, and Youths' Adjustment

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Abstract

Sibling warmth has been identified as a protective factor from life events, but stressor–support match-mismatch and social domains perspectives suggest that sibling warmth may not efficiently protect youths from all types of life events. We tested whether sibling warmth moderated the association between each of family-wide, youths' personal, and siblings' personal life events and both depressive symptoms and risk-taking behaviors. Participants were 187 youths aged 9–18 ($M = 11.80$ years old, $SD = 2.05$). Multiple regression models revealed that sibling warmth was a protective factor from depressive symptoms for family-wide events, but not for youths' personal and siblings' personal life events. Findings highlight the importance of contextualizing protective functions of sibling warmth by taking into account the domains of stressors and adjustment.

Keywords

adolescence; depressive symptoms; life events; risk-taking behaviors; sibling relationships

Negative life events are typically discrete and short-lived stressors (Swearingen & Cohen, 1985), but they are nevertheless associated with an increased risk for internalizing and externalizing symptoms in some—but not all—youths (e.g., Jackson & Warren, 2000; McLaughlin & Hatzenbuehler, 2009). Indeed, social support, including sibling warmth, tends to reduce the size of the association between life events and maladjustment (e.g., Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Stressor–support match-mismatch (e.g., Cutrona & Russell, 1990) and social domains perspectives (e.g., Smetana & Daddis, 2002) suggest that considering the match between the type of social support and the type of stressor will clarify which sources of social support protect youths most efficiently from which stressors. Recently, typologies of negative life events based on with whom in the family an event originates have been identified as promising for shedding light on risk and resilience processes in families (e.g., Ge, Natsuaki, Neiderhiser, & Reiss, 2009). Our study is the first to consider the match-mismatch between sibling warmth as a source of social support in the face of family-wide, personal, and siblings' personal life events.

Sibling Warmth and the Match-Mismatch with Domains of Life Events

Sibling warmth (e.g., affection, nurturance, emotional support, intimacy) is associated with youths' self-disclosure (Howe, Aquan-Assee, Bukowski, Lehoux, & Rinaldi, 2001) and has the potential to alleviate youths' stress burden during life events (Luthar, Cicchetti & Becker, 2000), reducing their risk for maladjustment (Thoits, 2010). To date, one study of young children has examined sibling warmth as a potential protective–stabilizing factor (i.e., a factor that reduces the strength of the association between a risk factor and maladjustment; Luthar et al., 2000) in the face of negative life events. In this prospective-longitudinal study,

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children whose mothers reported high levels of stress from negative life events and whose older siblings reported low sibling warmth had the most internalizing symptoms. In turn, children with high levels of maternal stress from negative life events and high sibling warmth had relatively fewer internalizing symptoms (Gass, Jenkins, & Dunn, 2007). Several questions regarding sibling warmth as a protective–stabilizing factor remain.

Domains of Life-Events

First, do the protective functions of sibling warmth depend on the domain (or type) of life event? The stressor–support match–mismatch perspective (Cutrona & Russell, 1990) maintains that particular sources of social support are best suited to protect individuals from particular stressors. Social domains theory (e.g., Smetana, Villalobos, Tasopoulos-Chan, Gettman, & Campione-Barr, 2009) further clarifies that social conventions (i.e., agreed-upon norms that influence interactions in different social settings; Smetana & Daddis, 2002), will dictate in whom youths will confide in particular situations. Together, these perspectives suggest that youths will draw on different sources of support depending on the type of stressful situation and that sibling warmth may be protective for some domains of life events, but not others. Here, we draw on a classification of negative life events based on with whom in the family life events originated, an approach that has previously been used for understanding the role of family support in the prediction of depressive symptoms (Ge et al., 2009).

According to this typology, *family-wide events* originate with parents/the whole family (e.g., loss of a grandparent, parental divorce, parental job loss). Sibling warmth may be particularly protective from this domain of life events, because social conventions prescribe that family issues be shared within the family unit only (Smetana & Daddis, 2002). Youths are indeed more likely to discuss family-wide events with a family member than with a friend (Gore & Aseltine, 1995). Parents may, to some extent, help youths cope with stressors (Ge et al., 2009), but family-wide stressors also tax parents' own well-being and their ability to provide supportive parenting (Solantaus, Leinonen, & Punamaki, 2004). Therefore, siblings, who can provide reciprocal support concerning family issues (Tucker, McHale, & Crouter, 2001), may be a good additional source for interpreting and dealing with family-wide events. We expected to find an “optimal match” (Cutrona & Russell, 1990) between sibling warmth and family-wide events (i.e., sibling warmth would be protective in the face of family-wide life events).

Personal events originate with youths and often involve experiences with friends or school or both (e.g., lost close friend, break up with boy- or girlfriend, had to repeat a grade, not being accepted into an important extracurricular activity). Siblings may not be aware of youths' personal events and they may also have too little personal experience with the event to offer effective support (e.g., in the case of a school suspension). Indeed, youths assert increasing control over the personal arena, do not feel obligated to disclose personal issues to family members (e.g., Smetana et al., 2009), and do not view their siblings as having jurisdiction over personal matters (Campione-Barr & Smetana, 2010). Thus, we expected to find a less optimal match between personal events and sibling warmth (i.e., sibling warmth would provide less or no protection in the face of personal events).

Finally, *siblings' personal events* are personal events that originate not with the target child (as just discussed) but with the target's sibling. The family literature has long shown that youths can experience their siblings' personal negative events vicariously (Updegraff & Obeidallah, 1999) and that stressors that happen to family members (e.g., maternal life events, sibling's disability) influence youths' mental health (e.g., Gass et al., 2007; McHale & Pawletko, 1992). Evidence for such a stressor–support mismatch comes from the peer and parent–child literatures. For example, children reporting high stress in supportive friendships

were most maladjusted (Gore & Aseltine, 1995). We expected to find a mismatch between siblings' personal events and sibling warmth as a source of social support, because siblings experiencing an event firsthand are too stressed to provide support. Accordingly, sibling warmth may not be protective or may even be harmful during siblings' personal events.

Domains of Adjustment

A second question regarding sibling warmth as a protective–stabilizing factor is whether the protective effect will also be specific with respect to domains of adjustment. The role of family support during stressful times has been well-established for depressive symptoms (e.g., Sheeber, Hops, & Davis, 2001) but has less consistently been supported for externalizing symptoms, including risk-taking behaviors. Sibling warmth may protect youths from some forms of externalizing behaviors, including risky sexual practices (Kowal & Blinn-Pike, 2004). In their study of younger children, Gass and colleagues (2007) did not, however, identify protective effects of sibling warmth during life events with respect to a broader scale of externalizing symptoms. Further examination of the role of sibling warmth in the stressors–externalizing association is thus needed.

Extension of Findings to Middle Childhood and Adolescence

Finally, does the protective function of sibling warmth during life events (Gass et al., 2007) extend to middle childhood and adolescence? During these developmental periods, sibling relationships become increasingly symmetrical and egalitarian (Kim, McHale, Crouter, & Osgood, 2006) and empathy for others increases (Tucker, Updegraff, McHale, & Crouter, 1999). At the same time, youths spend much of their time away from home (Steinberg & Morris, 2001) and often rely on social support from friends (Urberg, Değirmencioğlu, Tolson, & Halliday-Scher, 1995). Indeed, during adolescence, sibling warmth temporarily declines for many siblings (Kim et al., 2006) and may no longer effectively buffer youths from life events. It is therefore unclear whether sibling warmth would remain an important source of support during life events beyond childhood.

Methodological Considerations

Research indicates that youths' self-reports are the most accurate indicators of their actual experiences. First, siblings' reports of their relationship quality are moderately correlated at best (e.g., Kim et al., 2006), meaning that a sibling's report of sibling warmth may not accurately reflect youths' actual relationship experiences. Second, youths do not necessarily feel obligated to disclose personal events to family members (Smetana et al., 2009). Thus, parents may not be aware of personal and siblings' personal events (e.g., break-up with boy- or girlfriend), or may be unaware of the extent to which a family-wide event (e.g., death of a family pet) has impacted their child. Finally, parents are relatively poor reporters of youths' depressive symptoms and risk-taking behaviors (Barker, Bornstein, Putnick, Hendricks, & Suwalsky, 2007; Kemper, Gerhardstein, Repper, & Kistner, 2003). Thus, despite potential disadvantages of relying on one reporter only, self-reports may nevertheless be more accurate indicators of youths' actual experiences than parental or sibling reports are.

Some of the main variables of interest in this paper (e.g., life events, sibling warmth, and adjustment) have also been associated with youths' gender, age, race, socioeconomic status, and parent–child warmth (e.g., Ge et al., 2009). For example, sibling warmth may vary depending on gender composition (i.e., same-gender versus mixed-gender) and the age gap of the sibling dyad (e.g., Kim et al., 2006). Such confounds that could potentially account for associations among life events, sibling warmth, and adjustment need to be taken into account.

In sum, this investigation draws upon stressor–support match-mismatch and social domains perspectives to examine the role of sibling warmth as a protective factor from different domains of life events. We expected that, accounting for sociodemographic factors and parent–child warmth, sibling warmth would protect youths from depressive symptoms for family-wide, but not for personal or siblings’ personal events. Gass and colleagues (2007) did not find protective effects of sibling warmth for externalizing symptoms; we tested whether this finding would extend to risk-taking behaviors with an older sample of youths.

Method

Recruitment

Participants were drawn from an ongoing longitudinal study of social and emotional development and recruited through child day care centers, the County Health Department, and the local Women, Infants, and Children (WIC) program. One cohort was initially recruited when infants were 6 months of age ($n = 140$; see Calkins, Dedmon, Gill, Lomax, & Johnson, 2002, for more information). Participants for a second cohort were recruited at age 2 ($n = 153$), and were oversampled for externalizing behaviors using maternal reports on the Child Behavior Checklist (CBCL 2–3; Achenbach, 1991) as a screening tool. Equal numbers of boys and girls at risk for future externalizing behaviors (externalizing T-score above 60) were recruited. There were no significant demographic differences between cohorts with regard to gender, race, and socioeconomic status at recruitment. Of the original 293 families, 257 (87.7%) participated in the ongoing larger study at the University of North Carolina at Greensboro in 2008–2010, when we began recruiting the closest-in-age sibling for the present sibling study. At that point, target children (i.e., the children originally enrolled in the study) were 10.5 years old.

In 113 (44.0%) of these families, the target child had at least one biological sibling aged 9–18 years living in the same household; these families were recruited for participation in the sibling study. No other inclusion or exclusion criteria were employed, and 92.0% ($N = 104$) of the families eligible for the sibling study agreed to participate ($N = 208$ target children and their siblings). Families who chose not to participate ($n = 9$; 8.0%) cited difficulty in scheduling a time when both children would be available for participation. Indeed, four additional siblings were eventually unable to participate due to time constraints, but their mothers and target children had already completed data collection, resulting in a sample of 204 target children and their siblings. There were no significant demographic differences between families who did and did not participate in the sibling study with regard to gender and race of the target child or socioeconomic status at initial recruitment. Of mothers, 82% were married, 13% were divorced or separated, and 5% were single.

Two-hundred-and-four youths from 104 families participated in the sibling study, but several subjects could only mail in their surveys (rather than complete them in the laboratory or give them to a trained interviewer during a home visit for the larger ongoing study). Because endorsements of clinically significant adjustment problems could not be immediately followed up by trained clinicians for mailed data, and in accordance with our Institutional Review Board protocol, several of the study’s outcome measures were not administered to these subjects ($n = 17$). Thus, data from $N = 187$ youths were used in this study. There were no significant demographic differences between individuals who mailed in their data versus those who did not with regard to gender, race, or socioeconomic status.

Participants

Target children were all 10.5 years old. Siblings’ ages ranged from 9 to 18 years ($M = 13.09$, $SD = 1.83$). Seventy-seven youths (41.2%) were from same-gender dyads and 110 youths

(58.8%) were from mixed-gender dyads. Target children and siblings were approximately equally divided into boys (49%) and girls (51%). The racial composition of the sample was generally representative of the community from which it was drawn (69.6% of participants were European American, 25.1% African American, 2.1% biracial, and 3.2% “other”). Hollingshead scores were computed using a weighted average of parental education and employment (Hollingshead, 1975), and can range from 8 to 66. In our sample, they ranged from 15 to 66 ($M = 45.31$, $SD = 10.86$), representing families from each level of social strata typically captured by this scale.

Procedures

Consent from mothers and assent from youths were obtained before their participation in the study. The majority of participants completed their questionnaires in our research laboratory; a small minority completed them at home. Participants aged 12 years or younger were read the questionnaires by trained research assistants and privately recorded their answers. Participants aged 12 years or older completed the questionnaires in a private setting, but research assistants were available to answer any questions. Mothers completed separate questionnaires for each child in a private room. Mothers received a \$30 honorarium for their participation in the sibling study, and youths received a small, age-appropriate gift.

Measures

Depressive symptoms were assessed using the Children’s Depression Inventory (CDI; Kovacs, 1992). Youths rated themselves on 26 items (1 item on suicidal ideation was dropped from the original scale) that consisted of three sentences (e.g., 0 = *I am sad once in a while*, 1 = *I am sad many times*, 2 = *I am sad all the time*). Youths were asked to choose the sentence for each item that best described them over the past two weeks. The summed total CDI score was used, with higher scores indicating higher depressive symptoms (siblings’ $\alpha = .84$; target children’s $\alpha = .89$).

Risk-taking behaviors were assessed through youths’ self-reports on the “Things I Do” scale, which is part of the Risky Behavior Questionnaire (Conger & Elder, 1994). The scale consisted of 19 questions assessing youths’ involvement in a range of risk-taking behaviors (e.g., skipping school, fighting, smoking, destroying property). Items were rated on a 3-point scale (e.g., 0 = *never*, 1 = *once or twice*, 2 = *more than two times*). A sum score was used, with higher scores indicating more risk-taking behaviors (siblings’ $\alpha = .77$; target children’s $\alpha = .65$).

Life events were assessed using an adaptation of the Junior High Life Experiences Survey (JHLES) developed by Swearingen and Cohen (1985). This scale has been used in several studies of life events, with excellent test-retest reliability (.96; Cohen, Burt, & Bjorck, 1987). For this investigation, several changes were made to the original JHLES scale. First, events evaluated as desirable in Swearingen and Cohen were removed (e.g., “received academic honors”), because associations between life events and depressive symptoms have most consistently been identified for negative (i.e., undesirable) life events. Second, several additional negative life events that are commonly asked on other life events scales for youths (e.g., Costello, Angold, March, & Fairbank, 1998) and that have been associated with youths’ maladjustment were added (i.e., “lost good friend because of moving,” “parent was arrested,” and “had to live away from home for more than a week even though I did not want to”). Third, family-wide events (i.e., events experienced by the whole family such as “grandparent, aunt, uncle, or cousin died”), youths’ personal events (i.e., events that happened to youths such as “suspended from school”), and a new siblings’ personal events scale (i.e., events that happened to a sibling such as “sibling was suspended from school”) were asked in separate blocks.

Finally, a rating scale was added to assess how stressful the experience of each life event was for youths. These ratings follow a Likert scale, with higher numbers indicating that events were experienced as very stressful (1 = *not bad* to 4 = *very bad*). The family-wide events scale summed the stressfulness ratings for the 17 family-wide life events. The personal events and siblings' personal events scales each contained the same 13 items (but asked about youths' versus siblings' personal events, respectively), and the stressfulness ratings for each of these scales were summed. Gass and colleagues (2007) had focused on maternal ratings of life stress in their study (rather than a count of life events). Here, we also focused on summary scales indicating the stressfulness of each domain of life events.

Sibling warmth was measured through an adaptation of a scale from Blyth, Hill, and Thiel (1982). Specifically, eight items (e.g., "How much do you go to your brother/sister for advice/support?"; "How important is your brother/sister to you?") using a 5-point scale (1 = *not at all* to 5 = *very much*) assessed youths' perceptions of emotional intimacy-warmth-support with siblings. Items were summed with higher scores indicating more sibling warmth (siblings' $\alpha = .85$, target children's $\alpha = .76$).

Gender, age, gender composition of the sibling dyad, age gap of the sibling dyad, race, socioeconomic status and maternal warmth were included as control variables. Mothers reported *maternal warmth* using the Child-Parent Relationship Scale (Pianta, 1994), a 15-item questionnaire (e.g., "I share an affectionate, warm relationship with my child") with a 5-point rating scale (1 = *definitely does not apply* to 5 = *definitely applies*). Items were summed with higher scores indicating more maternal warmth (mothers' report for siblings $\alpha = .82$; mothers' report for target children $\alpha = .78$).

Results

Analytic Strategy

As a first step, descriptive statistics for all study variables were examined. Next, ordinary least squares regression models examined interactions between life events and sibling warmth in the prediction of depressive symptoms and risk-taking behaviors to test for the presence of protective-stabilizing effects. All variables and the two-way interaction term representing the protective effect were entered simultaneously and parallel models were run for family-wide, personal, and siblings' personal events. In total, we ran six regression models, first testing each of the three domains of life events in the prediction of depressive symptoms, and then in the prediction of risk-taking behaviors. Prior to conducting analyses, life events and sibling warmth scores were centered in order to facilitate interpretation and to reduce multicollinearity between the predictor variables (Aiken & West, 1991).

Both siblings' data were included in each analysis (rather than analyzing the data for siblings and target children separately). Specifically, for all analyses, data from both youths in the family were stacked, resulting in an overall $N = 187$. Siblings came from the same family; thus the independence of observations assumption typically made in multiple regression is violated when using the stacked dataset because the data are clustered by family membership. To adjust standard errors for clustering, the SVYREG procedure in Stata (Stata Corporation, 2009) was used. Similar to multilevel models, the SVYREG procedure estimates accurate standard errors for numerous designs that involve correlated data. These standard errors fall between the size of the standard errors when the degrees of freedom are the number of youths and the size of the standard errors when the degrees of freedom are the number of families. After the statistical significance was adjusted for this lack of independence, the results were interpreted as one normally would (Booth, Johnson, Granger, Crouter, & McHale, 2003).

Gass and colleagues (2007) had not found moderation by the gender constellation (or the age gap) of the sibling dyad; therefore data from both genders were analyzed together. Nevertheless, follow-up analyses explored whether sibling warmth x life events interactions were further moderated by gender.

Descriptive Analyses

Table 1 provides means, standard deviations, and correlations for key study variables. The original depressive symptoms and risk-taking behaviors variables were skewed and had high kurtosis values (skewness = 2.35, kurtosis = 8.73; skewness = 2.07, kurtosis = 7.31, for depressive symptoms and risk-taking, respectively). Square-root transformations corrected these violations of normality and all analyses were run using the transformed outcomes (skewness = .54, kurtosis = .85; skewness = -.03, kurtosis = .51, for square-root transformed depressive symptoms and risk-taking, respectively). All three domains of events were correlated with youths' depressive symptoms, and family-wide and personal events were correlated with youths' risk-taking behaviors.

Predicting Youths' Depressive Symptoms

Table 2 reports results from three multiple regression models that predicted depressive symptoms with family-wide, personal, or siblings' personal life events. In Model 1, depressive symptoms were predicted with *family-wide life events* (e.g., loss of a family member, parental divorce). Results showed main effects for sibling warmth and family-wide events, which were further qualified by an interaction between these two variables. Post-hoc analyses were conducted using Preacher's online tool for assessing 2-way interactions (Preacher, Curran, & Bauer, 2006). The regions of significance for the continuous predictor variables were identified at $\alpha = .05$, and then conditional values were placed at 1 *SD* above and 1 *SD* below the mean values of the predictor variables. Simple slopes analyses then determined whether the slope of the plotted simple regression lines were significantly different from zero (Aiken & West, 1991; see Figure 1; note that the original scaling of the CDI is shown here). These follow-up analyses indicated that the slope for youths with high sibling warmth was not significantly different from zero ($b = 0.01$, *ns*), but that the slope for youths with low sibling warmth was significantly different from zero ($b = 0.08$, $p < .001$). Thus, family-wide events were associated with youths' depressive symptoms only in the context of low sibling warmth, and, consistent with our expectations, sibling warmth was a protective–stabilizing factor from family-wide life events.

In Model 2, depressive symptoms were predicted with *personal life events* (e.g., lost close friend; changed schools). Results revealed that although this domain of life events was linked with higher levels of depressive symptoms via a main effect, sibling warmth did not act as a protective–stabilizing factor. Thus, sibling warmth did not reduce the link between personal events and depressive symptoms. In Model 3, depressive symptoms were predicted with *siblings' personal life events* (e.g., sibling lost close friend; sibling changed schools), and results showed that experiencing stressful siblings' personal events was associated with higher levels of depressive symptoms via a main effect. Similar to results for personal events, and consistent with our expectations, a protective–stabilizing effect of sibling warmth in the face of siblings' personal events was not observed.

Predicting Youths' Risk-Taking Behaviors

In Model 1 in Table 3, risk-taking behaviors were predicted with *family-wide life events*. A main effect revealed that youths with more family-wide life events were more likely to be engaged in risk-taking behaviors than youths with fewer family-wide events. But sibling warmth did not protect youths from family-wide events with respect to these externalizing behaviors. In Model 2, risk-taking behaviors were predicted with *personal life events*.

Personal events were positively associated with risk-taking behaviors, but, again, sibling warmth did not play a buffering role with respect to these events. Finally, *siblings' personal events* (Model 3 in Table 3) were not significantly associated with risk-taking behaviors, and the interaction term between siblings' personal events and sibling warmth was nonsignificant.

Taken together, our analyses distinguished among stressor and outcome domains, and showed that sibling warmth protected youths from depressive symptoms in the face of family-wide events, but not from depressive symptoms or risk-taking behaviors in the face of personal and siblings' personal events.

Follow-Up Analyses: The Role of Gender

Follow-up analyses examined whether the protective function of sibling warmth in the face of life events differed for male and female youths. We tested three-way interactions (and the appropriate main effects and two-way interaction terms) between sibling warmth, life events, and gender for each domain of life events in the prediction of each of depressive symptoms and risk-taking behaviors. None of the six three-way interactions tested were significant (results available from the second author upon request), meaning that protective effects of sibling warmth during life events did not differ by gender. These results are consistent with several large-scale studies showing no gender differences in the protective role of social support (Meadows, 2007; Umberson, Chen, House, & Slaten, 1996).

Conclusion

The present study built on stressor–support match-mismatch (e.g., Cutrona & Russell, 1990; Ge et al., 2009) and social domains perspectives (e.g., Smetana & Daddis, 2002), to examine whether the protective function of sibling warmth varies by the domain (or type) of life events in middle childhood and adolescence—developmental periods during which sibling warmth temporarily declines for many siblings and opportunities for support outside the family increase (Kim et al., 2006; Urberg et al., 1995). Our findings show that, consistent with stressor–support match-mismatch and social-domains perspectives, sibling warmth only served as a protective factor for some, but not all types of life events. Sibling warmth was well-matched as a source of social support during family life events with respect to depressive symptoms. Parents should support the development of positive sibling relationships, because warmth from an older or a younger sibling likely decreases youths' overall stress burden when adults in the family are stressed.

Consistent with our expectations, sibling warmth was not protective from personal events. Perhaps youths relied on sources outside of the family when dealing with personal stressors (Gore & Aseltine, 1995). Indeed, research suggests that youths increasingly assert authority over the personal domain, choosing not to disclose personal information to family members (Smetana & Daddis, 2002). Sibling warmth also did not protect youths from maladjustment during siblings' personal events. This study was the first to examine siblings' personal events; they were indeed positively associated with depressive symptoms, and should be considered as a potential risk factor for youths' maladjustment. If youths experience strain from a sibling's negative life events vicariously, the sibling is likely also stressed by his or her current situation, and unable to provide emotional support. Perhaps youths experiencing a sibling's personal events will best cope by engaging another, less-strained sibling or a peer as a source of support.

Consistent with previous work (Gass et al., 2007), sibling warmth was protective–stabilizing with respect to internalizing, but not externalizing (i.e., risk-taking) symptoms. Warm sibling relationships enhance youths' sense of self-esteem and competence (Kim, McHale,

Crouter, & Osgood, 2007), and may thereby ward off negative feelings and cognitions that characterize youths with depression. The role of sibling warmth in the development of risk-taking behaviors may be twofold, however. A warm relationship with a sibling who does not engage in risk-taking behaviors may deter youths from such behaviors during times of stress, but a warm relationship with a risk-taking sibling may enhance youths' involvement in these behaviors (Snyder, Bank, & Burraston, 2005).

Limitations

The present study had several limitations. First, it was cross-sectional; therefore, the word *prediction* was only used in the statistical sense of predicting an outcome in a regression model, not in the longitudinal sense of predicting adjustment over time. Indeed, the current study was not informative regarding direction of effects, and it is not clear whether sibling warmth allows youths to better cope with family-wide stressors or whether well-adjusted youths (e.g., youths with few depressive symptoms) who are low in family-wide life events also tend to report high sibling warmth. Notably, a previous longitudinal investigation of younger children had identified sibling warmth as a protective–stabilizing factor from overall life events over time (e.g., Gass et al., 2007). Nevertheless, our findings should be replicated with longitudinal data during middle childhood and adolescence, and also with different age-ranges.

Second, our sample was moderate in size. It may be that in a larger sample, with greater statistical power, we would have detected significant interactions that were not observed here. But this appears unlikely given the low magnitude of the nonsignificant interaction coefficients. Third, part of the sample was selected for their risk for developing externalizing symptoms, limiting the generalizability of our study. Nevertheless, as discussed above, our overall findings were consistent with that of a study that did not select for risk for externalizing symptoms (Gass et al., 2007). Fourth, only the closest-in-age sibling was recruited for the present study because youths likely spend significant amounts of time with that sibling. It may be, however, that youths have a special relationship with a much older or a younger sibling that protects them from personal events or makes them vulnerable to siblings' personal events. Or, it could be that having a warm relationship with multiple siblings has a cumulative effect, and that youths with multiple warm sibling relationships are best protected from maladjustment when facing life events. Fifth, our analyses adjusted for within-family dependence of observations statistically, but future analyses could explicitly model the shared family background of siblings. Finally, the present study did not examine the processes through which sibling warmth impacts youths' adjustment during life events. A next step is to determine which aspects of sibling warmth account for the associations found here.

Despite these limitations, considering the stressor–support match-mismatch between domains of life events and sibling warmth results in a more nuanced picture of risk and resilience during life events. Although sibling warmth temporarily declines for many adolescents (Kim et al., 2006), it was nevertheless protective for youths experiencing family-wide events. Sibling warmth was not an optimal match for social support with respect to personal and siblings' personal events and with respect to risk-taking behaviors. Parents and mental health professionals should use the sibling relationship in nuanced and strategic ways to benefit youths during life events. Future research should examine specific mechanisms for how positive sibling relationship qualities act to protect youths from depressive symptoms from family-wide events, and whether there are other domains of stressors for which sibling warmth could be particularly protective.

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Figure 1.
Interaction Between Sibling Warmth and Family-Wide Life Events in Predicting Youths' Depressive Symptoms.

* $p < .05$

Table 1
Youths' Reports of Sibling Warmth, Life Events, Depressive Symptoms, and Risk-Taking Behaviors: Descriptive Statistics and Correlations (N = 187)

Variable	M	SD	Range	1	2	3	4	5
Sibling warmth	24.79	5.59	11–40	—				
Family-wide events	4.82	5.36	0–32	–0.13	—			
Personal events	3.31	3.63	0–24	–0.14*	0.46**	—		
Sibling personal events	2.35	2.89	0–20	–0.10	0.49**	0.38**	—	
Depressive symptoms ^a	2.38	1.19	0–6.71	–0.19**	0.38**	0.45**	0.26**	—
Risk-taking behaviors ^a	1.47	0.80	0–4.24	–0.12	0.30**	0.27**	0.12	0.28**

Note.

^a Square-root transformed values of the variable were used.

* $p < .05$

** $p < .01$

Table 2
Summary of Multiple Regression Analyses Predicting Youths' Depressive Symptoms (N = 187)

Predictors	Model 1			Model 2			Model 3		
	Family-Wide Events as Predictor			Personal Events as Predictor			Sibling Personal Events as Predictor		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Gender (1 = boy)	-.19	.16	-.08	-.08	.16	-.04	-.17	.17	-.08
Age	.04	.04	.15	.02	.04	.08	.05	.04	.18
Mixed gender dyad	.07	.17	.02	.00	.16	-.01	.10	.16	.02
Age gap	-.09	.04	-.14*	-.06	.04	-.10	-.07	.05	-.16
Race	-.09	.12	-.03	-.12	.11	-.05	-.11	.13	-.05
SES	-.01	.01	-.09	-.02	.01	-.15**	-.01	.01	-.10
Maternal warmth	-.03	.02	-.14	-.03	.02	-.13	-.04	.02	-.15*
Sibling warmth	-.04	.02	-.16*	-.03	.02	-.14	-.03	.02	-.16
Life events	.05	.02	.20**	.13	.02	.39**	.10	.05	.23*
SW x LE	-.01	.00	-.18*	—	—	—	—	—	—
<i>R</i> ²	.23**			.27**			.17**		
<i>F</i>	5.50			6.92			4.40		

Note. SW = sibling warmth; LE = life events.

* $p < .05$

** $p < .01$

Table 3
Summary of Multiple Regression Analyses Predicting Youths' Risk-Taking Behaviors (N = 187)

Predictors	Model 1			Model 2			Model 3		
	Family-Wide Events as Predictor			Personal Events as Predictor			Sibling Personal Events as Predictor		
	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β	<i>b</i>	<i>SE</i>	β
Gender (1 = boy)	.33	.10	.22**	.36	.10	.24**	.33	.11	.22*
Age	.13	.03	.33**	.12	.03	.30**	.13	.03	.36**
Mixed gender dyad	-.02	.12	-.01	-.06	.11	-.04	-.03	.12	-.02
Age gap	.01	.03	.03	.02	.03	.04	.01	.03	.01
Race	.14	.08	.12	.13	.07	.12	.14	.08	.13
SES	-.01	.01	-.08	-.01	.01	-.11	-.01	.01	-.09
Maternal warmth	.01	.01	.06	.01	.01	.07	.01	.01	.04
Sibling warmth	-.01	.01	-.08	-.01	.01	-.07	-.01	.01	-.09
Life events	.03	.01	.20*	.05	.02	.23**	.03	.02	.11
SW x LE	—	—	—	—	—	—	—	—	—
<i>R</i> ²		.23**			.24**			.21**	
<i>F</i>		4.87			5.01			4.51	

Note. SW = sibling warmth; LE = life events.

* $p < .05$

** $p < .01$